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# 2 CBRNE



April 2023

*Dedicated to Global  
First Responders*

# DIARY

**PART A**

**Giga CBRNE challenges  
in giga GCC projects**



# C<sup>2</sup>BRNE DIARY- 2022<sup>©</sup>

April 2023

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## Editor-in-Chief

**BrigGEN (ret.) Ioannis Galatas MD, MSc, MC (Army)**

**Ph.D. cand**

Consultant in Allergy & Clinical Immunology

Medical/Hospital CBRNE Planner & Instructor

Senior Asymmetric Threats Analyst

Manager, CBRN Knowledge Center @ International CBRNE Institute (BE)

Athens, Greece

➔ Contact e-mail: [igalatas@yahoo.com](mailto:igalatas@yahoo.com)

## Editorial Team

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- **Tarlow Peter, Ph.D. Sociol (USA)**

## International CBRNE Institute

Rue des Vignes, 2  
B5060 SAMBREVILLE (Tamines)  
BELGIUM

Email: [info@ici-belgium.be](mailto:info@ici-belgium.be)

Web: [www.ici-belgium.be](http://www.ici-belgium.be)

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*Topics that attracted attention!*

# **EDITOR'S CORNER**



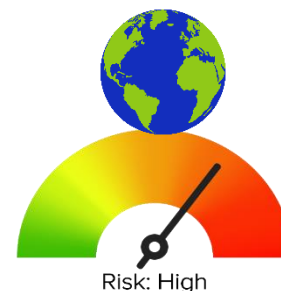


### Editorial

Brig Gen (ret.) Ioannis Galatas, MD, MSc, MC (Army)

*Editor-in-Chief*  
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Dear Colleagues,

The situation remains the same: proxy war – pandemic – global stupidity.

**CBRN challenges:** It is very interesting to read that both Saudi Arabia and the UAE are investing in giga/mega architectural projects for the “*after the oil*” period. These constructions might face unique CBRN challenges that currently nobody is interested in considering that the state will take care of them. But this assumption is very far away from the nature of the new projects and their peculiarities. In this issue of the “C<sup>2</sup>BRNE Diary,” there are three articles related to such challenges without many details for obvious security reasons. It would be great and equally unique for both the architect/civil engineer community to sit together with the CBRN community to find unique solutions to asymmetric threats that new communities might face in the future. In the same context, the (new fashion) [15-minute-cities](#) might face similar challenges that need to be addressed in advance.

**Artificial intelligence:** Scientific world is starting to realize that AI is not as human-oriented as they thought. You cannot survive by creating something much smarter than you. But you cannot blame circuits and databases. Only programmers who lack morality and ethos. They are the main problem and those that will create problems for others in the near future.

**NATO – Turkey:** No F-16? No Sweden! Is it blackmail or what? NATOchickens!

**War in Europe:** In the US, there are growing voices calling for the country's foreign policy to move away from endless and dynamic diplomacy. [Jeffrey Sachs](#), director of the Earth Institute of Columbia University and Economic Adviser to the Kremlin from 1990 to 1993, said: “Along with sanctions, we need a diplomatic route. Peace negotiations are possible, based on Ukraine's independence and its exclusion from NATO membership. The big mistake of the Americans is to think that NATO will defeat Russia, typical American arrogance and myopia. It's hard to understand what “defeat Russia” means, given that Putin is so powerful. American politicians have a death wish. I know my country well. The President is ready to fight using every last Ukrainian. It would be much better to make peace than to destroy Ukraine in the name of Putin's “defeat”. The United States never showed a sign of compromise, either before the war broke out or after.’ Whenever the logic of this approach is pointed out, there will be detractors, working in favor of the central narrative. According to the propaganda, it is worth sacrificing everyone, the entire Ukrainian nation, breaking up Europe economically, politically as a collateral but such an important loss, as long as you hurt Russian power, maintain historical irreconcilability with the “expansionist” Kremlin, and not commit the sin of “appeasement”. How many more lives will be lost in a war the West can't win and knowingly caused? How many more children will be sacrificed in geopolitical pursuits? When will people wake up from their propaganda coma to realize that there is extreme manipulation to support a proxy war that apart from the drama of the Ukrainian people, is impoverishing millions of Europeans while threatening everyone's lives? This question must be





raised by the people to their leaders demanding an answer along with an immediate end to a pointless war. But let's not forget, for some, war is a profitable business...

**Terrorism – Greece:** The National Intelligence Service and the Anti-Terrorism Service proceeded to dismantle a terrorist group of foreigners who had come to the country illegally and were preparing attacks on Israeli targets in Greece. Behind the dislocated network of foreigners is hidden the new model of Islamic terrorism in which Pakistanis living in various European cities are recruited by their compatriots - executives of paramilitary organizations living in Iran and with the lure of money, carry out terrorist attacks. For each dead person, the two Pakistani perpetrators would receive 15,000 euros from the Pakistani mastermind of the terrorist network. Many questions need to be answered though.



**Taiwan:** Sending US troops to Taiwan is “on the table” (Rep. [Michael McCaul](#), TX). No more proxy wars? Only US soldiers' blood to prove who is mightier?

**Syria:** A historic announcement was jointly issued by the foreign ministries of Saudi Arabia and Syria, in which it is stated that the "necessary measures" were discussed to end the Syrian crisis and to end the presence of armed militias and foreign interventions in the internal affairs of Syria! Of course, this announcement is also a "bell ringer" for the US, which controls the Syrian oil fields of Deir Ezzor, as a result of which Syria is deprived of its own oil production. There is also a Russian military presence, but this has been officially requested by the Syrian government and the Russian force is acting in coordination with Damascus.

**WHO:** Pharaoh Ramses V – smallpox – [World Health Organization](#) “zero draft” – vaccination: what is going on?

**US National Security:** Many questions are raised by the news that a 21-year-old managed to leak classified US documents about the war in Ukraine with relative ease. As reported by the New York Times, a 21-year-old National Guardsman is the head of Thug Shaker Central, an online group of 20-30 people who shared their love of guns and video games, which allegedly leaked the secret documents, which have caused a headache in the US.

**New war front:** Civil war/coup in Sudan with possible involvement of Egypt. The stupidity virus expands globally!

**Quiz:** What do Russia, Africa, and potash (potassium) have in common?

Dear First Responders, pray for peace but prepare for a global war to avoid unpleasant surprises!

*The Editor-in-Chief*

**“WAR MEANS BLIND OBEDIENCE, UNTHINKING STUPIDITY, BRUTISH CALLOUSNESS, WANTON DESTRUCTION, AND IRRESPONSIBLE MURDER.”**

**ALEXANDER BERKMAN**







## Bild for immigration: Greece, Cyprus, Germany, and Austria bear the greatest burden

Source: <https://newsbulletin247.com/world/295539.html>



**EDITOR'S COMMENT:** EU countries are supposed to have legislation for those endangering the lives of children or fetuses. Why does law not apply to illegal immigrants as well?

Mar 24 – **Greece, Cyprus, Germany and Austria** bear a disproportionate – in relation to their population – burden when it comes to hosting asylum seekers, according to a confidential document published by the BILD newspaper. As the list shows, **Greece accepts 6.81%** while, according to the “fair distribution” within the European Union, it accounts for 1.9%, while Cyprus receives 1.36% even though it would account for only 0.18%. **At the top of the list is Germany**, which accepts 35.42% of all applicants, although it accounts for 22.05%. **Austria undertakes 4.85%**, while it should be limited to 2.46%. The German newspaper also claims that, according to its information, the Netherlands, which receives 0.64% while it would receive 1.64%, is seeking to apply a distribution rule based not on the population of each country, but on its economic power. However, one of the most glaring examples concerns Poland, which accepts 0.86% of all applications, although it should – based on the population criterion – accept 6.25%.

BILD still hosts statements of the Minister of Immigration Policy Notis Mitarakis, who points out that “in the first months of 2023, arrivals increased by 177% compared to the previous year, while if you look at the numbers of new immigrants from January 2022 to January 2023 the situation is even more dramatic, with an increase of 278%”. Mr. Mitarakis is also asking, the newspaper reports, for comprehensive assistance from the EU, especially in the region affected by the earthquakes in Turkey, in order to prevent even greater migratory pressure from that region.

## Nima Gholan Ali Pour on Sweden's Crisis of Unchecked Immigration

By Marilyn Stern

Source [+video]: <https://www.meforum.org/64269/nima-gholan-ali-pour-on-sweden-crisis>

Mar 17 – Nima Gholam Ali Pour, an Iranian-born member of the Sweden Democrats (SD) party who represents the municipality of Malmö in the Swedish Parliament (Riksdag), is co-founder of the [Perspective on Israel](#) organization and author of two Swedish books on the subject of immigration: [Why Multiculturalism is Oppression](#) and [Allah Does Not Decide in Sweden](#). Pour spoke to a March 17<sup>th</sup> Middle East Forum Webinar ([video](#)) in an interview with Benjamin Baird, director of [MEF Action](#), the Forum's grassroots advocacy initiative, about





the Swedish government's failed immigration policy and the Sweden Democrats' proposal to change it. The following is a summary of his comments:

The Sweden to which Gholam Ali Pour and his family immigrated in 1987 after fleeing political persecution in Iran differs markedly from today's nation. Whereas previously the native Swedish population had a "positive attitude" towards the migrants, the current critical attitude is due to the prevalence of culturally and ethnically segregated areas, populated by immigrants, that are violent and crime-ridden. Frequent muggings, gang violence, shootings, and even exploding bombs are a result of failed liberal migration policies



that have injured many innocent bystanders.

Politicians exacerbated the problem by encouraging multiculturalism while ignoring the escalating social and cultural problems, many of which are connected to unemployment. A notable byproduct of the policy failures that now dominate public life in Sweden is the spread of Islamization. Promoted by the "leftist establishment" narrative that "Islam is part of the Swedish cultural heritage," multiculturalists ignore the fact that there was no mosque in Sweden prior to 1976. Challenging these falsehoods earns you the left's denunciation and being labeled a "racist or [an] Islamophobe."

Many Swedes understand that Islam is a foreign religion, so they are puzzled as to why state agencies in many municipalities provide funds to Islamic organizations to celebrate Islamic holidays. These organizations network with political parties in Sweden that in turn boost their political influence. The SD's influence has increased because of its focus on the migration crisis, which other parties ignore. For example, the SD addresses the problem of "honor violence," the existence of which other parties deny. The SD has evolved from being an "anti-establishment party" to a pragmatic establishment party supported by ethnic Swedes as well as migrants. Those migrants who have integrated into society and hold down steady jobs are "upset about the liberal migration policy and how it has affected their lives." SD supporters are upset that migrants arriving in Sweden "get citizenship and then go on welfare."

Along with three other government parties, the SD negotiated the [Tidö](#)

[Agreement](#), which proposes to strengthen border controls and restrict illegal immigration. It is designed to affect the municipalities and the different organizations that provide economic support for the illegal migrants who remain in Sweden. Thus, it stipulates that these entities can report illegal immigrants to the police so that they can be forced to leave Sweden. In policing, there are "[special] challenge areas" in the Muslim majority neighborhoods where the police are "instructed to go en masse" to tackle crime. Under the agreement, asylum seekers must remain in a transit center for processing, and if asylum is denied, the migrant will be deported. Foreigners can also be deported for "bad behavior" to make Sweden safer since some asylum seekers commit crimes. Foreigners who receive permits to stay in Sweden will have to qualify for the Swedish welfare system in order to receive benefits. There will be a set period during which the foreigner will have to "work and pay taxes," because many asylum seekers are actually "economic migrants." This policy will cut the number of such migrants. **A migrant can currently become a Swedish citizen after five years, or eight years without proof of identity.** The Tidö Agreement increases the five-year term to eight, and foreigners will be required to learn about Swedish society and learn the Swedish language. Although the agreement is designed to reduce the flow of migrants, Sweden has "bigger problems" because many people have become citizens, but "they're not a part of the Swedish society." Solving this problem requires a more "effective integration policy." Yet, the





country's challenges by the situation in Malmö, where instead of speaking Swedish, "90 percent of the students in our elementary school talk Arabic with each other." **The waves of immigration cannot continue without damaging Sweden's national identity and values.** For some areas in Sweden, it is too late to reverse the damage because of the difficulty of integrating an entire Islamic community. An example is a mall in Gothenburg, where sales of Arabic literature and items geared towards the Middle East proliferate. If the current Muslim migration policy remains, "in five to ten years it will be too late."

Native Swedes want to restrict legal immigration because of the problems the current policy has created. If legal migration does not affect "the national identity" of Sweden and will not increase crime, people will support it. On the other hand, the current policy where "legal immigration ... is too liberal" brings "crime and social problems" that have made the Social Democrat's proposals prominent. "And if the Muslim immigration continues, Sweden's national identity will be extremely changed. And that's going on right now."

Marilyn Stern is communications coordinator at the Middle East Forum.

**EDITOR'S COMMENT:** Too much civilized behavior and multiculturalism seriously harms national security and identity.

## The Afghans I Trained Are Fighting for Putin in Ukraine

By Thomas Kasza

Source: <https://www.nytimes.com/2023/01/24/opinion/afghanistan-ukraine-putin-special-forces.html>



New Afghan Army special forces members attend their graduation ceremony after a three-month training programme in Kabul, Afghanistan, Saturday, July 17, 2021 – Rahmat Gul/2021 The AP.

Jan 24 – I am an American Special Forces soldier, a volunteer knowing well the hazards of this profession in which I've served quietly for 14 years. And I helped build Vladimir Putin's foreign legion. Green Berets — the "Horse Soldiers" who toppled the Taliban in 2001 — are not Army Rangers or Navy SEALs. We specialize in training and fighting alongside indigenous forces, and our greatest strength is the trust and camaraderie we develop with our counterparts. For years, the Green Berets and the commandos of the Afghan National Army were a bulwark against the Taliban. It was a partnership forged at immense cost in American and Afghan lives. Since the precipitous departure from Afghanistan in 2021, and in the absence of meaningful government support to the nonprofit organizations that have worked to aid our former allies,



many of those highly trained commandos have accepted recruitment offers to [fight with the Russian Army](#) in Ukraine. For the [20,000 to 30,000](#) men who we trained, a steady salary and the promise of shelter from the Taliban is often too good of a deal to pass up — even if the cost is returning to combat.

As the new Congress prepares to investigate the withdrawal and how it went so disastrously wrong, it should examine not only the lead-up to those dramatic days in August 2021 when the Taliban swept into Kabul, but also what happened — and is currently happening — in the wake of their victory. How those who safeguarded American troops are actively hunted. How they've suffered under the Taliban. How our government turned a blind eye. How Afghans were forced to pay nearly \$600 per person to apply for humanitarian parole, while Ukrainians had the fee waived.

Following the gross malfeasance of the withdrawal, I didn't think that there were more red lines to cross, any further moral injury that could be inflicted on those of us who served or worked to save our allies. Yet, with this soul-sickening revelation that our closest partners will now bleed for Russia, here we are. Again.

We should have seen it coming. We abandoned our closest partners wholesale: What choice were the commandos left with? Those left behind are suffering destitution, famine and persecution from the Taliban.

Mr. Putin, suspect though his promises may be, provides hope. If they fight for Russia, their families might live under better conditions, they might earn the [\\$1,500 recruitment incentive](#) and they might earn Russian citizenship. The irony is that those who head to the front lines in the Donbas will be shredded by the very same American-built weapons that once supported them in battle.

I cannot blame those Afghan commandos who fight for Russia; to do so would deny them agency in their own survival.

And it was a deft and cunning move from Mr. Putin, who increases the lethality of his frontline soldiers without risking Russian lives. These soldiers are not amateurs, conscripts or convicts. This is a battle-tested special operations force, trained by America's best. They might not tip the scales of Russia's war, but they are competent. Ukrainians will die by their hands.

The Taliban must also be rejoicing. The most dangerous core for a resistance movement is fleeing the country.

Meanwhile, our national shame is perpetuated and a generation of Special Forces is saddled with mitigating the damage from America's previous conflict while their task of winning the trust of allies — present and future — is made more difficult and more dangerous.

Compounding the tragedy is the fact that there is an army of volunteers, grass-roots organizations and [boutique nonprofits](#) (including one that I founded) champing at the bit to help. Yet we are stymied at every turn by cowardice, political dysfunction and a lack of resources.

In July, during a video conference with members of the various nongovernmental organizations, Secretary of State Antony Blinken voiced his gratitude toward these groups, acknowledging our assumption of the State Department's responsibilities, and expressing that "We need you to continue to do so." Why though? Why is it incumbent on American civilians, veterans and active service members to dedicate our own time and resources to rebuild our nation's honor?

The private refugee sponsorship initiative known as the Welcome Corps, touted by Secretary Blinken as the ["the boldest innovation](#) in refugee resettlement in four decades," is a missed opportunity. At the very earliest, by-name sponsorship will not take effect for Afghans until at least [mid-2023](#), effectively dooming hundreds who could be saved with immediate, decisive action. Aid at an indeterminate point in 2023 is not good enough. They need it now. If our leaders intend to wash their hands of Afghanistan, they should support the nongovernmental organizations that have stepped up to do their job for them.

I don't know if our efforts in Afghanistan were in vain, and the memory of a fallen brother in arms complicates that question. I see the improvements to infrastructure, the generation of women and girls who received an education. But the motto of the Green Berets is "De Oppresso Liber" — "To Free the Oppressed." The country we bled for to keep free is gone, and the very weapon we created to keep oppression at bay has been co-opted by tyranny.

Deploying to Afghanistan was easy. Trying to hold a government-size moral failing at bay feels like running a relay with no one reaching to receive the baton. Our morality has been taken for granted and we are tired. Tired of swallowing our anger. Tired of an endless moral injury. Tired of the red lines and red tape.

I can only imagine the betrayal our Afghan counterparts must feel.

I have little more to give. I've sacrificed finances, career opportunities and medical school aspirations. Relationships and my well-being have borne the brunt of it. I don't begrudge those who carry on with life as usual, though I sometimes feel disconnected from them. To keep myself in equilibrium, I often feel as though I must put on a mask to hide the shame, humiliation and rage.

Tremendous advances in military medicine have been made during 20 years of war, but there is no coverage offered for a battered conscience. If I want help from the Department of Veterans Affairs, I lie. I lie and say this impotent, lonesome anger bloomed from a tunnel outside Kandahar where some Taliban fighters thought they were safe from the explosives I carried.





I'll look to the healing of my own moral wounds as best as I am able. I hope that Congress in turn can lead, and help our nation start healing in its own right by honoring the promises we made to those who went into combat on our behalf.

It is the very least we can do because if we don't offer our allies hope and meaningful action, someone like Vladimir Putin will.

**Mr. Kasza** served in Iraq and Afghanistan. He is now in the National Guard and founded the 1208 Foundation, which provides humanitarian aid and immigration advocacy to Afghans who served with American Special Forces.

## Dubai celebrates Greek National Day (March 25)

The day that the revolution against the Ottoman Empire started and successfully concluded.



## Case 1: Agatha Christie's Poirot, Miss Marple Classic Mysteries Rewritten For Modern Sensitivities

Source: <https://finance.yahoo.com/news/agatha-christie-poirot-miss-marple-104948579.html>



Mar 26 – Agatha Christie is the latest bestselling novelist to get the rewriting treatment for 2023 readers, according to a British newspaper.



The bestselling novelist in the world, Christie created enduring popular sleuths Hercule Poirot and Miss Marple, and the Daily Telegraph reports that new editions of both these series have had original passages amended or removed by publisher Harper Collins.

The Telegraph states that digital versions of new editions of the books written between 1920 and 1976 (the year of Christie's death) include text stripped of "descriptions, insults or references to ethnicity, particularly for characters Christie's protagonists encounter outside the UK."

For example, in the book *Death on the Nile* – published in 1937 and recently remade for the big screen by Kenneth Branagh – references to "Nubian people" have been removed, as have several references to non-British characters' physiques. The word "local" replaces "native". A line in Christie's debut novel *The Mysterious Affair at Styles* which has Poirot commenting on a character being "a Jew"



has gone. And Christie's narration and sections of dialogue uttered by unsympathetic characters have also been cut, according to the newspaper.

**These changes come after similar recent treatment of books by Roald Dahl and Ian Fleming, who created James Bond.**

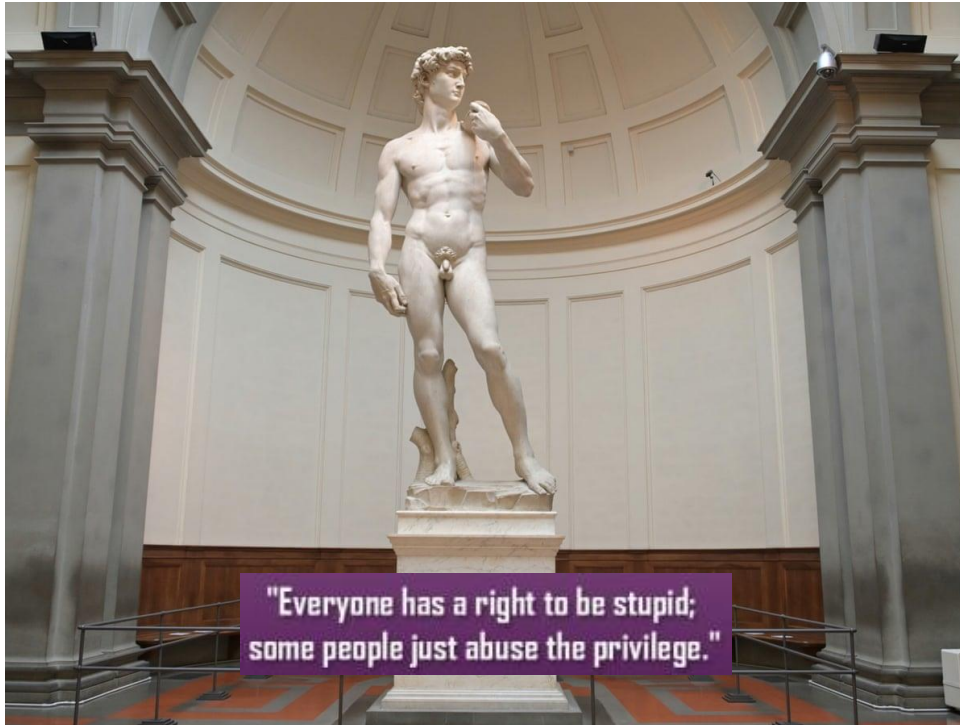
Such was the backlash in February when publishers Puffin announced they would be removing words deemed offensive in 2023 from Dahl's books for children, that the publisher confirmed they would release two versions – one amended and one unchanged.

## Case 2: Is the David porn? Come see, Italians tell Florida parents

Source: <https://apnews.com/article/italy-michelangelo-hillsdale-florida-florence-david-56d2977c3fcee02f475f9d4d0be3d9>



Mar 27 — The Florence museum housing Michelangelo's Renaissance masterpiece the David on Sunday invited parents and students from a Florida charter school to visit after complaints about a lesson featuring the statue forced the principal to resign.



Florence Mayor Dario Nardella also tweeted an invitation for the principal to visit so he can personally honor her. Confusing art with pornography was "ridiculous," Nardella said.

The [board of the Tallahassee Classical School](#) pressured Principal Hope Carrasquilla to resign last week after an image of the David was shown to a sixth-grade art class. The school has a policy requiring parents to be notified in advance about "controversial" topics being taught.

The incredulous Italian response highlighted how the U.S. culture wars are often perceived in Europe, where despite a rise in right-wing sentiment and governance, the Renaissance and its masterpieces, even its naked ones, are generally free of controversy. Sunday's front page of the Italian daily publication *Corriere della Sera*

featured a cartoon by its leading satirist depicting David with his genitals covered by an image of Uncle Sam and the word "Shame." Carrasquilla believes the board targeted her after three parents complained about a lesson including a photo of the David, a 5-meter tall (17 foot) nude marble sculpture dating from 1504. The work, reflecting the height of the Italian Renaissance, depicts the Biblical David going to fight Goliath armed only with his faith in God.

Carrasquilla has said two parents complained because they weren't notified in advance that a nude would be shown, while a third called the iconic statue pornographic.

Carrasquilla said in a phone interview Sunday that she is "very honored" by the invitations to Italy and she may accept.

"I am totally, like, wow," Carrasquilla said. "I've been to Florence before and have seen the David up close and in person, but I would love to go and be a guest of the mayor."

Cecilie Hollberg, director of the Galleria dell'Accademia, where the David resides, expressed astonishment at the controversy.

"To think that David could be pornographic means truly not understanding the contents of the Bible, not understanding Western culture and not understanding Renaissance art," Hollberg said in a telephone interview.

She invited the principal, school board, parents and student body to view the "purity" of the statue.

Tallahassee Classical is a charter school. While it is taxpayer-funded and tuition-free, it operates almost entirely independently of the local school district and is sought out by parents seeking an alternative to the public school curriculum.

About 400 students from kindergarten through 12th grade attend the three-year-old institution, which is now on its third principal. It follows a curriculum designed by [Hillsdale College](#), a conservative Christian school in Michigan frequently consulted by Florida Gov. Ron DeSantis on [educational issues](#).





Barney Bishop, chairman of Tallahassee Classical's school board, has told reporters that while the photo of the statue played a part in Carrasquilla's ouster, it wasn't the only factor. He has declined to elaborate, while defending the decision.

"Parents are entitled to know anytime their child is being taught a controversial topic and picture," Bishop said in an interview with Slate online magazine.

Several parents and teachers plan to protest Carrasquilla's exit at Monday night's school board meeting, but Carrasquilla said she isn't sure she would take the job back even if it were offered.

"There's been such controversy and such upheaval," she said. "I would really have to consider, 'Is this truly what is best?'"

Marla Stone, head of humanities studies at the American Academy in Rome, said the Florida incident was another episode in escalating U.S. culture wars and questioned how the statue could be considered so controversial as to warrant a prior warning.

"What we have here is a moral crusade against the body, sexuality, and gender expression and an ignorance of history," Stone said in an email. "The incident is about fear, fear of beauty, of difference, and of the possibilities embedded in art."

Michelangelo Buonarroti sculpted the David between 1501-1504 after being commissioned by the Cathedral of Florence. The statue is the showpiece of the Accademia, and helps draw 1.7 million visitors each year to the museum.

"It is incredibly sought-after by Americans who want to do selfies and enjoy the beauty of this statue," Director Hollberg said.

The museum, like many in Europe, is free for student groups. There was no indication that any trip would be subsidized by the city or museum.

## Quiz

**Do you know what Afghanistan, Angola, Democratic Republic of the Congo, East Timor, Guatemala, Indonesia, Pakistan, and Sudan have in common? Read the answer [here!](#)**



## Shocking Report Reveals Elite Pedophiles Are Flocking To Ukraine To Purchase Child Sex Slaves For \$150,000

Source: <https://en-volve.com/2022/05/12/shocking-report-reveals-elite-pedophiles-are-flocking-to-ukraine-to-purchase-child-sex-slaves-for-150000/>

2022 – Ukrainian infants and small children are being kidnapped and sold at the Ukraine-Poland border, where elite pedophiles are paying up to \$150,000 for their own demented enjoyment.

“This is just a sweet shop for them at the moment,” says Dean, a former British soldier who is astonished at the world of elite pedophilia he has encountered. Dean now works for MitMark, a private risk consulting firm that ‘fell into’ human trafficking prevention after coming near the Medyka crossing in Poland for crisis management projects.

“You wouldn’t think that any human could do that to another human,” he said. “It’s beyond terrorism. I’ve fought against terrorism most of my adult life but at least they believe in something. Traffickers are motivated solely by greed and money. They have no concept of life.”

Byline Times [reports](#): The going rate for a baby or very young child – either to be sold into sexual slavery or killed and harvested for organs – is around **USD \$150,000**.

### Exploiting a Crisis

Since the Russian invasion of Ukraine began on 24 February, around [5.5 million Ukrainians have fled abroad](#). The vast majority of them are women and children, as men aged 18 to 60 are forbidden from leaving the country under emergency laws. The journeys are arduous, often spanning thousands of miles and several days, and often preceded by weeks lived under Russian bombardment and occupation. Those who arrive abroad are exhausted and overwhelmed by the help on offer on the Polish side of the border from the huge volunteer movement that has mobilized. Here, they feel that they can relax and finally let their guard down a little. But the best camouflage for a human trafficker is the kindness of others. “We had one Italian guy who pretended to be a volunteer who took a whole family of women and kids, seven people I think, and told them he would drive them to Italy,” said a volunteer who wished to remain anonymous.

“He drove them to Italy then in the middle of nowhere he told them to get out. They got out and he drove away. I think that maybe he was told on the phone that the police were onto him and he just got rid of them. He also took another woman and kid and we still don’t know where they are.” No one knows how many people have been trafficked since the Russian invasion began, only that it is happening and it is organized on a professional level.

“Most trafficking in Poland happens through organized crime networks in the central European region and it was a problem long before the refugee crisis itself,” says Allison Byrd, special projects coordinator at [anti-trafficking charity Unbound](#).

“It’s helpful to remember this is a situation of supply and demand. So where demand is high, we know the supply is going to reach that. And sadly I’ve heard reports from some of our partners that searches online for Ukrainian women have skyrocketed. So traffickers are highly motivated financially to meet that demand.”

On the ground at border crossings, gang lookouts – or ‘dickers’ – prowl the area, taking photos of women and children which they send to the higher-ups who then decide if they are suitable for trafficking. It is these dickers that Dean and his colleagues are on the lookout for. “It’s not difficult, to be honest, because if you’re a male between the age of 19 and 65 and you’ve not got documentation to say you can’t fight, and you’re not Polish, then what are you doing there and lurking about?” says Dean.

He points to a photo on his phone of a Caucasian male. “We’ve got eight of these on file,” he explains. “This guy I saw on the other side of the border four days ago. Look at him – he’s 40-years-old and doesn’t look unfit. What’s he doing there? He’s not scruffy, has a fresh haircut and he’s talking to young people with kids.”

Facial recognition technology can also help to detect in real-time people known to work with criminal gangs, something that has been deployed by Unbound to good effect. After spotting a woman claiming to be a volunteer but offering to pay refugees to carry bags over the border for her in exchange for a lift to Warsaw, a team member discreetly photographed her and sent it to a colleague in the US. “He ran the photo and he confirmed that this person is connected to people who are not good people,” says Byrd.

The surveillance undertaken by MitMark and Unbound has proven effective, with Dean’s colleagues managing to intervene in two cases where people were about to be trafficked.

Speaking of one of these interceptions, he said: “We stopped this, the guys went in there, got the lady and two young children into a safe haven where there’s a crisis management team. We tried to grab the guy

You know whose  
lives don't matter?

Pedophiles





but he'd bolted. We gave the surveillance we'd collected on him from previous days to the Polish police but they didn't really want to know."

The incident highlights one of the main issues facing those trying to combat trafficking – the reported reluctance of authorities at the border to do anything more than the bare minimum of keeping the area calm and quiet.

"I'm from Kyiv and I arrived in Krakow train station on the 5 March with my three-year-old child and my friend and her two children," a Ukrainian woman who wished to remain anonymous told *Byline Times*. "One guy came up to her out of nowhere and said 'hello, where are you going? I will drive you to a safe place. I'm here to help'. I was running over to her with the kids and telling him to f\*ck off and he ran away."

As the course of the war shifts, so does the flow of refugees. Many Ukrainians are now heading home, reassured that because of Russia's failed attempt to take the capital of Kyiv, it is now relatively safe to do so.

Inevitably, the traffickers now see opportunities on the Ukrainian side of the border, targeting people as they enter their home country and look for ways to travel to their hometowns. "We were [on the Ukrainian side of the border] the other day and there were Mercedes cars with blacked out windows full of guys," says Dean. "It seems like something out of a movie but it's true – two big saloon cars, three guys in each car which makes no sense. If you were there to pick somebody up to take them back to Kyiv, for example, you wouldn't have three guys in each car. There are red flags everywhere."

### Case #3: Gone with the Wind publishers brand novel 'racist' and 'harmful' at start of new edition

Source: <https://www.independent.co.uk/arts-entertainment/books/news/gone-with-the-wind-book-trigger-warning-b2312558.html>

Apr 02 – The publishers of [Gone with the Wind](#) have branded the book "harmful" and "racist" in a new trigger warning.

A new edition of Margaret Mitchell's epic novel, released by Pan Macmillan, contains a caution at the start warning readers of its "problematic" content. The note reportedly says the book has not been rewritten to erase the offensive material, but says it includes "racist" elements that are "hurtful or indeed harmful".

The book, first published in 1936, is a romance set during the American Civil War, in which the slave-owning South fought Abraham Lincoln's abolitionists in the North.

*Gone with the Wind's* lead character Scarlett O'Hara, who is played in the 1939 film adaptation by Vivien Leigh, is the daughter of a plantation owner.

Find the trigger warning in full, as reported by [The Telegraph](#), below:

"*Gone with the Wind* is a novel which includes problematic elements including the romanticisation of a shocking era in our history and the horrors of slavery.

"The novel includes the representation of unacceptable practices, racist and stereotypical depictions and troubling themes, characterisation, language and imagery. "The text of this book remains true to the original in every way and is reflective of the language and period in which it was originally written.

"We want to alert readers that there may be hurtful or indeed harmful phrases and terminology that were prevalent at the time this novel was written and which are true to the context of the historical setting of this novel.

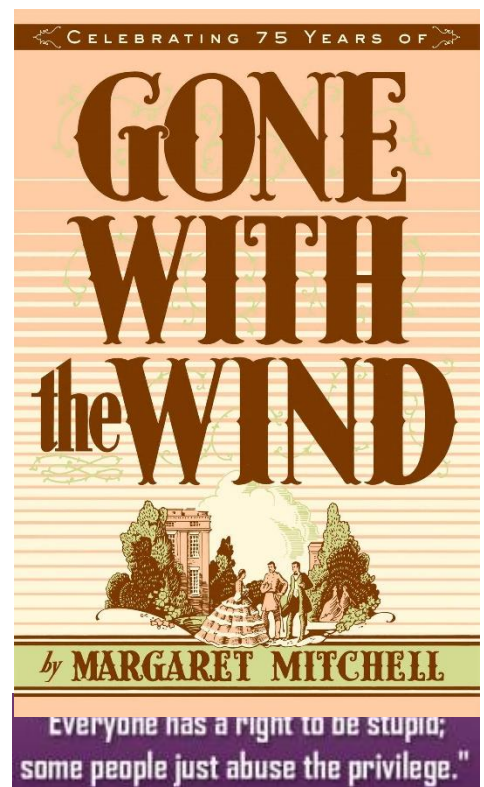
"Pan Macmillan believes changing the text to reflect today's world would undermine the authenticity of the original, so has chosen to leave the text in its entirety.

"This does not, however, constitute an endorsement of the characterisation, content or language used."

The edition also includes an essay written by author Philippa Gregory (*The Other Boleyn Girl*) arguing that Mitchell's book "effectively promoted the racist planter view of the history of the South".

Gregory adds that the book "defends racism" and "glamorises and preaches white supremacy", as well as "tells us, unequivocally, that African people are not of the same species as white people". The author then states: "This is the lie that spoils the novel".

Pan Macmillan notes that Gregory was selected to write the essay as "we believed it was important that no author from a minority background should be asked to undertake the emotional labour of being responsible for educating the majority".



Partez à la découverte de nouvelles sensations à

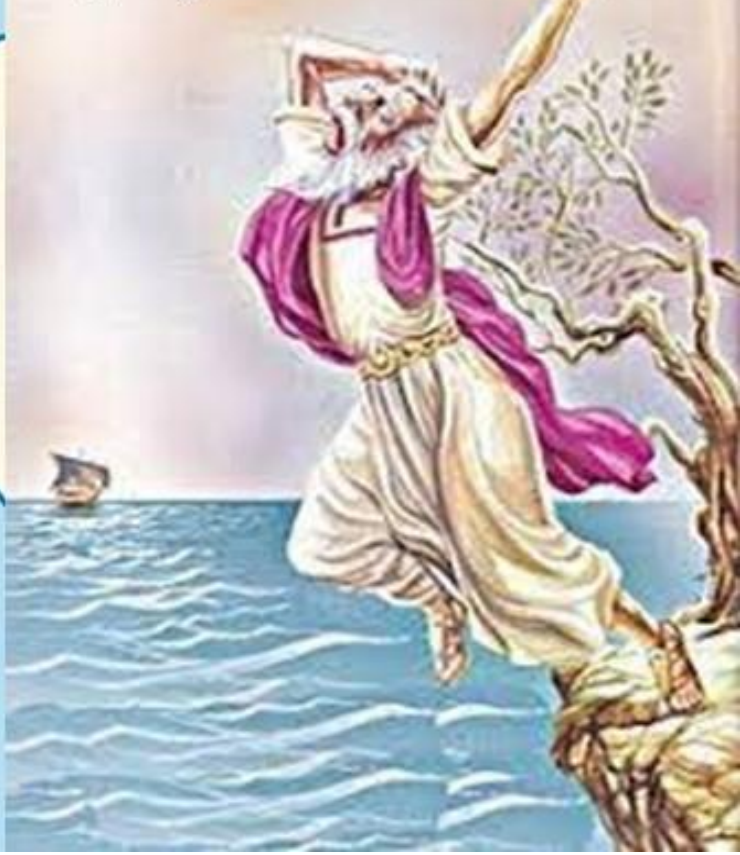
# Turkaegean



If you have such friends who needs enemies?



King Aegeus





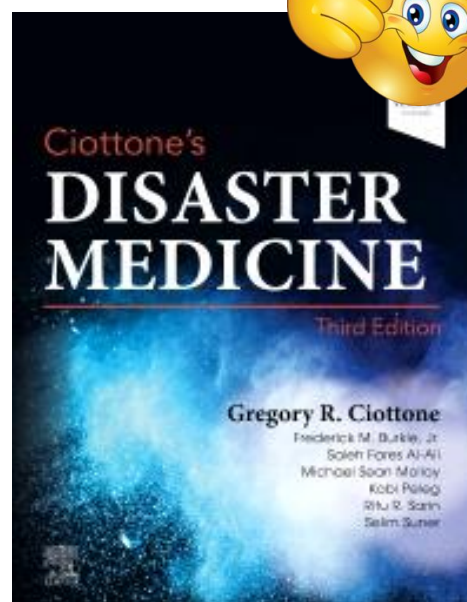
## Ciottone's Disaster Medicine – 3<sup>rd</sup> Edition (2023)

Source: <https://www.elsevier.com/books/ciottones-disaster-medicine/ciottone/978-0-323-80932-0>

While medical specialists in disaster mitigation, preparedness, and response are needed worldwide, the initial phase of disaster response is almost entirely dependent upon local resources—making it essential that all healthcare personnel have a working knowledge of the field and stand ready to integrate into the response system. Ciottone's Disaster Medicine, 3rd Edition, is the most comprehensive reference available to help accomplish these goals in every community. It thoroughly covers isolated domestic events as well as global disasters and humanitarian crises. Dr. Gregory Ciottone and more than 200 worldwide authorities share their knowledge and expertise on the preparation, assessment, and management of both natural and man-made disasters, including lessons learned by the responders to contemporary disasters such as the COVID-19 pandemic, Australian and western U.S. wildfires, European heatwaves, the Beirut explosion, recent hurricanes and typhoons, and the global refugee crisis.

### Key Features

- **Quickly grasp key concepts**, including identification of risks, organizational preparedness, equipment planning, disaster education and training, and more advanced concepts such as disaster risk reduction, tactical EMS, hazard vulnerability analysis, impact of disaster on children, and more.
- **Understand the chemical and biologic weapons known to exist today**, as well as how to best manage possible future events and scenarios for which there is no precedent.
- **Be prepared for man-made disasters** with new sections that include *Topics Unique to Terrorist Events and High-Threat Disaster Response* and *Operational Medicine* (covering tactical and military medicine).
- **Get a concise overview of lessons learned by the responders** to recent disasters such as the earthquake in Haiti, Hurricane Sandy, the 2014 Ebola outbreak, and active shooter events like Sandy Hook, CT and Aurora, CO.
- **Learn about the latest technologies** such as the use of social media in disaster response and mobile disaster applications.
- **Ensure that everyone on your team is up-to-date with timely topics**, thanks to new chapters on disaster nursing, crisis leadership, medical simulation in disaster preparedness, disaster and climate change, and the role of non-governmental agencies (NGOs) in disaster response – a critical topic for those responding to humanitarian needs overseas.
- **Expert Consult eBook version included with purchase.** This enhanced eBook experience allows you to search all of the text, figures, and references from the book on a variety of devices.



**Gregory Ciottone** is the Director, Division of Disaster Medicine, BIDMC, Director, Disaster Medicine Fellowship Program, BIDMC, Associate Professor of Emergency Medicine, Harvard Medical School, Instructor, Harvard T.H. Chan School of Public Health, President, World Association for Disaster and Emergency Medicine, Harvard Medical School, Boston, Massachusetts

## Why Neutrality Is Obsolete in the 21st Century

By Franz-Stefan Gady

Source: <https://foreignpolicy.com/2023/04/04/finland-sweden-nato-neutral-austria-ireland-switzerland-russia-war/>

Apr 04 – Following Russia's brutal invasion of Ukraine in February 2022, two formerly neutral European states—Finland and Sweden—have heeded Machiavelli's advice. Today, Finland joins NATO as its newest member, and neighboring Sweden will soon follow. Europe's four remaining traditional neutrals—Austria, Ireland, Malta, and Switzerland—are sticking to their neutrality for now. Ireland, which has [de facto disarmed](#), [claims](#) to be militarily neutral if not politically so; but the country is slated to [train Ukrainian soldiers](#) and has been [cozying up](#) to NATO since the outbreak of the war. Austria and Malta [likewise insist](#) they are militarily neutral but not "not neutral on values." Switzerland is the most uncompromising of the bunch, remaining both politically and militarily neutral, going as far as [refusing](#) to grant other countries permission to re-export Swiss-made weapons to Ukraine. To Kyiv, the Swiss



government's stance goes beyond neutrality by actively undermining Ukrainian defense capabilities, Ukraine Ministry of Internal Affairs advisor Anton Gerashchenko [tweeted](#). Critics argue that neutrality, like pacifism, leaves the victim of aggression to its fate. Yet out of Europe's four remaining neutrals, it is only Switzerland that maintains relatively robust conventional defenses capable of fielding a credible military deterrent against a potential aggressor. Even though they are not part of NATO, Austria, Ireland, and Malta have de facto outsourced their territorial defense and security to the alliance, with the implicit expectation that it will come to their aid when needed. This enabled each of the three to spend less than 1 percent of GDP on their armed forces before Russia's attempt to conquer Ukraine. Although the three countries have announced defense spending increases, these will not be enough to boost military capabilities and readiness to a level where they would be able defend against another nation-state in a high-intensity conflict any time soon.

## Small Temperature Rise Can Cause Large Scale Forced Migration

Source: <https://www.homelandsecuritynewswire.com/small-temperature-rise-can-cause-large-scale-forced-migration>

Apr 04 – A 1°C temperature increase can cause a tenfold increase in displaced people, according to [new research](#) led by the [University of Oxford](#), which studied the effects of conflict, weather, and drought, on forced displacement in Somalia.

According to the research, a typical reduction in rainfall of 50mm per month mm can also cause displacement to double. But, it reveals, while conflict leads to significant displacement, displacement itself does not cause further conflict.

[Dr. Lisa Thalheimer](#), study lead author and research associate with [Oxford's Environmental Change Institute](#) and Climate Econometrics team, says, 'The lives of pastoralists and farmers in Somalia are balanced on a knife edge. Even a 1°C rise on normal temperatures –



whether sustained or frequently re-occurring over a few months – is enough to cause pastures to dry up and crop yield to change.

'Our research shows these seemingly small temperature changes are having an outsized impact and are forcing communities to leave their homes.'

She adds, 'Our Somalia research found a 1 °C warming is estimated to lead to a ten-fold increase in expected displacement. It is alarming that, even this marginal change in temperature, has such a huge impact. It highlights the likely effect climate change is having on vulnerable areas across the African drylands.'

### The study found:

- ❖ An increase in local monthly temperature by 1 °C led to an approximate ten-fold (1098%) eventual increase in expected displacement.
- ❖ If average monthly rainfall declined from 100mm to 50mm, predicted numbers for internally displaced populations in Somalia doubled.

'The impacts of climate change are already being felt by these vulnerable regions and are likely to get worse,' says study author [Moritz Schwarz](#), from Oxford's [Smith School of Enterprise and the Environment](#).

He adds, 'Our research suggests investing in adaptation measures, building local capacity and arranging for rapid humanitarian aid will be key to avoid mass displacement events in future, and helping to stop extreme weather or conflict situations from turning into full blown disasters.'

The detailed analysis also revealed that conflict is a major driver of displacement. The role of conflict on forced migration has been hard to understand, and can be masked when combined with other self-reported reasons for migration such as drought, say the authors.





The study also investigated if displaced persons increase the probability of conflict in their destination region, possibly through increased pressure on scarce resources such as food and drinking water. But this was found not to be the case.

Dr Felix Pretis, a study author from the University of Victoria, says, 'Crucially, we find little effect of incoming displaced people on conflict itself... This finding is novel, and dispels the common myth that displacement might further fuel conflicts.'

The international team, based at Oxford's [Climate Econometrics](#), the [University of Victoria](#), and [Princeton University](#), analyzed highly-detailed localized data from the 18 separate regions of Somalia, exploring the reasons over two million people were forced to flee over a two year period.

## What is smart dust and how is it used?

Source: <https://www.nanowerk.com/smartdust.php>

Imagine a cloud of sensors, each the size of a grain of sand or even smaller, blown aloft by hurricane winds and relaying data on the storm to weather stations below. Picture an invisible sensor network embedded into a [smart city's](#) roads to monitor traffic, road surface damage and identify available parking spaces – all in real time. Or billions of [nanosensors](#) distributed over forests and other areas with fire hazards to detect a fire at its very beginning. Or envision programmable smart dust that triggers an alarm signal when invisible microcracks are detected in a turbine blade.

**Smart dust refers to wireless networks of sub-millimeter-scale autonomous computing and sensing platforms not larger than a grain of sand. Smart dust senses and records data about its environment such as light, temperature, sound, presence of toxins or vibrations, and transmits that data wirelessly to larger computer systems.**

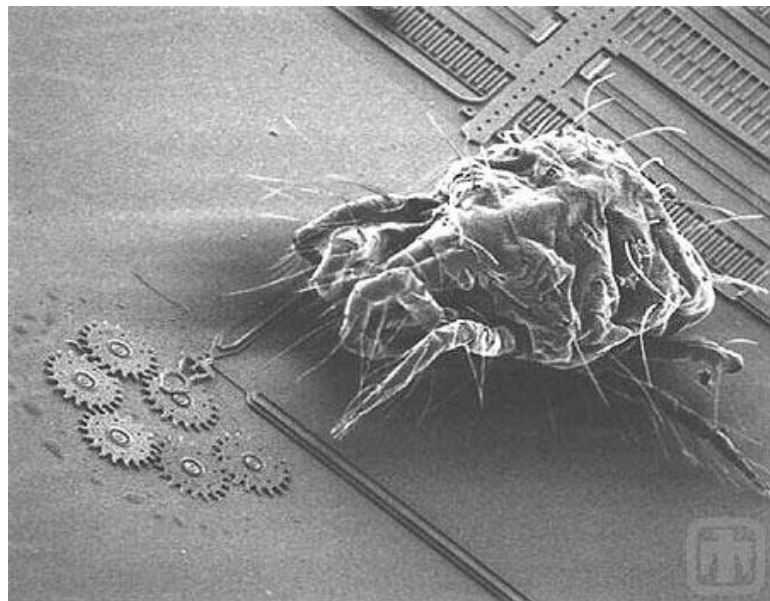
Smart dust is a vision of the networked future where intelligent networks of trillions of miniscule sensors continuously feel, taste, smell, see, and hear what is going on in their surrounding environment, communicate with each other and exchange information. Smart dust networks are the ultimate [Internet-of-Things](#) (IoT) devices.

Smart dust is revolutionary because the sensors are small enough to be put anywhere, even in narrow and difficult areas. Another huge advantage is that these devices work without any human intervention as they are pre-programmed and, notwithstanding their tiny size, have their own power supply.

This technology is expected to not only monitor building controls, pipelines, factory equipment and drug-making processes, but it will also lead to ubiquitous autonomous artificial intelligent computation near the end user, such as authentication, medical procedures and health care monitoring, sensing and tracking, industrial and supply chain monitoring, and defense applications.

Although smart dust devices are not quite in dust-size territory, researchers hope to shrink these devices to the size of a speck of dust via [nanotechnology](#).

To be economically feasible, such single-use devices have to be cheap (we are talking pennies or even fractions of a penny), even cheaper than the radio-frequency identification tags currently used to track the inventory of warehouses, for example.



down in size to NEMS – nanoelectromechanical systems.

### How does smart dust work and what does it do?

Smart dust networks contain nodes (called 'mote') that combine sensing, computing, wireless communication capabilities and autonomous power supply in a tiny package with a volume of few cubic millimeters or even less.

**A mite, less than 1 mm in size, approaching a microscale gear chain. (Image: Sandia National Laboratories)**

Smart dust is based on [microelectromechanical systems](#), or **MEMS**. MEMS consist of any combination of mechanical (levers, springs, membranes, etc.) and electrical (resistors, capacitors, inductors, etc.) components to work as sensors or actuators. In the future, as fabrication technologies advance, this will shrink further



Motes are constructed using conventional silicon microfabrication techniques and can remain suspended in an environment similar to dust (hence the name).

Each mote can be left unattended to collect environmental data such as light, temperature, pressure, vibrations, the existence of toxins, etc., and transmit this data wirelessly to larger, remote computer systems – or, depending on the mote's computing power, processes it directly at the point of data collection.

For instance, in an industrial setting, smart dust sensors relay signals back to a command computer, which then compiles the data to give feedback to plant managers. Or the results could trigger an automatic response, such as turning down a building's temperature or reducing the flow of water.

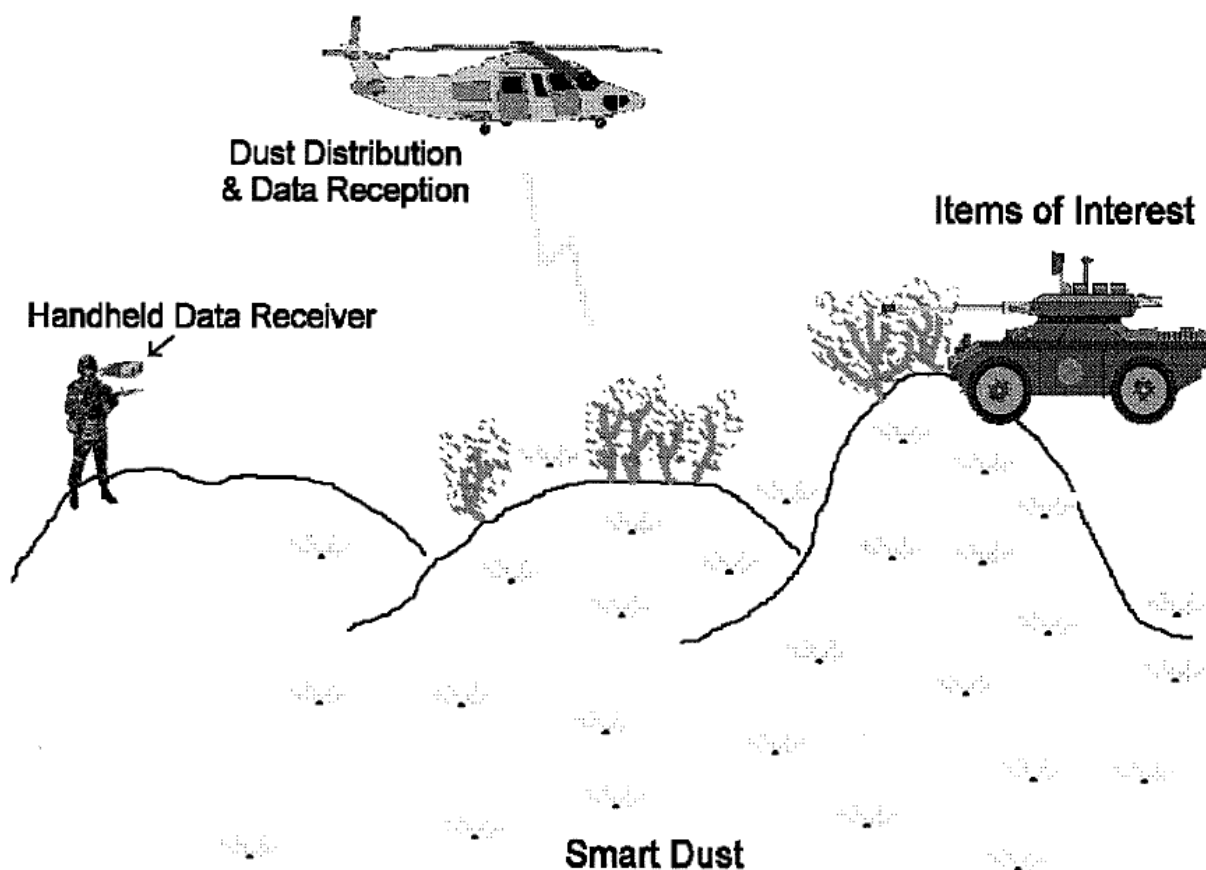
Another example is [DARPA's SHIELD program](#) that plans to use microscale chips to track and authenticate the supply chain of computer chips for defense applications. The goal is to eliminate counterfeit integrated circuits from the electronics supply chain by making counterfeiting too complex and time-consuming to be cost effective. SHIELD aims to combine NSA-level encryption, sensors, near-field power and communications into a tiny chip capable of being inserted into the packaging of an integrated circuit.

#### Origin of the smart dust concept

'Smart Dust' was first conceived in the 1990s by Dr. Kris Pister while a professor of electrical engineering at the University of California, Berkeley, as a simple way to deploy intelligent wireless sensors.

At the time, Pister imagined a world in which ubiquitous sensors could measure everything that could be measured. Immediately, he thought about environmental applications such as weather tracking (read his concept paper from 2000: [Emerging challenges: Mobile networking for "Smart Dust"](#)).

But it doesn't come as a surprise that it was the military that gave the impetus, and financing, for developing smart dust. In 1992, DARPA funded Pister's research in the Smart Dust project (you can read the original proposal [here as PDF](#)).



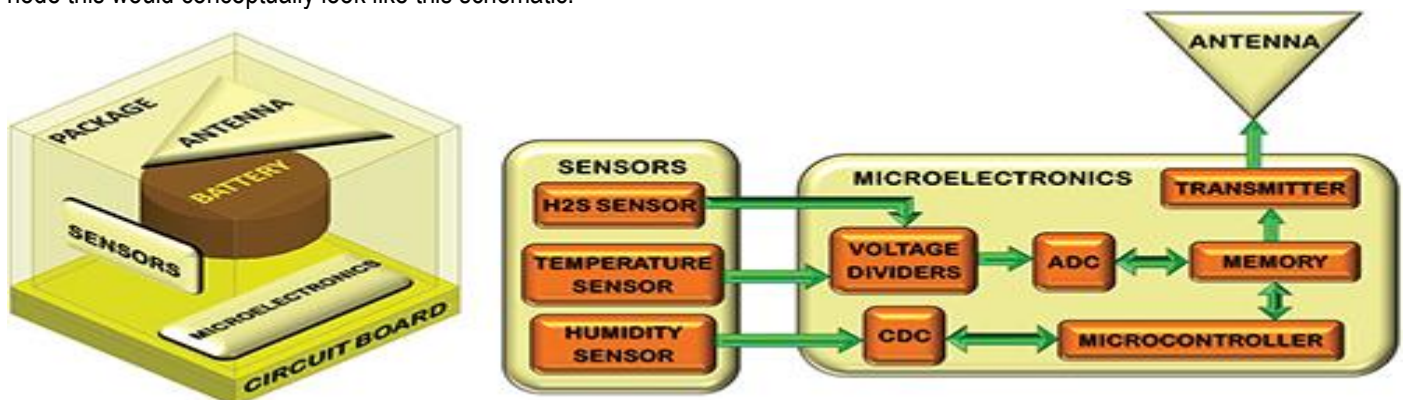
Schematic of a smart dust battlefield sensor network as depicted in the grant application for DARPA's Smart Dust project: Thousands of sensor nodes covering square kilometers are delivered by autonomous helicopter. They track motion of vehicles for hours/days, and report information superimposed on live video when interrogated by hand-held receiver or helicopter-borne receiver.





### Components of a smart dust mote

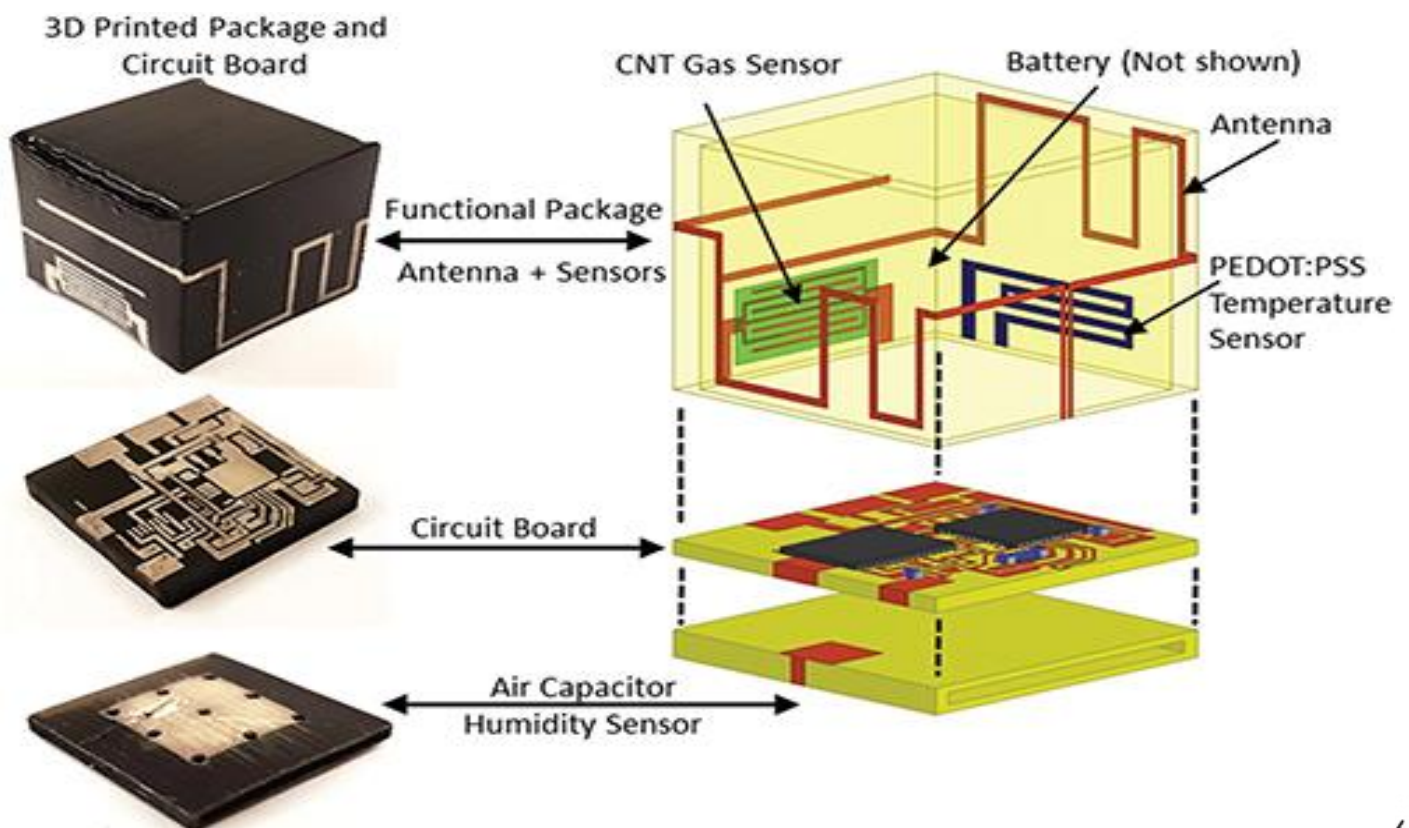
Very basically, every mote consists of four device classes: sensors, circuits, communication, and power supply. In a wireless sensor node this would conceptually look like this schematic:



Example for the system design of a wireless sensor node. It consists of a 3D-printed functional cube package which contains several inkjet-printed sensors and the antenna. The circuit board has also been 3D-printed and contains the microelectronics enclosed in the package. (Source: DOI 10.1002/admt.201700051)

The entire package contains one or more MEMS or NEMS **sensors** to perform the mote's principal sensing purpose of detecting and measuring things like vibration, temperature, pressure, sound, light, magnetic field, etc. **Circuits** (microcontroller) to interface with the sensors and process and store data. **Communication** ideally comprises a transmitter and 3D antenna which ensures equal radiation in all directions, thus enabling orientation insensitive communication. **Power supply** for the entire mote, depending on the area of operation, could be a solar cell array or some form of thin-film battery or supercapacitor.

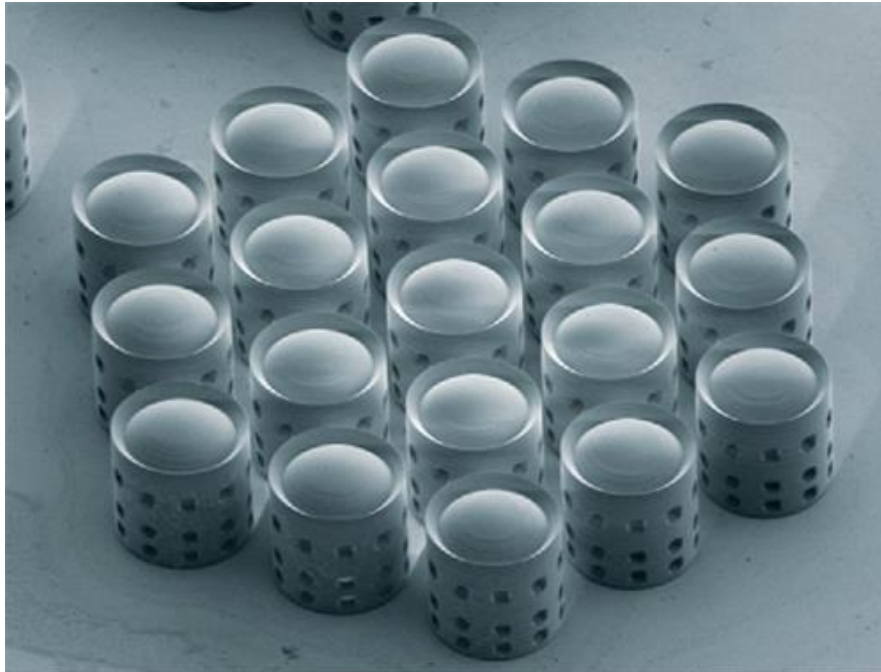
The whole package looks like this:



Read more about this [3D-printed, fully integrated wireless sensor device](#).



Although the cube dimensions in above example are 21 mm on each side, it illustrates the basic concept and component architecture of a smart dust mote. Inevitable miniaturization will ultimately lead to sub-micron scale for these devices.



Here are two more examples of how miniaturization leads to incredibly tiny components.

#### *3D printed microscale lens systems*

Scanning electron microscope image of the hexagonal lens arrangement. Each doublet lens system has a diameter of 120  $\mu\text{m}$  and a height of 128  $\mu\text{m}$ . Scale bar, 100  $\mu\text{m}$ . (Source: DOI 10.1038/NPHOTON.2016.121)

Researchers have demonstrated fully working multi-lens objectives with sizes of around 100 microns, roughly the size of a grain of salt, that could lead to smart dust motes with autonomous vision. The lenses show unprecedented performances and high optical

quality with resolutions of up to 500 line pairs per millimeter for imaging applications.

#### *Dust-sized power supply*

Ever smaller energy storage devices in the submillimeter range for even smaller microelectronic components are a major technical challenge. Nevertheless, researchers manage to continuously reduce their size, as this example of a [nanosupercapacitor](#) shows – it is the size of a speck of dust but packs the voltage of an AAA battery:

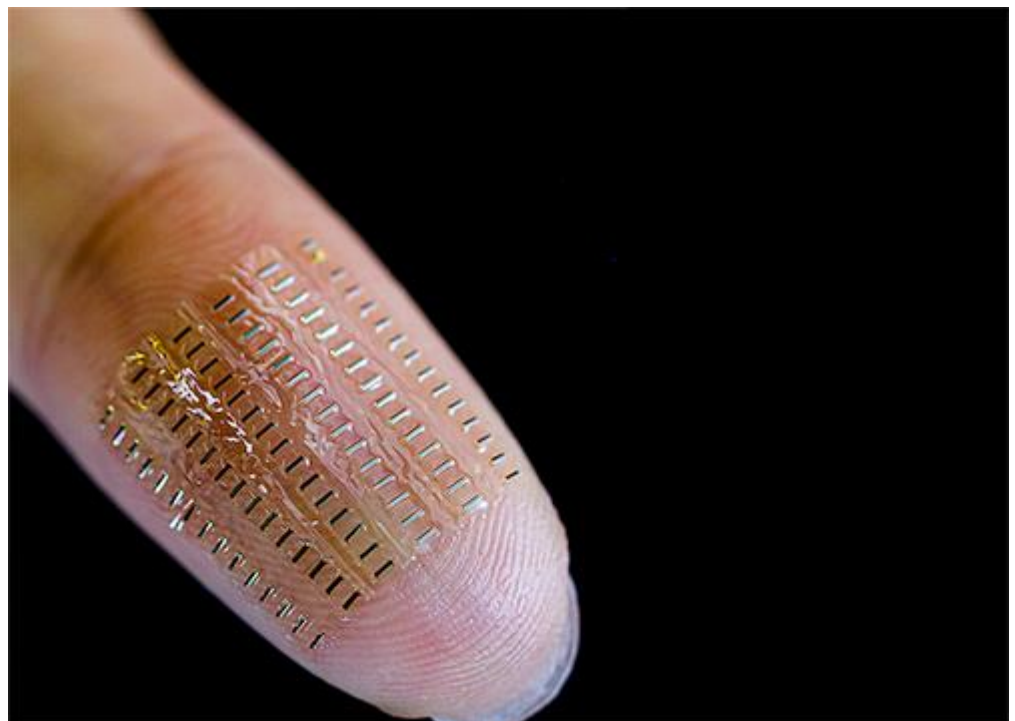
Each of the 90 tubular supercapacitors on the fingertip holds a volume of just 1 nanoliter (0.001  $\text{mm}^3$ ) but delivers up to 1.6 V supply voltage.

#### **Neural smart dust**

Granted, this application is a bit further out, but actively worked on by researchers. And, again, the military is spearheading this through DARPA's [Electrical Prescriptions \(ElectRx\) program](#).

Researchers have developed a safe, millimeter-scale wireless device small enough to be implanted in individual nerves, capable of detecting electrical activity of nerves and muscles

deep within the body, and that uses ultrasound for power coupling and communication. They call these devices [neural dust](#). Each neural dust sensor consists of only three main parts: a pair of electrodes to measure nerve signals, a custom transistor to amplify the signal, and a piezoelectric crystal that serves





the dual purpose of converting the mechanical power of externally generated ultrasound waves into electrical power and communicating the recorded nerve activity.

And while not networked yet, researchers already demonstrated the feasibility of [inserting computer chips into individual cells](#). But you can imagine where this could go... (dear conspiracy theorists: PLEASE don't send us your comments!).

### Current status and challenges

The main challenges researchers have been grappling with are the lack of enough power on the small footprint and the difficulties of integrating power systems into these highly scaled devices. Since the storage density of battery technologies has not followed Moore's law scaling trends, IoT systems need to rely on power conversion from outside sources such as thermal, vibrational, light, or radio waves.

As nanoelectronics and packaging technologies evolve, though, now may be the right time that we start to rethink the solutions for these problems and advance towards more powerful small computer systems than what was originally proposed.

The ability to integrate various nanoelectronic chiplets – such as processor, memory, and photovoltaics – in an industrial-scale wafer-level-packaging process, creating [solar-powered smart dust](#), unlocks the potential of large-scale manufacturing of these compact integrated systems with high performance and ultralow cost.

### Applications of smart dust

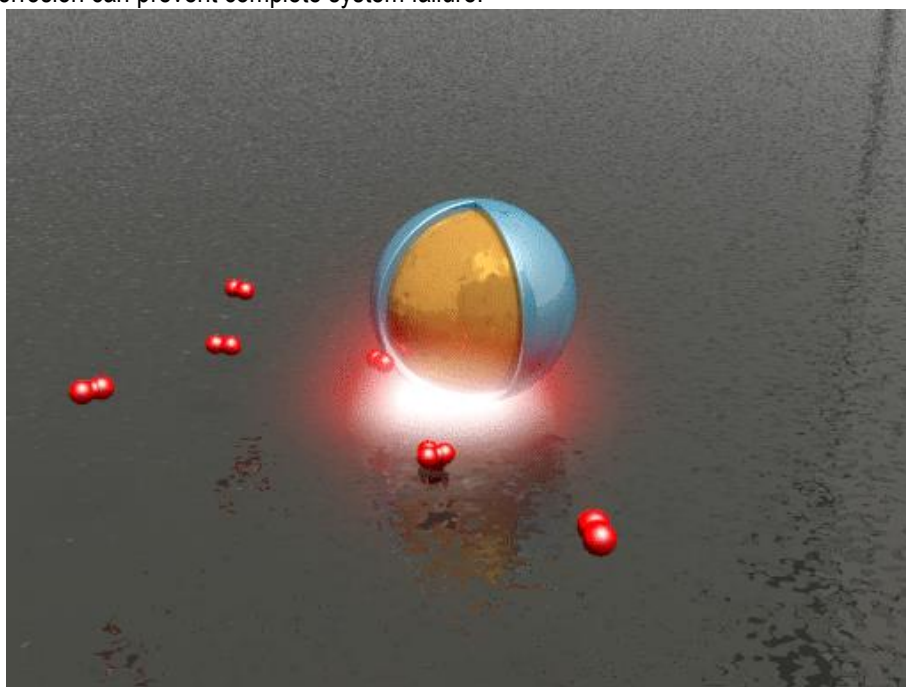
The vast range of smart dust application makes it impossible to provide detailed descriptions in just a single article. So we just list some major areas below:

▫ **Agriculture:** Constant monitoring of a crop's nutritional requirements, watering, fertilization, and pest control. This valuable information can help to increase the quantity and quality of the crop. It can also record soil conditions such as pH, fertility, microbial infestations, i.e., information vital for the plant's growth.

▫ **Industries:** Continuous screening of essential equipment, prompting action regarding its maintenance. Assessing the exact condition of machines, their weakness, and corrosion can prevent complete system failure.

▫ **Environment.** Chemical and biological environmental monitoring for health and safety issues (water, air, soil). For instance, [plasmonic smart dust](#) could probe local chemical reactions as shown in this animation:

[Animation of the hydrogen dissociation and uptake on a palladium surface.](#) The smart dust (a silica shell-isolated gold nanoparticle) reports changes in the local chemical environment via spectral shifts in its scattering spectrum. (Source: Sven Hein, 4th Physics Institute, University of Stuttgart)



▫ **Urban infrastructure:** monitoring for buildings, roads, bridges, tunnels, water and sewer pipes, electrical and telecommunications grids will become part of an overall concept of a [smart city](#). For instance, smart dust could already be embedded into concrete during construction.

▫ **Inventory management:** Tracking products from their manufacturing factories to retail shelves via transport facility (ship vessels to trucks) would ensure tight inventory control.

▫ **Medical diagnostics:** see neural smart dust above

▫ **Transport sector:** Smart dust transports perishable goods as these materials require constant monitoring. While transporting perishable goods, certain parameters such as temperature, humidity, and aeration have to be monitored continuously. Similarly, smart dust helps to monitor animals' health and control the necessary conditions such as temperature, air, and humidity for safe transport.



- ▮ **Military applications:** It helps in accessing activities in remote or inaccessible areas. It can also determine the presence of toxic gases or harmful substances and help take necessary actions. Battlefield sensor networks.
- ▮ **Space exploration:** Weather, seismological monitoring on planets and moons in the solar system. Scientists are also exploring an entirely new type of space telescope with an [aperture made of swarms of particles](#) released from a canister and controlled by a laser. NASA's Innovative Advanced Concepts Program is funding the second phase of the "orbiting rainbows" project that attempts to combine space optics and smartdust, or autonomous robotic system technology.

### Smart dust risks and concerns

Wide-scale adoption of smart dust would bring with it a number of risks:

**Privacy.** Many that have reservations about the real-world implications of smart dust are concerned about privacy issues. Smart dust devices will become so small that they are invisible to our naked eye and, therefore, are extremely difficult to detect. They can be programmed to record whatever their sensors are capable of (ironically, people have begun to voluntarily carry devices that would accomplish exactly that). You probably won't know who is collecting the data and what they are doing with it. Your imagination can run wild regarding the negative privacy implications when smart dust falls into the wrong hands

**Control.** Once billions of smart dust devices are deployed over an area it would be difficult to retrieve or capture them if necessary. Given how small they are, it would be challenging to detect them if you weren't made aware of their presence. The volume of smart dust that could be engaged by a rogue individual, company or government to do harm would make it challenging for the authorities to control if necessary.

**Cost.** As with any new technology, the cost to implement a smart dust system that includes the satellites and other elements required for full implementation is high. Until costs come down, it will be technology out of reach for many.

**Pollution.** Smart dust motes essentially are single-use devices. Unless they are fully biodegradable the question arises if they will pollute the areas where they are used (soil, air, water).

**Health.** As soon as smart dust particles shrink to the nanoscale, their risk profile will match that of nanoparticles in general and the potential health risk associated with inhaling or ingesting them.

**Legal issues.** The lack of security protecting information created by smart dust networks is creating not only privacy concerns, but the network can be accessed without authorization (i.e., hacked) by third parties and its information can be used for illegal purposes.

**EDITOR'S COMMENT:** I first heard about "smart dusts" in a US TV series named "Designated Survivor" in a bioterrorism scenario! Very interesting!

## Global change of relationships: Anglo-Saxon "bloc" and NATO for the first time "in the corner" - 90% of the world's population against them



By Theofrastos Andreopoulos

Source (GR): <https://www.pronews.gr/kosmos/diethnis-politiki/ti-simainoun-oi-prosfates-kiniseis-tis-saoudikis-aravias-me-to-petrelaio-i-megali-skakiera-allazei-eis-varos-ton-ipa/>

April 06 – Cosmogenic are the global geopolitical rearrangements that the Biden administration has not understood (unlike the Americans who have understood them very well...), perhaps because it self-created them and they are all at the expense of the USA and the so-called West in general.

In 1997, "The Great Chessboard" was published, one of the most important works of the "hawk" of Washington, Zbigniew Brzezinski, which referred to the Geostrategy of the USA for its final domination of the planet.

The actions of the Biden administration in the last two or so years have radically changed the "Chessboard" against the USA (in contrast to how his predecessor N. Trump had delivered it to a "geopolitical peak").

Thus, in the last few days, oil production has decreased further as announced by Iraq, Algeria, Saudi Arabia, the United Arab Emirates, and Kuwait, with the Gulf oil giants speaking of a "precautionary measure" that aims to stabilize the Buy.

Riyadh, Abu Dhabi, and Kuwait alone will cut production by a total of 772,000 barrels per day from May until the end of the year, the three Gulf countries said in announcements made public by their respective official media.

This is a "precautionary measure aimed at supporting the stability of the oil market," a senior Saudi Energy Ministry official said, according to Saudi's official SPA news agency. But in essence what they did was drive up oil prices worldwide, thus fueling inflation in Western countries whose governments will have serious problems convincing their societies why the war in Ukraine should continue.





What the Gulf countries did, in previous years would be a movie scenario..

And who pays for the "marble" (the consequences)? Of course, us in Greece and the rest of the Western countries.

Iraq, one of the biggest oil producers, also announced today a 211,000-bpd cut in its output from May 1.

Algeria, for its part, is proceeding with a "voluntary reduction of 48,000 barrels per day, from May until the end of 2023, in coordination with some OPEC member and non-member countries", according to a statement from the Algerian Ministry of Energy, which was broadcast by the local APS news agency.

OPEC member Moscow, for its part, announced that it is extending a cut in crude oil production by 500,000 barrels per day until the end of the year, according to a statement from Deputy Prime Minister for Energy Alexander Novak, who spoke of a "period of uncertainty" in the black gold market.

In short, we will have 1,500,000 million fewer barrels per day by the end of the year and we'll see!

As if that wasn't enough, Admiral Gorshkov became the first Russian warship to dock in Saudi Arabia. The ship was returning to its base when it stopped at the port of Jeddah for "a two-day crew rest and resupply," according to a Russian embassy official.

The 135-meter-long frigate, armed with guided missiles, had set sail from the northwestern Russian naval base of Murmansk on January 4 on a long voyage to Cape Town, Durban, and Richards Bay in South Africa, where it conducted naval exercises before sailing for the Chabahar of Iran. where another naval exercise took place.

Last month, Russia said it had started naval exercises with China and Iran in the Arabian Sea, aimed at strengthening ties with the two countries.

"In the Indian Ocean, it also conducted training on March 13. The exercise focused on anti-submarine scenarios involving a Ka-27 helicopter," Andrey Brekhovskikh, media attaché at the Russian embassy, told Arab News.

Will someone say about a Russian warship what changes? Everything.

It is a highly symbolic move, that now the Saudis are not interested in the USA of T.Biden (why else the USA in general) and choose the big "block" created by Russia and China in which some wrongly think that only Eurasia and the East in general.

The whole planet is included except the USA, Anglo-Saxons, some Latino countries in the EU, Eastern European countries, and Asia, Japan, and South Korea.

Also, those who think that India will choose the Anglo-Saxon side are greatly mistaken as Indians do not want to see the Anglo-Saxons even in a "painting".

Any rivalry between China and Pakistan will be settled by any means and means as this is a central policy of both Moscow and Beijing.

**And in Africa, the opinion prevails that "not all whites are bad" but certainly "the Anglo-Saxons are white, as well as the French-speaking (Belgium, France)" and in general European whites, except for the Greeks who never had colonies. In Africa they don't forget the genocides they suffered for centuries by the specific peoples and it is something that is "planted" in their DNA.**

As for South America, after Brazil now Argentina also wants to join the BRICS, the two largest South American powers, while Brazil has agreed with China to carry out transactions between them in their national currencies!

In short, only 10% of the world's population is close to the choices of Biden's Americans, and 15% indirectly follow.

75% of the world's population supports Russia, even if this is not directly reflected in votes at the UN. The US currently has a majority in "stamps" but that is meaningless.

For the first time in history, they have lost international support because of the choices of the Biden administration.

The problem is that we are paying the price, not India, not China, not the Africans.

Putin himself declared that Africans "will have free Russian grain"

We here, on the other hand, will live with the constant increase in fuel, which in turn will bring about an increase in the cost of transportation, and therefore additional increases in the cost of products, which in the end all together entail an exorbitant cost in our lives.

We are not saying that the Ukrainians should win or lose the war. What we are saying is that the war must stop... Yesterday!

Ukrainian Minister of Foreign Affairs Mykhailo Podoliak says that in six months Kyiv will have conquered Crimea!

Anyone who says these things is unaware that the Russians will use nukes if they have to.

Here we are not talking about a defeat on the battlefield, but we are talking about the destruction of territory which is historically and practically considered Russian. Land in which an overwhelming percentage of Russians live.

It's like Mexico taking over Texas. What would happen then? The Americans would use nuclear weapons.

Very simple.

Who encouraged this thing and why? Do the circles in Washington that caused this crisis not understand that if nuclear weapons are used it will end life for all of us including themselves?



Do they think Russian radiation will be less powerful than American radiation and they will be unscathed? What makes them believe that there will be no use of nuclear weapons? Some must decide whether to return to the Cold War dilemma. "Would we sacrifice New York to save Berlin or London?" The war must end... yesterday because we are very close to opening the "door to the madhouse" under the sole responsibility of the Biden administration.

But after the Apocalypse, no one will care about anyone's responsibilities as the survivors will have returned to the Stone Age...

## Xi Jinping's 48-Hour Plan to Invade Taiwan | Defense in Depth

By Dominic Nicholls, Elliott Daly, and Josh Bourne, (*The Telegraph*)

Source: <https://www.telegraph.co.uk/world-news/2023/04/07/china-taiwan-invasion-war-usa-russia-ukraine-xi-jinping/>

The ripples from the war in Ukraine have spread far and wide; they've even reached the South China Sea - so it's time to talk about Taiwan. According to diplomatic sources in the UK, Beijing believes there is a 48-hour window in which it can attack Taiwan before any international consensus forms. In that time Chinese forces would need to get [across the Taiwan Strait](#), onto the land and cut off the political and military leadership in Taiwan. That's a tall order.

## Muslim nations wary of US intentions – Gallup

Source: <https://www.bignewsnetwork.com/news/273721896/muslim-nations-wary-of-us-intentions---gallup>

Apr 09 – A large concentration of people in Iraq and 12 other Muslim-majority countries are skeptical of the United States' commitment to democracy-building, according to the findings of a Gallup poll. The survey, which was published by Gallup on Friday, also showed that many such nations have expressed doubt about Washington's commitment for them to forge their own political futures without some level of democracy-promotion oversight from the US. The poll was released shortly after the 20-year anniversary of Operation Iraqi Freedom; the US-led campaign to topple Saddam Hussein from power in Iraq which began in 2003.

The administration of then-President George W. Bush launched the operation on the false assertion that Saddam was developing weapons of mass destruction, which could potentially be used against the US and its allies. The move is generally considered to be among the worst foreign policy blunders in US history. And now, two decades later, just over one-quarter of Iraqis believe that the US is committed to its proposal to establish democracy in the country, according to the poll. Conversely, some 72% say they disagree that the US is 'serious' about encouraging open and free elections in the country. Despite holding democratic elections in 2005 while under US and British occupation, Iraqi democracy has been mired in instances of violence, fraud and protests amid disputes between Sunni and Shiite factions. According to Lily Hamourtziadou, senior researcher for Iraq Body Count (IBC), which tracks civilian deaths following the US invasion in 2003, this has "produced a dystopian economy and a failed state." Hamourtziadou also argued in an op-ed published by Open Democracy in 2021 that "the US and its allies could never have produced a Western-style democracy, or the outcomes expected in a developed nation." The Gallup poll also found that Iran - at 81% - is the most distrusting of US intentions in the region. Tunisia, Trkiye, Palestine, as well as Iraq, complete the top five, with each between 78 and 75%. However, just 38% of Moroccans and 42% of Kuwaitis disagreed with the contention that the US is serious about establishing democratic systems of government in Muslim regions. Gallup also polled citizens in the same nations to ask if they felt that the US was committed to assisting in their economic development. Iran, Trkiye and Tunisia heavily disagreed - between 82 to 74% - though, again, Kuwait and Morocco displayed the least amount of disagreement at 41% and 34% respectively.



## Crimes against Humanity: Serbia's Law Suit against NATO. More than 15 Tons of Uranium Bombs Dropped on Yugoslavia in 1999

By Natali Milenkovic

Source: <https://www.globalresearch.ca/over-4000-citizens-serbia-kosovo-metohija-want-sue-nato-believing-their-cancer-diagnoses-direct-cause-nato-bombings-yugoslavia-1999/5814854>

Apr 07 – In 2022, **Srdjan Aleksic**, a lawyer from Nis, Serbia began a legal process against NATO. Since 2017 (when the gathering of evidence began) until this day over four thousand citizens of Serbia (including Kosovo and Metohija) have shown interest in suing NATO due to their own cancer diagnoses and





diagnoses of their family members that they believe have a direct connection to the bombing of Yugoslavia in 1999 where uranium was used.

**NATO has already confessed that they have dropped over 15 ton of uranium over Kosovo and Metohija and the southern parts of Serbia such as Presevo, Bujanovac and Vranje.**

As a result of these bombings, **over thirty thousand people every year in Serbia is diagnosed with cancer, this in a country that before the bombings in 1999 had**

**less than seven thousand citizens diagnosed with cancer every year.**

Serbia is now the country in Europe that has the largest number of cancer diagnoses and the second in the world.

Andjelo Fiore Tartalja a lawyer from Italy is a part of **Srdjan Aleksic** legal team and is advising him in regard to the lawsuits filed against NATO on the behalf of Serbian citizens.

**Tartalja has won over 350 cases in Italy where he has proven that Italian soldiers and officers in peacekeeping forces that were stationed in Kosovo and Metohija (after the bombings), where the largest amount of uranium**



**bombs were thrown**, have been diagnosed with cancer and many of which have died as a direct consequence of the uranium in NATO's bombs. In their blood analysis 500 times more metal was found than normal. Over seven thousand Italian soldiers and officers have been diagnosed with cancer after their service in Kosovo and Metohija and 400 have passed away. It is also important to stress the fact that not only in Serbia has there been a huge increase in cancer diagnoses but also in neighbouring countries such as Bulgaria, Romania, North Macedonia and Bosnia and Herzegovina.

It is believed that the particles from uranium bombs expand extensively after hitting their target (depending on a number of factors) **and that it takes over 4.5 billion years for uranium to decay and that it stays in the soil for thousands of years and perhaps even longer.** So not only is NATO responsible for "crimes against humanity" when using these bombs and leaving behind residual mines, they have committed the crime of Ecocide, where they have damaged and destroyed Serbia's ecosystem and biodiversity. Although this has not yet been recognized as a crime under international law, it is being contemplated so both humans, corporations and armies can be held accountable for the crimes of harmful pollution.

Srdjan Aleksic and his team of lawyers have so far collected the medical documentation and power of attorney documentation of 1.500 citizens and 35 cases have been field in the higher court in Belgrade. Every month they file 10 new cases and will continue to do so. In the cases where the plaintiff is deceased, family members have forwarded the medical documentation and will continue the procedure on their behalf, and even these cases will be field in the higher court in Belgrade.

Srdjan Aleksic and his team of lawyers are not interested in economic gain and are not charging their clients for their legal work since most of the plaintiffs are from the southern parts of Serbia that are extremely poor and have already sold almost everything they possess only to be treated for their cancer. It is believed that more plaintiff's would sue NATO but the taxes just to begin the legal process in Serbia are 350 Euro and most people in the southern parts of Serbia do not have the means to pay these taxes. Srdjan Aleksic also has a personal agenda since his mother and many of his family members from his village near Bujanovac died of cancer after the NATO bombings.

**Due to the increase of cancer diagnoses in Bosnia and Hercegovina after the NATO bombings in 1995 many citizens are contemplating suing NATO** believing that the uranium used then as well is the cause of their cancer diagnoses. They are currently waiting to see the outcome of the trials in Serbia before they begin their legal procedures.

NATO has replied, stating that they have immunity and that they do not have to answer to the higher court in Belgrade because of the Transit Agreement signed in 2005 between Serbia and NATO and Serbia joining the Partnership for Peace in 2006.

The Transit Agreement and Partnership for Peace have no connection to the legal cases mentioned in this article, the Transit Agreement is simply an agreement that allows allied forces serving as part of KFOR to pass through Serbian territory. The Partnership of Peace is Serbia cooperating with NATO and the Tribunal in Hague. Srdjan Aleksic says that immunity cannot be implemented retroactively since the bombings took



place in 1999 and the agreements were signed six years later. The trials have been postponed due to the death of Colonel Dragan Stojic (served 280 days at the border between Kosovo and Serbia and in Kosovo) that passed away due to his cancer. He was the first plaintiff to sue NATO. His wife will continue his procedure in court. The trials are expected to start at the end of 2023.

[Natali Milenkovic](#) is a student at the University of Malmö.

## What's actually happening in Yemen?

By **Nadhiya Athaide** (Iranian Historian & Curator)

Source: <https://www.quora.com/Whats-actually-happening-in-Yemen-Whats-the-real-reason-for-the-Saudi-attack>

A war within a war within a war. In simpler terms, a gigantic mess of a civil & regional war.

**To understand what's going on in Yemen, you have to understand the 4 key factions that are currently involved in the fighting.**

**Ansarallah/Houthis:** The Houthis are a Zaidi Shia group that has captured and now rules almost all of the North, notably including the capital Sanaa and the key port city of Hodeidah. The Houthis swept to power in 2015 over popular discontent against Saleh, corruption, and Saudi interference. Saudi Arabia is the biggest enemy of the Houthis, and the Houthis are determined to force them out of Yemen. Iran provides limited weaponry & technological support to the Houthis.

The Houthis are fighting against the STC, the Yemeni government, Saudi & the UAE, and Al Qaeda & Ansar Al Sharia.

**STC (Southern Transitional Council):** Before 1990, Yemen was split into North & South Yemen. Southern Yemenis have long complained of neglect by the ruling government which was based in Sanaa. In turn, this has fueled separatism and calls to re-establish Southern Yemen. The Saudis initially supported the STC as a means of combatting the Houthis. Now they've realized that



they made a mistake by doing so, but it's too late. The STC primarily relies on support from the UAE but also receives support from the Saudis. The STC is fighting against the Houthis, Al Qaeda & Ansar Al Sharia

**Yemeni government:** The Yemeni government is currently fighting to maintain control of the country. However, the effort is rather futile since they're extremely weak, no longer control any key strategic cities, and are largely unwanted by the rest of the population. Former President Hadi currently lives in exile in Saudi Arabia. Nonetheless, they're supported by Saudi Arabia & the UAE.

The Yemeni government is fighting against the Houthis, Al Qaeda & Ansar







Saudi Arabia invaded Yemen to topple the Houthis. Only, they miscalculated the entire situation and bogged themselves down in a costly and brutal war. Yemen is in a sort of defacto partition between the Houthi-ruled North and the STC & government-ruled territories of the South. So while Houthi-led Yemen is at war with Saudi Arabia, the two most powerful factions in Yemen are also fighting against each other in a domestic civil war. While also fighting against two terrorist groups. Welcome to Yemen.

al-Sharia. Unofficially, they're fighting against the STC too but maintain a facade of unity to avoid being permanently isolated.

**Al Qaeda & Ansar Al-Sharia:** Al Qaeda & Ansar Al Sharia took advantage of the ensuing chaos in 2015 to capture large swaths of territory. At the height of their success, they controlled large swaths of Hadhramaut and even captured the key city of Mukalla. Both groups are enemies of all other major forces involved in Yemen.

Al Qaeda & Ansar Al Sharia are against the Houthis, STC, Saudi & UAE.



## GOODHEARTED PEOPLE!

The world is full of beautiful people. An anonymous man in Saudi Arabia installed a giant refrigerator in front of his house. He and his neighbours leave their leftovers in it daily, providing free food for the less fortunate children in his town. He wants to spare them the "shame" of begging, and provide them with proper meals instead.



**There are vending machine in Istanbul that dispense food and water for stray dogs. The price ? An empty recyclable bottle.**







## Dalai Lama regrets asking boy to 'suck my tongue'

Source: <https://www.bbc.com/news/world-asia-india-65229327>



Apr 10 - The Dalai Lama has apologised after footage showed him asking a boy if he wanted to suck the Tibetan spiritual leader's tongue. His office said he wanted to apologise to the child and his family "for the hurt his words may have caused".

The video also shows the Dalai Lama kissing the child on his lips.

"His Holiness often teases people he meets in an innocent and playful way, even in public and before cameras. He regrets the incident," [his office said](#). The footage has sparked widespread criticism, with many social media users saying it was inappropriate and disturbing. The incident appears to have taken place at the Dalai Lama's temple in Dharamshala on 28 February. He had interacted with around 120 students who had completed a skills training programme organised by the M3M Foundation, the philanthropic arm of real estate company M3M Group. The foundation uploaded photos from the event on social media in March - in one of them, the Dalai Lama is seen hugging the boy from the viral video.

In the video which has circulated online, the boy is seen asking if he can hug the Dalai Lama. The leader motions to his cheek, saying "first here" and the boy kisses his cheek and gives him a hug.

Then, while holding the boy's hand, the Dalai Lama motions to his lips and says "I think here also", and kisses the boy on the lips.

The leader then puts his forehead to that of the boy's, before sticking out his tongue, saying "and suck my tongue". As some people laugh, the boy sticks his tongue out before withdrawing a little, as does the Dalai Lama.

There are then more hugs, as the spiritual leader speaks to the boy for a while longer, telling him to look to "good human beings who create peace and happiness". Sticking one's tongue out can be [a form of greeting in Tibet](#).

The Dalai Lama has been living in exile in India since fleeing Tibet in 1959, following an uprising against Chinese rule there.

In 2019, the Dalai Lama's office [apologised](#) after the spiritual leader told the BBC in an interview that any future female Dalai Lama should be "attractive".



## Italy declares state of emergency over migrants

Source: <https://www.dw.com/en/italy-declares-state-of-emergency-over-migrants/a-65283301>

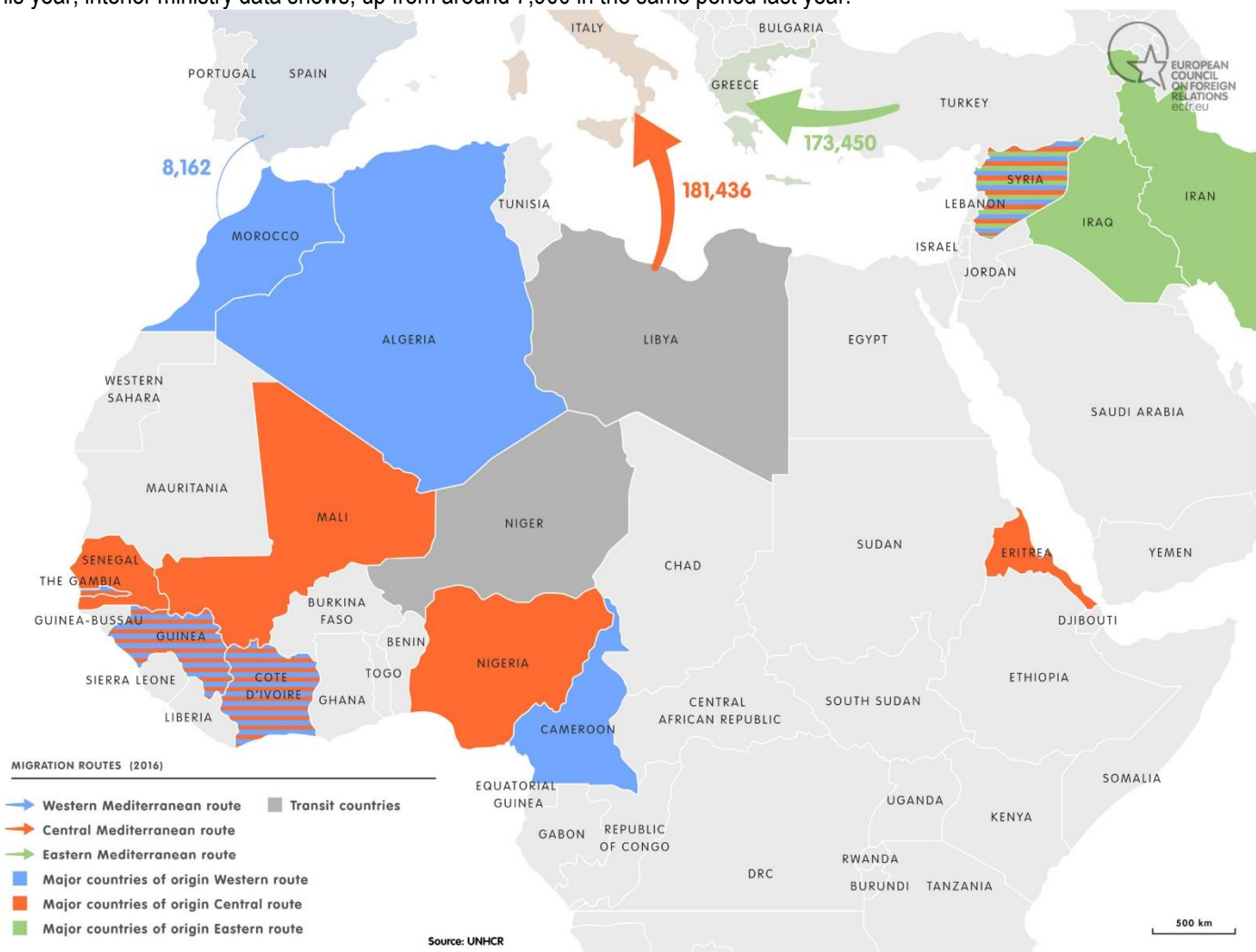
Apr 12 - The Italian government declared a state of emergency on Tuesday to deal with the "sharp rise" of [migrants](#) trying to cross the [Mediterranean](#). It will last for about six months and provide €5 million (roughly \$5.45 million) to regions dealing with crisis in the south of [Italy](#). The money is supposed to fund setting up new reception centers for migrants, while declaring the emergency should make it easier for [Giorgia Meloni's right-wing government](#) to repatriate those not allowed to stay in Italy faster.

"Let it be clear, we are not solving the problem, the solution can only depend on responsible intervention by the European Union," Civil Protection Minister Nello Musumeci said. More than 31,000 migrants have arrived in Italy so far





this year, interior ministry data shows, up from around 7,900 in the same period last year.



**Some 2,000 migrants reach Lampedusa over Easter**

Italy's ANSA news agency around 2,000 people arrived by boat on the Italian island of [Lampedusa](#) off the North African coast over



the long Easter weekend. As the winter weather eases the volume of crossings tends to increase in the northern hemisphere's summer. The [Italian coastguard](#) rescued around 800 people off a fishing boat off the coast of Sicily.

They were also bringing about 400 people aboard a second boat ashore.

Yet another boat carrying about 400 migrants is adrift off [Malta](#), the NGO Sea-Watch Italy told DW on Tuesday.

"Our aerial monitoring mission...have sighted a yet other about 400 people in distress at sea in a big fishing boat in the Maltese search and rescue area," Giorgia Linardi, a spokeswoman for Sea-Watch Italy told DW. She said the NGO was

concerned over the state of emergency because it, "may mean more summary expulsions of people from Italy without a careful assessment of their asylum claims."

**EDITOR'S COMMENT:** Once and for all the so-called mighty European Union must declare that "we did not invite you! Stay in your country! Do not force us to exhibit our brutal face because we can!" This "we will invade your countries no matter what" is NOT acceptable!




## Americans' Experiences With Gun-Related Violence, Injuries, And Deaths

By Shannon Schumacher , Ashley Kirzinger, Marley Presiado , Isabelle Valdes , and Mollyann Brodie

Apr 11, 2023

Source: <https://www.kff.org/other/poll-finding/americans-experiences-with-gun-related-violence-injuries-and-deaths/>



**1 in 5** say they've  
had a family member  
killed by a gun, including suicide



### Key Findings

- Experiences with gun-related incidents are common among U.S. adults. One in five (21%) say they have personally been threatened with a gun, a similar share (19%) say a family member was killed by a gun (including death by suicide), and nearly as many (17%) have personally witnessed someone being shot. Smaller shares have personally shot a gun in self-defense (4%) or been injured in a shooting (4%). In total, about half (54%) of all U.S. adults say they or a family member have ever had one of these experiences.
- Gun-related injuries and deaths, as well as worries about gun violence, disproportionately affect people of color in the U.S. Three in ten Black adults (31%) have personally witnessed someone being shot, as have one-fifth of Hispanic adults (22%). One-third of Black adults (34%) have a family member who was killed by a gun, twice the share of White adults who say the same (17%). In addition, one-third of Black adults (32%) and Hispanic adults (33%) say they worry either “every day,” or “almost every day” about themselves or someone they love being a victim of gun violence (compared to one in ten White adults). And one in five Black adults (20%) and Hispanic adults (18%) feel like gun-related crimes, deaths, and injuries are a “constant threat” to their local community, more than double the share among White adults (8%).
- The majority (84%) of U.S. adults say they have taken at least one precaution to protect themselves or their families from the possibility of gun violence, including nearly six in ten (58%) who have talked to their children or other family members about gun safety, and more than four in ten who have purchased a weapon other than a gun, such as a knife or pepper spray (44%), or attended a gun safety class or practiced shooting a gun (41%). About a third (35%) have avoided large crowds, such as music festivals, or crowded bars and clubs to protect themselves or their families from the possibility of gun violence. Three in ten (29%) have purchased a gun to protect themselves or their family from the possibility of gun violence. Smaller shares, but still at least one in seven, have avoided using public transit (23%), changed or considered changing the school that their child attends (20%), avoided attending religious services, cultural events or celebrations (15%), or moved to a different neighborhood or city (15%).
- One in seven (14%) adults say a doctor or other health care provider has asked if they own a gun or if there are guns in the home, while about one in four (26%) parents of children under 18 say their child’s pediatrician has asked them about guns in the home. Few (5%) adults say a doctor or other health care provider has ever talked to them about gun safety.





- Four in ten (41%) adults report living in a household with a gun. Among this group, more than half say at least one gun in their home is stored in the same location as the ammunition (52%), 44% say a gun is stored in an unlocked location, and more than one-third report a gun is stored loaded (36%). Overall, three in four (75%) adults living in households with guns say any of their guns are stored in one of these ways, representing three in ten overall adults (31%). About four in ten (44%) parents of children under age 18 say there is a gun in their household. Among parents with guns in their home, about one-third say a gun is stored loaded (32%) or stored in an unlocked location (32%). More than half of parents (61%) say any gun in their homes is stored in the same location as ammunition.

► Read the full article at the source's URL.

## Top 20 Most Dangerous Countries in the World (Global Peace Index 2022 — higher scores are less safe)



Source: <https://worldpopulationreview.com/country-rankings/most-dangerous-countries>

1. <a href="#">Afghanistan</a> — 3.554	11. <a href="#">Ukraine</a> — 2.971
2. <a href="#">Yemen</a> — 3.394	12. <a href="#">North Korea</a> — 2.942
3. <a href="#">Syria</a> — 3.356	13. <a href="#">Libya</a> — 2.930
4. <a href="#">Russia</a> — 3.275	14. <a href="#">Mali</a> — 2.911
5. <a href="#">South Sudan</a> — 3.184	15. <a href="#">Ethiopia</a> — 2.806
6. DR Congo — 3.166	16. <a href="#">Venezuela</a> — 2.798
7. <a href="#">Iraq</a> — 3.157	17. <a href="#">Pakistan</a> — 2.789
8. <a href="#">Somalia</a> — 3.125	18. <a href="#">Burkina Faso</a> — 2.786
9. <a href="#">Central African Republic</a> — 3.021	19. <a href="#">Turkey</a> — 2.785
10. <a href="#">Sudan</a> — 3.007	20. <a href="#">Colombia</a> — 2.729

**EDITOR'S COMMENT:** At least in all of these “dangerous” countries there is war, conflicts, political instability, etc. In the USA?

## Governments Are Using Science Fiction to Predict Potential Threats

By Mike Ryder

Source: <https://www.homelandsecuritynewswire.com/dr20230411-governments-are-using-science-fiction-to-predict-potential-threats>

Apr 11 - From high-tech fighting machines to supercomputers and [killer robots](#), science fiction has a lot to say about war. You might be surprised to learn that some governments (including the [UK](#) and [France](#)) are now turning their attention to these fantastical stories as a way to think about possible futures and try and ward off any potential threats.

For many years now, science fiction writers have made prophesies about futuristic technologies that have later become a reality. In 1964, Arthur C. Clarke famously [predicted the internet](#). And in 1983, Isaac Asimov predicted that [modern life would become impossible without computers](#). This has made governments take note. Not only can science fiction help us imagine a future shaped by new technologies, but it can also help us [learn lessons about potential threats](#).

There are many issues that science fiction engages with, which will no doubt be feeding into defense research around warfare and ways to mitigate risk. While we can never predict the future completely, we can only hope that our leaders and decision-makers learn lessons alluded to in science fiction, so that we may avoid the dystopia that some science fiction suggests.

Here are four issues from science fiction that governments may be considering.

### 1. Super Soldiers

Super soldiers are a major theme in science fiction and take many forms. Often they are “super” on account of their technology, such as in Robert A. Heinlein's [Starship Troopers](#) (1959) and Joe Haldeman's *Forever War* (1974). However, more modern examples also explore how super soldiers can be further augmented with stronger muscles and even extra organs. These super soldiers are stronger, faster and better able to wage war so there are, unsurprisingly, often many moral and ethical consequences to their role. The battle computer in *Forever*



War has the power to blow up any soldiers that don't follow orders. Meanwhile, in the popular story-driven game Warhammer 40,000, monk-like warriors are implanted with a second heart, a third lung and a whole host of additional implants to help them survive on the field of battle. Known as [Space Marines](#), they are changed to such an extent that they lose touch with the very things that made them human in the first place.

## 2. Drones

[Drone operations](#) play an increasingly important role in modern warfare, with the US and its allies making use of Predator and Reaper drones to patrol the skies and kill terror suspects from afar. More recently, we have seen examples of [naval](#) drones being used in the war in Ukraine. But, of course, science fiction has long predicted this type of warfare and if anything, it is simply a logical continuation of the computerization of daily life.

In Orson Scott Card's novel *Ender's Game* (1985), the child protagonist Ender Wiggin is taken into Battle School where he takes part in a series of elaborate military exercises using computers to simulate a war against a distant alien foe. Only after destroying the alien home world does Ender then discover that he wasn't playing a game at all, but rather commanding real-world forces fighting in outer space. In a recent [article](#), I argue that *Ender's Game* both pre-empts and engages with many of the key debates that we are having in this area today. This includes the way targets are selected and the moral and ethical questions around remote killing. As drones become more common in daily civilian life, these issues will only become more pressing.

## 3. Bio-engineering

Beyond drones and advanced computer technologies, we might also consider the biological sciences and the role of animals used to support humanitarian operations in war. In Adrian Tchaikovsky's *Dogs of War* (2017), the protagonist is a bio-engineered dog – quite literally, a dog-of-war (a mercenary) – who follows orders without question until one day discovering that his masters aren't quite the "good guys" they first claim. As with so many of the best works of science fiction, *Dogs of War* poses many ethical and moral questions about the human condition, including the way humans so often exploit others, and how animals then fit within our moral framework. For example, the real-world case of the dog [Kuno](#) who saved soldiers' lives in Afghanistan and was awarded the dog equivalent of the Victoria Cross. If we are to send out animals into dangerous situations to support soldiers or [search for earthquake survivors](#) then perhaps the animals too need to be augmented to reduce risks and make them better at what they do?

## 4. Behavioral Modification

Science fiction has a lot to say about drugs and the way chemicals can be used to distort reality and modify behavior. Perhaps the most famous author in this area is Philip K. Dick, with novels such as [The Three Stigmata of Palmer Eldritch](#) (1964), [Ubik](#) (1969) and [Flow My Tears, the Policeman Said](#) (1974) dealing with variations on this theme.

There was also the film [Serenity](#) (2005) (and its sorely missed TV series, [Firefly](#)), in which Captain Malcolm Reynolds and his crew travel to the planet Miranda to discover the dark consequences of drugs used to control populations and make people more compliant. While these examples may seem sinister, they are nothing compared with the experiments conducted by the real-life CIA.

Towards the end of the Vietnam war, revelations emerged that the CIA had been conducting illegal human experiments in order to develop drugs for brainwashing and torture. This operation, known as [MK-ULTRA](#), was made public at a senate hearing in 1977.

While we can only hope that such extreme and horrific experiments are a thing of the past, the concept of [behavioral modification](#) is still a big thing in defense research, though perhaps not to the same extent as it was in the middle of the last century.

Indeed, many would argue that social media is now a [global battlefield](#), with information warfare a real threat to security, and the likes of Russia and China accused of [waging cyber campaigns against the west](#).

Mike Ryder is Lecturer in Marketing, Lancaster University.

## 15 EU countries, including Germany and France, join legal case against Hungary's anti-LGBT law

Source: <https://www.euronews.com/my-europe/2023/04/07/15-countries-including-germany-and-france-join-legal-case-against-hungarys-anti-lgbt-law>

Apr 07 - A total of 15 European Union countries have joined a legal case against Hungary's Child Protection Law, widely criticised as being anti-LGBT. Belgium, Luxembourg, Netherlands, Portugal, Austria, Ireland, Denmark, Malta, Spain, Sweden, Finland, Slovenia, France, Germany and Greece,





together with the European Parliament, will act as third parties in the lawsuit filed last year by the European Commission. The deadline to join the case ended on 6 April. "We stand firm in our commitment to an inclusive society and equality for all," [said](#) the Belgian Foreign Affairs Ministry, which had led the charge against the controversial bill.

The Hungarian law, approved in June 2021, contains one provision that prohibits or heavily restricts depictions of homosexuality and gender reassignment in media content and educational material addressed to audiences under 18 years of age.

**EDITOR'S COMMENT:** Go Hungary! So shame for my country. This LGPT game should stop. They are citizens like everybody else and have the same rights. But trying to impose what they are doing in their bedrooms on the entire society is unacceptable. End of story! Enough!

## US assembled about 20,000 troops near Russian border — journalist Seymour Hersh

Source: <https://tass.com/world/1603355>

Apr 12 – US has deployed two brigades numbering a total of about 20,000 servicemen near the border with Ukraine, US journalist Seymour Hersh said in an article on Wednesday. In the article he published on the Substack platform, he suggested that US President Joe Biden could utilize these troops in the conflict in Ukraine.

"A brigade of the 82nd Airborne Division has been intensively training and exercising from its base inside Poland within a few miles of the Ukrainian border. It was reinforced late last year by a brigade from the 101st Airborne Division that was deployed in Romania. The actual manpower of the two brigades, when administrative and support units - with the trucks and drivers who haul the constant stream of arms and military equipment flowing by sea to keep the units combat ready - could total more than 20,000," he wrote.

"If worse comes to worst for the undermanned and outgunned Ukraine army in the next few months, will the two American brigades join forces with NATO troops and face off with the Russian army inside Ukraine? Is this the plan, or hope, of the American president? Is this the fireside chat he wants to give? If Biden decides to share his thoughts with the American people, he might want to explain what two army brigades, fully staffed and supplied, are doing so close to the war zone," he went on to say.

Hersh earlier accused Biden of organizing the sabotaging of the Nord Stream underwater pipelines.

**EDITOR'S COMMENT:** Isn't there a logic man to stop a future massacre? These troops are going to fight for what? The freedom of Europe? The freedom of the US? They are going to die for the politics and power ambitions of the few that do not appreciate peace hidden in their secure (?) micro-environments. What a shame!

## How Finland "Fell in Love" with NATO. Helsinki Sold Its Independence for Money

**An interview with Mauno Saari, one of the most respected Finnish journalists**

By Mauno Saari and Dragan Vujcic (a regular contributor to Global Research)

Source: <https://www.globalresearch.ca/finland-sold-independence-for-money/5815818>

Apr 14 – Finland was not "suddenly" interested in NATO. Finland spent decades building its military to be compatible with NATO troops. It is about a process that already started in the nineties.

Let me remind you, in 2014, Finland signed a memorandum of understanding with NATO.

It gives the military alliance broad rights to act on Finnish soil, including "attack".

In Finland, they are jokingly asking where we are going to attack. Is it Sweden? This is how **Mauno Saari**, one of the most renowned Finnish journalists today, answers the question of the weekly "Pečat" –

The presence of this author causes attention in the Scandinavian public.

Saari started his career as a reporter at Helsingin Sanomat and then continued his ten-year career in journalism as the editor-in-chief of the magazines Iltaset, Suomen Kuvalehti, Iltalehti and Uude Finland, literally in the most respected daily newspapers and weeklies published in Helsinki. In recent years, he has been writing TV scripts and film templates. He returned to journalism recently and for a reason.

\*

At the beginning of 2022, I founded the Naapuriseur association and its online publication Naapuriseur Sanomat, because as an old journalist I thought the situation in the country was scandalous and



intolerable. The last straw was the statement of our **Prime Minister Sana Marin**, or rather her request that “all ties with Russia must be severed”. Our association, “Good Neighbors” opposes that policy. The club is independent and impartial. She wants Finland to have good relations with all our neighbors. Of course, we pay special attention to what is happening in Russia because it is highlighted when they really want to cut off all connections, including mail and rail traffic...

**Dragan Vujicic (DV):** Let's go back to Finland's Memorandum of Understanding with NATO from 2014?

**Mauno Saari (MS):** The decision to sign that agreement was made when the Parliament was on vacation. The agreement was not presented to the parliament and has many strange features. In my opinion, membership in NATO was the long-term goal and dream of President Niiniste. He will go down in history for implementing it. In other words, he will go down in history as the president who ended the nearly 80-year peaceful and even friendly era between Finland and the Soviet Union/Russia. At the same time, Niiniste destroyed the work of two previous presidents, Juho Kusti Pasikivi and Urho Kekonen, and their life's work, the doctrine of how a small country can live in peace and prosperity as a neighbor of a great power. It was a very successful “policy of active neutrality”.

**DV:** Prime Minister Marin points to threats from Russia?

**MS:** The question of the Russian threat is fundamental. There was nothing like it, not even the slightest. The media has been developing an image of the threat for years, but without any facts. In reality, President Niinista conjured up that threat on February 24, 2022, like a magician, he pulled the threat like a rabbit out of a hat to get a reason to report NATO.

**DV:** Doesn't Finland learn from history?

**MS:** My friend, the academic Paavo Haavikko, who passed away a few years ago, wrote: “Finland cannot learn from its history because it has never made a mistake. A fitting irony. Finland has lost every conflict it has been involved in for nearly 300 years. The history of the Second World War has been forgotten, or the current generation of politicians has never studied it. Prime Minister Sanna Marin's phrase on TV news became famous in Finland: “Finland went to war with Russia and won.”

**DV:** Apart from youth, did your prime minister have any other good qualities?

**MS:** The only thing he has is youth. No comment.

**DV:** It seems to us that the whole of Scandinavia is in some kind of militaristic frenzy?

**MS:** Nordic militarism is America's dream. The creation of this type of militarism was also influenced by the USA through its many years of activity. Sweden has long been a “little America”, with very close relations with the US, also in the field of espionage. Finnish politicians and ordinary people have a completely wrong picture of the United States. We admire America, we don't want to know that it is a monster that has 750 military bases around the world and lives by devouring the countries it goes to “help”. We don't want to see the results when the USA “helped” Iraq, Afghanistan, Yugoslavia, Libya and many other places. We lie to ourselves that the USA will rush to help us if Russia threatens us. America is in no hurry! She's not even walking. Its way of waging wars is to use the armies and territories of other countries. If there is ever a conflict between NATO/USA and Russia, Finland will be destroyed. In that case, we are a scorched battlefield.

**DV:** What else has NATO gained since your country joined the alliance?

**MS:** NATO got a strong army. So we are paying the big costs of the NATO military. In addition, we are also paying for the new F35 fighters that we bought for NATO. Finland is everything poorer, but has unlimited money for weapons. Good job! We sold our independence and paid the price ourselves. On the other hand, Finland came under the nuclear umbrella. Our politicians do not understand that there are two umbrellas. Neither will protect us if an atomic war breaks out.

**DV:** All this happens when your region is led by the female leaders of Sweden (Magdalena Anderson), Estonia (Kaya Kalas), Lithuania (Ingrid Šimonite), Ursula Von der Leyen who is going to be the head of NATO?

**MS:** You are asking for a female leader! Well, for decades it has been said that peace would return to the world if women came to power. What does it look like? These bosses, starting with Ursula acting The female is much more aggressive than the male. If a rooster wandered into this chicken coop, it would be immediately liquidated. I feel that women have had a longing and lust for power for a long time. That could explain the situation. Fortunately, there is a woman in my house (Pirko Turpienen) who is passionately on the side of peace. We do what we can for that, but we don't see Finland as “the happiest country in the world”. The atmosphere of censorship and the threat of war is oppressive.

**DV:** Is nuclear war threatening?

**MS:** There is an old saying: “They can kill the whole world six times with their bombs, but only the first time is bad”. Our “Association of Good Neighbors” and its web newspaper “Naapuriseuran Sanomat” were created to fight against this hateful and suicidal atmosphere. Your readers can find the publication by clicking on [naapuriseura.fi](http://naapuriseura.fi) and selecting their language.

**DV:** Mainstream media don't see the situation like ordinary normal people?

**MS:** A complete turnaround took place in the Finnish media in 2014. Until then, newspapers and TV followed normal journalistic principles. After that, the entire media field turned into a producer of Western propaganda. It is not wrong to say that he became an effective brainwashing machine that scared people





with the threat of Russia and pushed for NATO membership. The electoral victory of the right and the extreme right is also due to this.

**DV:** What exactly happened?

**MS:** The state established “Mediapool” in the country for crisis situations. Although there was no crisis, in the media sense, Finland moved into a state similar to wartime censorship. This “pool” announced on its own website that one of its purposes is the fight against anti-NATO communication. “The fourth level of power in the state” (media) became number one. The media, which have always been the “watchdogs” of the home, have become the master of the house. Freedom of speech has become a prison of words.

**DV:** Your association in Finland is accused of being “pro-Russian”?

**MS:** We publish essays, opinions and news stories that are not currently in the mainstream media. We have a great correspondent in Moscow. Our publication is not the megaphone of the Kremlin, but it is good that people have more diverse information than what is offered by the censored media.

## Wise words!



## Documents Reveal FBI Sought to Develop Sources in Local Catholic Churches

Press Release

Source: <https://judiciary.house.gov/media/press-releases/documents-reveal-fbi-sought-develop-sources-local-catholic-churches>

Apr 10 – Today, Chairman Jim Jordan (R-OH) revealed that the FBI relied on information derived from at least one undercover employee and sought to use local religious organizations as “new avenues for tripwire and source development.” This proposed outreach plan included contacting so-called “mainline Catholic parishes” and the local “diocesan leadership.” The documents reveal that the FBI also expressed an interest in “leverag[ing] existing sources and/or initiat[ing] Type 5 Assessments to develop new sources with the placement and access” to report on suspicious activity. In light of this information and the serious consequences for the free exercise of Americans’ First Amendment rights, Chairman Jordan issued a subpoena today to FBI Director Wray for all documents related to the FBI’s actions.

### BACKGROUND:

On February 16, 2023, Chairman Jordan and Rep. Mike Johnson (R-LA) [sought](#) information from the FBI relating to a January 23, 2023 “domain perspective” document generated by the Richmond Field Office entitled “Interest of Racially or Ethnically Motivated Violent Extremists in Radical-Traditionalist Catholic Ideology Almost Certainly Presents New Mitigation Opportunities.” After receiving no response, the Committee [reiterated](#) its request in a subsequent letter dated March 20, 2023. On March 23, 2023, the FBI produced a substandard and partial response consisting of only 18 pages—many with significant redactions of “personally identifiable information” or “specific non-public information about [FBI] investigations, sources, and methods” that prevents the Committee from fully assessing the content and context of the documents and obtaining information requested from the Bureau.

### NEW INFORMATION:



From this limited production, it is apparent that the FBI, relying on information derived from at least one undercover employee, sought to use local religious organizations as “new avenues for tripwire and source development.” For example, in a section of a January 23, 2023, domain perspective document entitled “Opportunities,” the FBI wrote: “In addition to [redaction], engage in outreach to the leadership of other [Society of Saint Pius X] chapels in the FBI Richmond [area of responsibility] to sensitize these congregations to the warning signs of radicalization and to enlist their **assistance to serve as suspicious activity tripwires.**” The FBI similarly noted two other opportunities to engage in outreach with religious institutions in the Richmond area, citing a desire “to sensitize the congregation to the warning signs of radicalization and enlist their assistance to serve as suspicious activity tripwires.” This outreach plan even included contacting so-called “mainline Catholic parishes” and the local “diocesan leadership.” The FBI also expressed an interest in “leverag[ing] existing sources and/or initiat[ing] Type 5 Assessments to develop new sources with the placement and access” to report on suspicious activity. The document itself shows that its contents, including its proposal to develop sources in Catholic churches, were reviewed and approved by two senior intelligence analysts and even the local Chief Division Counsel. Whistleblowers have advised that the FBI distributed this document to field offices across the country.

This information is outrageous and reinforces the Committee’s need for all FBI records about the domain perspective document. Accordingly, and because Director Wray has not fully responded to the Committee’s earlier voluntary requests, Chairman Jordan is issuing a subpoena to the FBI for all records about the FBI’s January 23 domain perspective document.

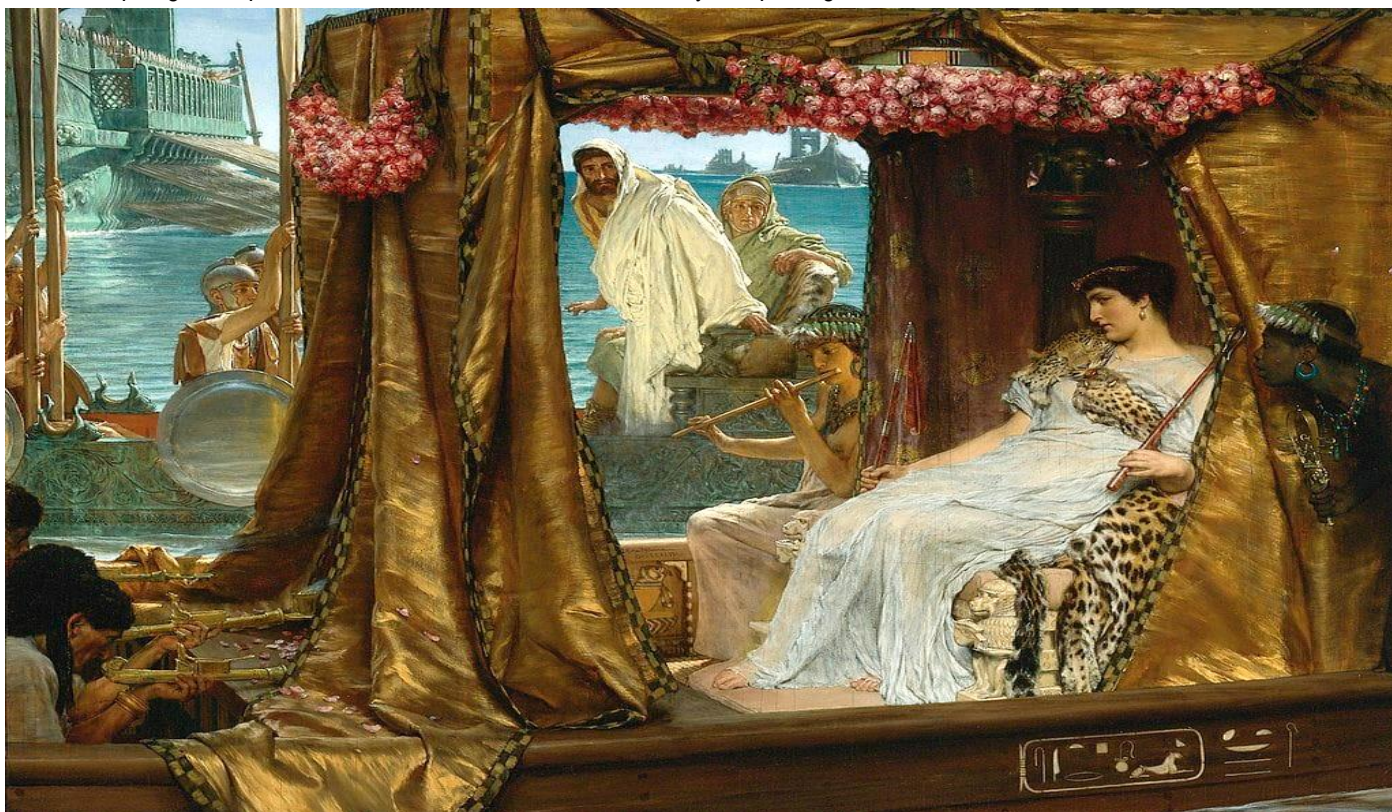
●► Read the subpoena cover letter to Director Wray [here](#).

## New Netflix Documentary Forgets Cleopatra was Greek

By Alexander Gale

Source: <https://greekreporter.com/2023/04/14/netflix-documentary-cleopatra-greek/>

*Enough.*



Cleopatra VII Philopator. Credit: Lawrence Alma-Tadema / Public domain / Wikimedia Commons

Apr 14 – A new Netflix documentary, *Queen Cleopatra*, exploring the life of the legendary ruler of Egypt, has come under fire for historical revisionism. The documentary has been criticized for “blackwashing” due to the decision to depict [Cleopatra](#) as black, despite the historical figure being of Greek descent. The





documentary, which is narrated and produced by Jada Pinkett Smith, focuses on Cleopatra's reign during the 1st century BC and her relationships with the equally famous Roman generals Mark Anthony and Julius Caesar.

Historically speaking, **Cleopatra VII Philopator belonged to the Ptolemaic dynasty, the Macedonian Greek royal dynasty that ruled Egypt during the Hellenistic period.** Cleopatra was the descendent of Ptolemy I Soter, a Macedonian Greek general who served alongside Alexander the Great and founded the Ptolemaic Kingdom in Egypt after Alexander's death.

### Why is the Netflix Cleopatra series controversial?

The new series has drawn the ire of online users reacting to the recently released trailer. Some online commentators have expressed puzzlement over the decision to inaccurately portray a historical figure in what is meant to be an educational documentary.

One user who commented on the [YouTube trailer](#) and garnered over 2,600 likes, wrote "Cleopatra was so Greek, and so separated from what we know as Egyptian, that her being able to speak Egyptian along with Greek was a marvel. The true story of Cleopatra, Julius Caesar, the Siege of Alexandria, and her place in history is so much more fascinating than the false depiction of reality being shown in this trailer."

**This is not the first time** that the depiction of a figure from [ancient Greek history](#) or [mythology](#) has provoked strong condemnations. The decision of the BBC in 2018 to cast the mythical [ancient Greek](#) figures of [Achilles](#), Patroclus, and [Zeus](#) with black actors stirred a similar [controversy](#).

More broadly, misrepresentation of historical figures in TV and film has been rife over the decades. For example, the 1956 film *The Conqueror*, has been widely mocked for the decision to cast John Wayne – a white American – as [Genghis Khan](#), who was Mongolian.



### The historical figure

Cleopatra VII Philopator ruled over Egypt from 51 to 30 BC and was the last ruler of the Ptolemaic Kingdom in Egypt. After her death, the Roman Empire took control of the country. The Ptolemaic Dynasty was formed by Ptolemy I Soter, a Greek general in [Alexander the Great's](#) army, in 305 BC. Although located in Egypt, the dynasty that Ptolemy established retained its Hellenistic character.

The majority of the elites in the Ptolemaic Kingdom were of Greek Macedonian origin, although the wider population consisted of a greater variety of peoples who had settled in Egypt over centuries.

As [noted](#) by historian Sheila L. Ager, the Ptolemies themselves practiced interbreeding and sibling marriage

Cleopatra, a direct descendant of Ptolemy, was the first Ptolemaic ruler to learn the Egyptian language, as all those before her spoke [only Greek](#). She was also believed to have spoken Ethiopian, Hebrew, Aramaic, Arabic, Syriac, Median, Parthian, and Latin. The name Cleopatra comes from the [Ancient Greek](#) words κλέος (kléos), meaning "glory," and πατήρ (pater), meaning "father," which means "glory of her father." Renowned for her intellect and wit, Cleopatra was described by her contemporaries as incredibly seductive and persuasive, qualities which added to her mystery throughout the centuries. More importantly, it was these qualities which enabled her to survive in the cut-throat world of ancient power politics. She has become a popular figure in media, literature, and art, and her enchanting qualities, romantic relationships, and beauty, are often the focus of such works. Most of the information available about Cleopatra's life comes from Plutarch, who was born sixteen years after the Greek queen died.

## G7 warns "severe costs" against countries aiding Russian war in Ukraine

Source: <http://risingkashmir.com/g7-warns-severe-costs-against-countries-aiding-russian-war-in-ukraine>

Apr 18 - Foreign ministers of the Group of Seven countries have condemned in the strongest possible terms Russia's war of aggression against Ukraine and warned that any use of chemical, biological or nuclear weapons by Moscow would be met with "severe consequences."

In a joint statement issued after two days of talks in the resort town of Karuizawa in central Japan, top diplomats of the G7 countries reiterated their call on third parties to "cease assistance to Russia's war, or face severe costs." "We will reinforce our coordination to prevent and respond to third parties supplying weapons to Russia and continue to take actions against those who materially support Russia's war against Ukraine," the communique read. Top diplomats from Britain, Canada, France, Germany, Italy, Japan and the United States, plus the European Union also



condemned a Russian threat to station nuclear weapons in Belarus as "unacceptable". Stating that Russia's "war of aggression" against Ukraine, constitutes a serious violation of international law, including the UN Charter, the G-7 leaders reiterated that Russia must withdraw all forces and equipment from Ukraine immediately and unconditionally.

"We recommit today to supporting Ukraine for as long as it takes and to providing sustained security, economic, and institutional support to help Ukraine defend itself, secure its free and democratic future, and deter future Russian aggression," it said.

"We will continue to help Ukraine repair and restore its critical energy and environmental infrastructure and reemphasize our strong support for Ukraine's energy security. Ukraine's anti-corruption and domestic reform efforts must continue, and we will support them. In this regard, we reiterate our full confidence in the G7 Ambassadors Support Group in Ukraine and its role of supporting the implementation process," the statement read.

Recalling the importance of the 77-year record of non-use of nuclear weapons since 1945, the G-7 countries condemned Russia's continued seizure and militarization of Zaporizhzhya Nuclear Power Plant (ZNPP), which "could lead to potentially severe consequences for nuclear safety and security."

"We support the International Atomic Energy Agency's (IAEA) efforts to help strengthen nuclear safety and security in Ukraine, including the Director General's leadership on efforts at the ZNPP," the joint communique of the G-7 ministers said.

The statement said, "There can be no impunity for war crimes and other atrocities such as Russia's attacks against civilians and critical civilian infrastructure."

It also condemned the unlawful transfer and deportation of Ukrainians, including children, and conflict-related sexual violence against Ukrainians. Reiterating their commitment to holding those responsible to account consistent with international law, the G7 leaders supported exploring the creation of an internationalized tribunal based in Ukraine's judicial system to prosecute the crime of aggression against Ukraine. In addition, the G7 leaders underscored the importance of the protection and preservation of Ukrainian cultural properties and heritage damaged and threatened by the war.

"Russia's weaponization of food and energy resources has compounded economic vulnerabilities, exacerbated already dire humanitarian crises, and escalated global food and energy insecurity. We will continue to provide assistance, including food-related aid, to help affected countries and populations," the ministers said.

The ministers also affirmed their intent to support the sovereignty, independence, and territorial integrity of Central Asian countries.

"We commit to working together with Central Asian countries to address regional challenges, including the consequences of Russia's war of aggression, the destabilizing effect of the situation in Afghanistan, food and energy insecurity, terrorism, and the consequences of climate change," it said.

The G7 ministers also agreed that peace and security in the Taiwan Strait was "an indispensable element in security and prosperity in the international community" and opposed militarisation of the South China Sea. They called on Beijing to act as a responsible member of the international community.

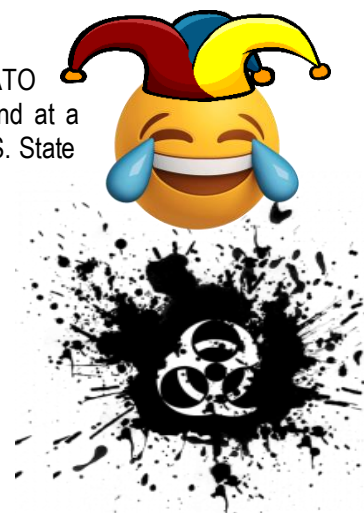
The joint communique also included a demand that North Korea "refrain" from new nuclear tests or ballistic missile launches. (ANI).

**EDITOR'S COMMENT:** After the G7 joint communique, certain questions arise: Don't they know that with this attitude they are only making the Russia-China alliance even more solid? Don't they know that the combined military and nuclear power of the two superpowers is many times that of NATO? Also, don't they know that the two superpowers and countries that join them control essentially all the energy and raw materials of the planet? Who will take a real financial hit? Those who own raw materials and energy or those who own... stock exchanges? Let's also remember that the West mostly has an aging population that is on the way to decline in contrast to those it threatens (which have also "filled" Western societies with illegal immigration flows). In the West, many fear that a rival "bloc" is forming against it. With these actions, do they not know that they are ensuring exactly that? The creation of an awe-inspiring rival who will have multiple powers. It is impossible not to know!

## NATO chief warns global arms control system at risk of 'collapse'

Source: <https://www.politico.eu/article/nato-chief-jens-stoltenberg-warns-global-arms-control-system-risk-collapse/>

Apr 18 - The global system that once limited the rapid proliferation of arms is at risk of extinction, NATO Secretary-General Jens Stoltenberg warned on Tuesday, as he rebuked Russia and China. "We stand at a crossroads," the NATO chief said at a conference on arms control organized by the alliance and the U.S. State Department. "In one direction lies the collapse of the international arms control order and the unrestricted proliferation of weapons of mass destruction, with profoundly dangerous consequences," Stoltenberg said. But, he added: "There is an alternative way ahead — one where we do the work, however difficult."





His remarks come just weeks after Russia [suspended](#) its participation in the last remaining nuclear arms control treaty it had with the United States — putting a coda on a period of eroding arms control pacts worldwide.

The development has occurred alongside a significant arms buildup from both Russia and China, as well as Moscow's wartime nuclear saber-rattling.

In his speech on Tuesday, the NATO chief laid out serious concerns about Russia and China's behavior — but still left the door open to new arms control arrangements. "The Kremlin has chosen to dismantle arms control and undermine strategic stability," the secretary-general said, pointing to Russia's decision to suspend participation in the New START Treaty, failure to comply with the Intermediate-Range Nuclear Forces (INF) Treaty and threat to deploy tactical nuclear weapons in Belarus.

And while describing Russia as "the most direct threat to our security," he acknowledged there are other challenges.

China, the NATO chief said, "is rapidly growing its nuclear arsenal without any transparency about its capabilities," while "Iran and North Korea are blatantly developing their own nuclear programs and delivery systems."

But he also signaled NATO's willingness to help bring countries to the table.

"We need to remember that arms control agreements are not made between friends," he said, "they are made between adversaries."

"Some of the most successful arms control agreements were reached in periods of heightened tensions," he noted, adding: "That is what happened during the Cold War — and it can happen again now."

Stoltenberg specifically underscored the potential for working with Beijing on arms control.

"In the longer term, we need to rethink and adapt our approach to our more dangerous and competitive world," he said. "And this means engaging with China, which is estimated to have 1,500 warheads by 2035."

And while not addressing Chinese officials directly, Stoltenberg appeared to be sending a quiet message to Beijing.

"As a global power," he said, "China has global responsibilities."

"Beijing, too," he added, "would benefit from the increased transparency, predictability and security of arms control agreements."

NATO, Stoltenberg said, "is a unique platform where we engage with China and the wider international community for our mutual benefit."

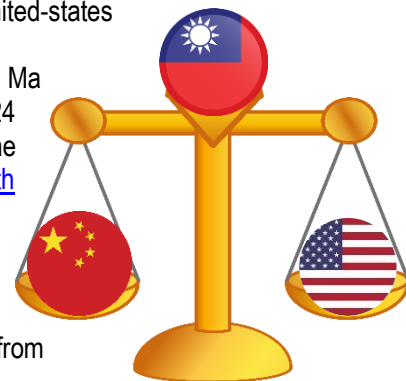
## Taiwan's Choice: China or the United States?

By William Yang (East Asia correspondent for DW in Taipei)

Source: <https://www.homelandsecuritynewswire.com/dr20230419-taiwans-choice-china-or-the-united-states>

Apr 19 - Following two high-profile overseas trips by President Tsai Ing-wen and former leader Ma Ying-jeou, Taiwan's major political parties are gradually gearing up for the 2024 presidential election. Branding his [trip to mainland China](#) as an attempt to restore peace across the Taiwan Strait, Ma — who is from the main opposition party Kuomintang (KMT) — said [tension with China](#) had escalated under Tsai's administration and Taiwan would have to choose between "peace and war."

On the other hand, Tsai — who recently [met US House Speaker Kevin McCarthy](#) — told journalists that leaders of Taiwan's two Central American allies, Guatemala and Belize, had reaffirmed their diplomatic ties with the democratic island. She also pointed out that lawmakers from both parties in the United States also expressed solidarity with Taiwan.



### Potential Presidential Candidates Offer Competing Narratives

Some Taiwanese experts say the choice of destinations for Ma and Tsai's overseas trips represents the two different paths for Taiwan in international politics and the contrast reflects the competition between democracy and autocracy.

"Through the visits, the KMT and the ruling Democratic Progressive Party (DPP) can consolidate their political bases," said Fang-Yu Chen, a political scientist at Taiwan's Soochow University, adding that whether independent voters will buy into the narratives presented by each party remains to be seen.

Apart from Tsai and Ma's high-profile trips to [China](#) and the [US](#), potential presidential candidates from each party have also been setting the tone for their own presidential campaigns.

### 'Democracy and Authoritarianism' Not 'Peace and War'

William Lai, Taiwan's current Vice President, was formally named DPP's presidential candidate on April 12. During his first speech after accepting the nomination, Lai argued that the 2024 presidential election



is a choice between “democracy and authoritarianism” rather than “peace and war.” “Former President Ma walked back into the framework of the ‘One China’ principle, whereas President Tsai is on the democratic path,” he said.

“These will be the two completely different choices the country will face after 2024, so the 2024 election will decide Taiwan’s direction — on the continuation of a democratic system, the next generation’s happiness, as well as peace and stability in the Indo-Pacific,” Lai added.

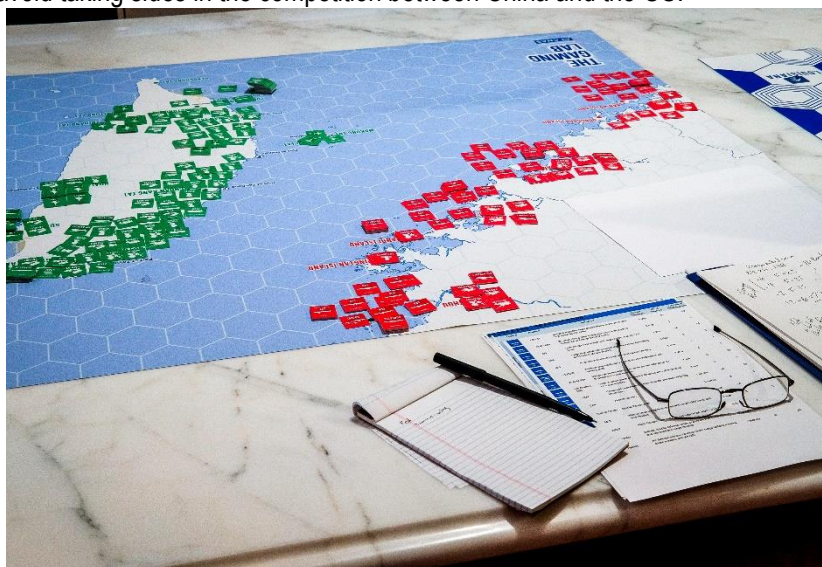
### Chinese War Games

Earlier in April, Terry Gou, the founder of Taiwanese tech giant Foxconn, announced his bid for the KMT presidential nomination. During a press conference, Gou said Taiwan should avoid taking sides in the competition between China and the US.

He warned young voters about the potential danger of voting for the DPP because the party had “called for Taiwan independence and advocated hating and resisting China.” “Peace cannot be taken for granted. It requires the people to make the right decision,” Gou said. And after China launched another [large-scale military exercise around Taiwan](#) following Tsai’s meeting with McCarthy, Chen believes the KMT will try to frame itself as the only party that can help achieve peace across the Taiwan Strait.

“Since China now sets some prerequisites for which Taiwanese politicians or political parties can interact with them, the KMT will keep doubling down on the claim that they are the only political party that can maintain exchanges with Beijing,” Chen said.

“However, Tsai’s trip has rekindled Taiwanese people’s concerns about the confrontation between democracy and autocracy and offered them a reason to fall in line with the DPP. This may help the DPP to get a head start in the preparation for the 2024 presidential election,” Chen concluded.



### Taiwanese People Worry About Cross-Strait Peace and Security

While some experts suggest the DPP’s narrative of choosing between “democracy and autocracy” may resonate with more Taiwanese voters, some Taiwanese people told DW that they think the most important issue for them in the upcoming presidential election is peace across the Taiwan Strait and Taiwan’s own security.

A survey examining Taiwanese people’s view on the former US House Speaker Nancy Pelosi’s [visit to Taiwan last August](#) shows that a majority of Taiwanese respondents believe Pelosi’s trip was detrimental to the island’s security, and the surveys also suggest a considerable number of Taiwanese voters are concerned about entrapment by the US.

“A majority of KMT supporters and independents believed that Pelosi’s visit had made Taiwan less secure, while a majority of DPP supporters felt the opposite was true,” according to the authors of the survey, which was released by the American think-tank Brookings Institute on April 5.

### Competing Narratives

With the recent trips by Tsai and Ma helping to strengthen the confidence of DPP and KMT’s political base, some experts say independent voters may become the decisive factor in the 2024 presidential election, and they are the group of people that both parties will try to win over.

“Independent voters are not really aligned with either the KMT or the DPP, and they are the group of people that the two parties will be fighting for narratively,” said Lev Nachman, a political scientist at the National Chengchi University in Taipei. “Both parties will accuse the other for bringing potential catastrophe to Taiwan and both are going to claim that they are the ones defending Taiwan’s best interests.” And as the [war in Ukraine](#) continues, Chen from Soochow University told DW that the KMT and DPP will continue to amplify their competing narratives of “Taiwan should avoid upsetting major powers in the world” versus “Taiwan should keep strengthening defense because autocrats are irrational.”

“The two mainstream arguments will continue, but it’s hard to determine which narrative will have the upper hand right now,” he said.





## Seven Critical Technologies for Winning the Next War

Source: <https://www.csis.org/analysis/seven-critical-technologies-winning-next-war>



FOUNDATIONAL	STRATEGIC	TACTICAL
<p>These will fundamentally advance national security functions, among other parts of the economy or society, and underpin advancements in numerous sectors.</p> <p>The technologies classified as foundational are <b>AI/ML</b>, <b>quantum technology</b>, and <b>bioengineering</b>.</p>	<p>These will empower better decisionmaking, help avoid strategic surprise, or create a strategic advantage over a competitor.</p> <p>The technologies classified as strategic are <b>AI/ML</b>, <b>space-based sensors</b>, and <b>secure and redundant communications</b>.</p>	<p>These will make a tactical difference on the physical battlefield, the virtual battlefield, or in intelligence collection and analysis along the spectrum of conflict.</p> <p>The technologies classified as tactical are <b>AI/ML</b>, <b>robotics</b>, <b>bioengineering</b>, and <b>high-performance batteries</b>.</p>

Apr 18 – The next war will be fought on a high-tech battlefield. But which technologies will make a real difference? Where will the United States find a technological edge? This CSIS report identifies the seven technologies that could make the difference in a fight against a near-peer adversary. Three are “sprint” technologies, where the United States should aggressively pursue advancement with considerable resources and focused commitment: quantum sensing and computing, biotechnology, and secure, redundant communications networks. Four are “follow” technologies, where the United States should support and shape efforts ongoing in the private sector: high-performance batteries, artificial intelligence/machine learning, space-based sensors, and robotics.

The consequences of failure on any of these technologies are tremendous—they could make the difference between victory and defeat. This report aims to focus efforts on the areas that count, across intelligence work, hybrid warfare, competition, and conflict, to prepare for competition today and potential conflict in the future.

For more information on these technologies and how the U.S. government can effectively incorporate technology into national security functions, visit our new microsite, “[Tech Recs.](#)”

**Emily Harding** is deputy director and senior fellow with the International Security Program at the Center for Strategic and International Studies (CSIS). She joined CSIS from the Senate Select Committee on Intelligence (SSCI), where she was deputy staff director. In her nearly 20 years of government service, she has served in a series of high-profile national security positions at critical moments. While working for SSCI, she led the Committee’s multiyear investigation into Russian interference in the 2016 elections. The five-volume, 1,300-page report reshaped the way the United States defends itself against foreign adversaries seeking to manipulate elections, and it was lauded for its rigor, its thoroughness, and as the only bipartisan effort on election interference. During her tenure on the Committee, she also served as the subject matter expert on election security, counterintelligence and associated cybersecurity issues, and the Middle East. She oversaw the activities of 18 intelligence agencies and led SSCI staff in drafting legislation, conducting oversight of the intelligence community, and developing their expertise in intelligence community matters.

**Harshana Ghoorhoo** is a research assistant with the International Security Program at the Center for Strategic and International Studies (CSIS). Prior to joining CSIS, she interned with the Modern War Institute at West Point Academy, where she researched military strategy during the Revolutionary War and urban warfare. Her current research focuses on artificial intelligence advancement, emerging technologies, and regional security in South Asia. She holds a bachelor of science in international relations and a bachelor of arts in philosophy and modern languages from Seton Hall University.



## Germany: Immigrants Made Up More Than over 18% of 2022 Population

Source: <https://www.homelandsecuritynewswire.com/dr20230420-germany-immigrants-made-up-more-than-over-18-of-2022-population>

Apr 20 – Roughly 20.2 million people [in Germany](#) in 2022 either moved to the country themselves or were born to two people who moved there, according to figures published by the Federal Statistical Office, Destatis, on Thursday.

That's a 6.3% rise on the 2021 figure and represents 24.3% of the total population of around 83.2 million.

Of those, 15.3 million, or 18.4% of the population, [moved to Germany from abroad](#) themselves at some point in their own lifetimes.

The high average levels of migration in recent years were also apparent in the statistics.

Just over 6 million people had migrated to Germany in the last decade on record, between 2013 and 2022.

Increased migration from [conflict zones like Ukraine](#),

Syria and [Afghanistan](#) in 2022

meant that the amount of people who migrated themselves was rising faster, up 7.3% on the past year, than the number of children born to migrant parents, up 4% on 2021, Destatis said.

'Immigration stories' and 'migration backgrounds'

Destatis counted another 4.9 million, roughly

6%, [whose parents both migrated to Germany](#).

And it noted that another 3.9 million had one parent who was a migrant though it said it was not counting them as having a full "immigration story," rather a "one-sided" one.

You might have [seen or heard slightly higher figures for migrant population size in Germany in the past](#). That's because Destatis was tracking what it describes as people with an *Einwanderungsgeschichte*, an "immigration history," but it also regularly reports on people in Germany with a *Migrationshintergrund*, a "migration background."

The statistics are separate yet the data also overlaps considerably. The difference is that to classify as having a "migration background," one or more parents not having been born a German citizen suffices.

Some 23.8 million people in Germany, or 28.7% of the population, fit that definition, Destatis said on Thursday, a slight increase on their last tally.

Germany has long been known for a comparatively open migration policy, partly the result of decades of low birth rates and a large labor market. [The government is currently working on a new policy designed to better attract skilled labor from outside the EU](#).

### Where Are the Arrivals from and Why Did They Migrate?

Destatis noted that people who had moved to Germany in the last ten years were on average younger than the average native citizen, with an average age of 29.9 versus 47.0 across the population.

Among them, 27.9% said they moved because they were fleeing or seeking asylum, 24.2% said they were looking for work, and 23.8% said they were moving to join their families. Another 8.2% said they migrated to pursue academic opportunities.

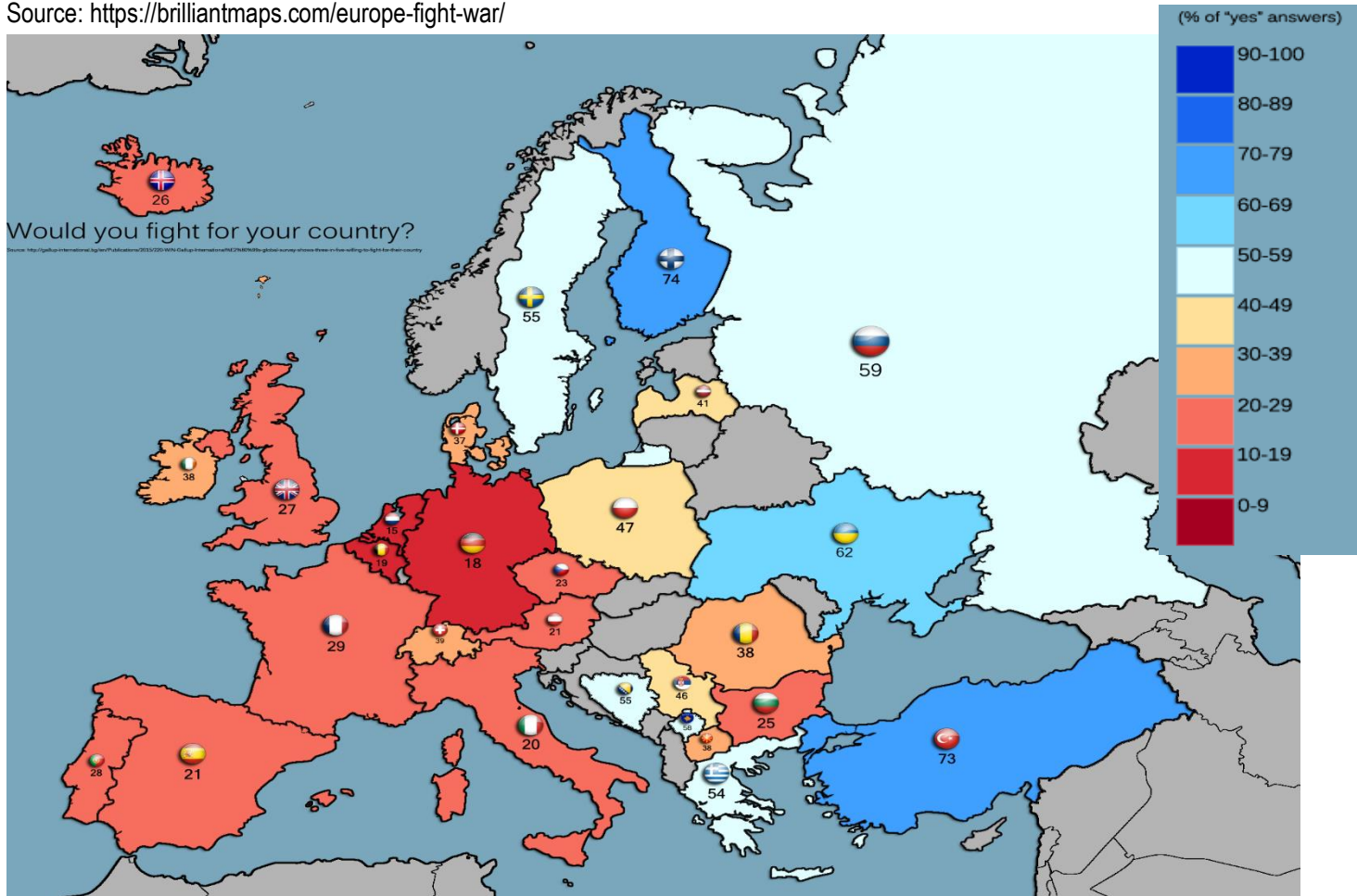
There was near gender parity among the 15.3 million in Germany who had migrated in the last decade; 47% were women and 53% men. The most common countries of origin were civil war-stricken Syria (16%), followed by Romania (7%) and Poland (6%), with Ukraine next at 5%. Destatis noted that the unexpected increase in arrivals from Ukraine in 2022 was probably not yet adequately represented in the data.





## Percentage of Europeans Who Are Willing To Fight A War For Their Country

Source: <https://brilliantmaps.com/europe-fight-war/>



March 2023 – The map shows the percentage of residents in various European countries who are willing to fight and go to war for their country. Full results below:

### Deeply disappointed

- 74% – Finland
- 73% – Turkey
- 62% – Ukraine
- 59% – Russia
- 58% – Kosovo
- 55% – B&H
- 55% – Sweden
- 54% – **Greece**
- 47% – Poland
- 46% – Serbia
- 41% – Latvia
- 39% – Switzerland
- 38% – Ireland
- 38% – FYROM
- 38% – Romania
- 37% – Denmark
- 29% – France
- 28% – Portugal
- 27% – UK
- 26% – Iceland
- 25% – Bulgaria
- 23% – Czech Republic
- 21% – Austria
- 21% – Spain
- 20% – Italy
- 19% – Belgium
- 18% – Germany
- 15% – The Netherlands

The results are from a [2015 WIN/Gallup International global survey](#). The sample size and methodology was as follows:

A total of 62,398 people were interviewed globally. In each country a representative sample of around 1000 men and women was interviewed either face to face (30 countries; n=32258), via telephone (12 countries; n=9784) or online (22 countries; n=20356). Details are attached. The field work was conducted during September 2014 – December 2014. The margin of error for the survey is between 2.14 and 4.45 +3-5% at 95% confidence level. Europe is the continent with the fewest people willing to fight a war for their country. Globally, an average of 61% of respondents in 64 countries said they would. Morocco (94%), Fiji (94%), Pakistan (89%), Vietnam (89%) and Bangladesh (86%) had the highest percentage willing to fight. The country with the fewest people willing to go to war was Japan, with just 11% of respondents saying they would fight. Since World War Two, Europe has been relatively peaceful with major exceptions of the Yugoslav Wars in the 1990s and various political suppressions during the Cold War. However, the 19th century was also a relatively peaceful time for Europe that ended with the start of World War I.



## Save Italian bears from Humans!



## An example of loyalty for humans



This is the last photo of Hachiko, the dog who passed away after 9 years of waiting each day for his last master to return!







# T - NEWS



## Suspicious passengers, box cutters and an argument: Was there really a fifth 9/11 plane that never took off?

Source: <https://www.independent.co.uk/news/world/americas/911-conspiracy-theory-twin-towers-plane-b2307565.html>

Mar 25 – The sun was shining and there were no clouds in the sky as United Airlines captain Tom Manello went through his pre-flight checks in the early morning of 11 September, 2001.

As he did so, passengers on four other flights leaving from Boston, Newark, and Washington DC were preparing to execute a coordinated series of hijackings that ultimately kill nearly 3,000 people and ignite two decades of global warfare.

But for all the investigations and soul-searching that followed the 9/11 attacks, there are still some mysteries we haven't solved. Chief among them: was Manello's aircraft also intended to be a target?

"I now believe that it is more likely than not that we were the fifth airplane," said Manello in a recent TV interview. "There's a good chance that somebody was planning to try to use our airplane as a weapon of mass destruction."

That was the thesis of a new TMZ documentary called *9/11: The Fifth Plane*, [which aired on Fox on Monday night](#), based on interviews with Manello and three other members of his flight crew.

The online tabloid investigated longstanding claims that United Airlines Flight 23 might actually have had its own set of hijackers aboard, who aborted their mission when the flight was delayed by pure chance.

But the theory raises many questions, not least why neither the FBI or the US government's landmark investigation into the disaster ever mentioned anything about United 23.

"It's definitely chilling," Henry Harteveltdt, a travel industry analyst and president of the Atmosphere Research Group, tells *The Independent*. "If [these claims] are indeed accurate, it is information that needs to be taken seriously..."

"It raises the question: if there could have been a fifth aircraft, then could there have been even more than that? And would any of those aircraft be intended to attack other cities in the US?"

However, he also cast scepticism on some of the documentary's claims, saying: "I'm concerned about the accuracy of some of these assertions."

### 'Everything seemed perfectly normal'

United 23 was due to take off around 9am from New York City's JFK Airport. Like the other planes used in 9/11, it was a cross-country flight – in this case, bound for Los Angeles – which meant that it was fully loaded with highly flammable jet fuel.

"Everything seemed perfectly normal," Manello told TMZ. "Everybody was in a good mood, everybody was happy. It was going to be a fun day."

While boarding passengers and preparing to taxi to the runway, there were several incidents that struck crew members as strange, although they seemed harmless at the time. Flight attendant Sandy Thorngren noticed a passenger in business class who appeared highly nervous, sweating profusely despite wearing only a T-shirt in the relatively cold airplane cabin.

In first class, the purser – known in the documentary only as Deborah – got into a minor dispute about food with four passengers: a "well-built" man in a tan suit, a young boy around 6 or 7 years old, a man who seemed to be a "bodyguard", and a woman in a niqab, or full-body covering.

However, Thorngren and another flight attendant, Barbara Brockie Smaldino, became suspicious that the person in the niqab was actually a man, because they had large hands with hair on the back of them. "It was definitely a male underneath that [niqab]," Thorngren told TMZ.

The group had said that they did not eat meat, so Deborah spent a long time trying to get them fruit plates. But they were insistent they did not want to eat and wanted to take off as soon as possible, even though it would be a very long flight. One of them also asked if they could visit the cockpit, because the child really wanted to see inside.

### Plane hatches found mysteriously open

At 8:46am, the first plane flew into the north tower of the World Trade Centre. Reports of the hijackings took time to percolate out through the US air traffic control and military grapevine, so when Manello heard about it over the radio, he assumed a small plane had accidentally crashed while "trying to do something stupid" such as flying between the towers.

However, that day at JFK turned out to be unusually busy, and Flight 23 was stuck in a queue behind ten or so other planes. Hence, it still had not taken off when a second plane hit the south tower and United's dispatcher warned all transcontinental pilots to "beware cockpit intrusion".





Pandemonium ensued as all flights across the US were grounded for fear of further hijackings and JFK Airport was evacuated. Manello and his co-pilot barricaded the door, readied improvised weapons, and taxied back to the gate while passengers frantically called their loved ones to let them know they were safe.

Then came the incident that truly alarmed the crew. Airport workers on the ground observed someone running inside the plane, visible through the portholes – after all the passengers and the crew had left. Staff had already checked the whole plane for stragglers and were quite sure nobody was left on board.



Manello reported this to the airline, and the next day all crew members were interviewed by the FBI. Investigators found that one of the hatches in the plane's floor, leading down into electronics compartment, was open – which could not have happened before the passengers disembarked because they are bulky and block the whole aisle when raised.

"When I was talking to the FBI, and they told me those floor hatches were open, I couldn't breathe. I tried to figure out how those hatches could be opened, unless there was somebody down in the electronics area, and they opened it after we left the aircraft," said Deborah.

Worse, airline staff later found boxcutters – small knives used in at least two of the 9/11 hijackings – concealed in a seat-back pocket of another plane that had been sitting next to Flight 23. Its tail number was 6001, very close to Manello's 6002.

Joining these dots, the crew now believe that these boxcutters were planted ahead of time by an undercover terrorist, perhaps working for the airport or one of its private contractors. They were meant to be used by the hijackers, but through a simple mistake, they were put on the wrong plane.

Then, when the plot failed, someone – perhaps the same person – snuck on board Flight 23 in an attempt to remove the evidence, explaining the person seen running and the hatch left open. According to TMZ, it would have been easy enough to access the electronics compartment via a hatch on the plane's belly, before climbing up into the cabin through the inner hatch.

Asked by TMZ whether he could think of another rational explanation for these events, Manello said: "Honestly, no. I can't think of another reason why somebody would do that."

#### 'There's very little doubt in my mind'

There has long been speculation that the four planes hijacked on 9/11 were not the only targets. In 2004, the US government's 9/11 Commission [reported](#) that Al Qaeda mastermind Khalid Sheikh Mohammed initially hoped to capture ten planes.



After the attacks, boxcutters were also found on two long-range Delta Airlines flight and an American Airlines flight. An FBI report made public last year said that the seat where they were hidden had been occupied by a Saudi Arabian pilot who had previously attracted suspicion from the agency (15 of the 19 hijackers were Saudi Arabian, as was ringleader Osama bin Laden).

As early as 2011, Manello's co-pilot Carol Timmons, who later became the first female general in the Delaware National Guard, [raised the question](#) of whether the four people in first class had also been hijackers. Manello also [told his story to \*The Florida Bulldog\*](#) in 2022, and the United dispatcher said he was told that the four suspicious passengers never claimed their luggage and that "incriminating" items were found inside.

In TMZ's documentary, aviation safety expert and 9/11 historian Lynn Spencer said: "During my research, it was made very evident to me from the highest levels of our government... that there were more than just the four planes.

"United 23 would have become airborne right about the time of the other hijacked aircraft on September 11, and there's very little doubt in my mind that United 23 was the fifth airplane."

Haarteveltdt, however, does have doubts. He points out that lots of people are nervous when they fly; that small children frequently ask to be shown inside the cockpit, and are often allowed to; and that we must be "very careful about not resorting to cultural biases" in casting suspicion on Muslim passengers.

About the dispute over fruit plates, he says: "I will tell you something from experience working with airlines. If you tell people that you're going to have to take a substantial delay for catering, generally, passengers will say 'we'd rather go and get to our destination and eat when we get there'."

As for the report of people running inside the plane, Harteveltdt says it is shaky, as they could have been airline crew mistaken for passengers. The boxcutters are harder to explain, but he questions why an infiltrator within the airport staff would not have been discovered before now.

### Authorities won't say what came of their investigation

There is also the fact that the FBI, according to United 23's crew, investigated all this – but we don't know what came of the investigation. Asked by *The Independent* whether it had ever made any charges or arrests in connection to the flight, the agency declined to comment.

"If the FBI missed information about a potential fifth aircraft, it's embarrassing for the agency," says Harteveltdt. "Or if they still consider it to be a matter of national security that has not yet been cleared for public discussion."

The 911 Commission also never mentioned United 23 in its final report. Former staffer Miles Kara told the *Bulldog* that his analysis of Al Qaeda's plot "does not have room for a fifth plane", and that if there was one, it was unlikely to have come from "yet another airport" in addition to the three already confirmed.

Hence, the truth about United 23 is unclear and may never be known. But the experience of at least seeming to have suffered such a near miss was clearly traumatic for the crew, who said they struggled to work afterwards.

According to the documentary, they were denied compensation by the airline, which argued that they had not suffered any unique stress beyond what all other air crew suffered on that day, until finally being sued and reaching a settlement.

"It's been 21 years, and it still stays with me," said Thorngren. "The terrifying, horrific events, and the way I was treated by a company that I was loyal to for 30 years. I decided I just said couldn't do anymore. I retired in 2003."

"The indifference, and the way we were treated, was abominable," said Smaldino. "So it was time to leave that job that I worked so hard for." United did not respond to requests for comment.

## Counter-Terrorism: High-level Debate

Source: <https://www.securitycouncilreport.org/whatsinblue/2023/03/counter-terrorism-high-level-debate.php>

Tomorrow (28 March), the Security Council will convene for a high-level debate on "[Countering terrorism](#) and preventing violent extremism conducive to terrorism by strengthening cooperation between the UN and regional organisations and mechanisms" under the agenda item "Threats to international peace and security caused by terrorist acts". The debate is one of the signature events of Mozambique's presidency and will be chaired by Mozambican President Filipe Nyusi. UN Secretary-General António Guterres, Chairperson of the AU Azali Assoumani, and Chairperson of the AU Commission Moussa Faki Mahamat are expected to brief. Mozambique has prepared a concept note for the meeting, which states that the debate aims to explore and strengthen opportunities for engagements under Chapter VIII of the UN Charter in support of counter-terrorism initiatives on the African continent. According to the concept note, the debate will provide an



Security Council  
United Nations





opportunity for the Council to reflect on and improve the cooperation framework between the UN, the AU, and sub-regional organisations in the context of countering terrorism.

Several specific challenges in this area are identified in the concept note, including:

1. recourse to regional solutions resulting from security pacts, as well as bilateral mechanisms;
2. the scarcity of financial and material resources for surveillance and other military uses; and
3. coordination of priorities among the different actors, taking into account the changing nature of terrorist acts in different geographical contexts.

In addition, the concept note outlines four questions for Council members to consider:

1. What experiences and practices, at the UN, regional, and bilateral levels, can be promoted and institutionalised for countering terrorism and preventing violent extremism, within the framework of Chapter VIII of the UN Charter?
2. How can opportunities for international cooperation to counter the spread of terrorism in the African continent be maximised, including cutting its funding sources?
3. What development initiatives should be promoted, in developing countries, with emphasis on Africa, to promote community resilience, as an integral step of the global strategy to prevent violent extremism, considering the instrumentalisation of poverty as a mechanism of mobilisation and recruitment?
4. How can member states readjust the global counter-terrorism strategy, considering the reality and nature of terrorism in Africa, during the eighth review scheduled for June 2023?

Some Council members are likely to express support for African counter-terrorism initiatives in their statements tomorrow. Several regional and sub-regional counter-terrorism initiatives are currently active on the continent, including the Joint Force of the Group of Five for the Sahel (FC-G5S), the AU Transition Mission in Somalia (ATMIS/AMISOM), the Multinational Joint Task Force (MNJTF), the Accra Initiative, and the Nouakchott Process.

The FC-G5S was established in 2017 by the member states that initially comprised the Group of Five for the Sahel (G5 Sahel)—Burkina Faso, Chad, Mali, Mauritania, and Niger—to carry out counter-terrorism operations and implement measures to combat transnational crime in the territory of its member states. On 15 May 2022, Mali withdrew from all G5 Sahel institutions, including the FC-G5S.

ATMIS provides support to ongoing military operations in Somalia against Al-Shabaab, a terrorist group with links to Al-Qaeda, and assists in stabilising liberated areas and safeguarding critical infrastructure.

The MNJTF fights the terrorist group Boko Haram in the Lake Chad Basin region. It includes contributions from Benin, Cameroon, Chad, Niger, and Nigeria.

The Accra Initiative was created in 2017 in response to the spread of terrorism to the coastal states of West Africa. In November 2022, its member states (Benin, Burkina Faso, Côte d'Ivoire, Ghana, Niger, and Togo) decided to establish a 10,000-troop entity, also called the Multinational Joint Task Force (MNJTF/AI).

The Nouakchott Process is designed to strengthen regional security cooperation and information-sharing in the fight against terrorism. It is also tasked with making the African Peace and Security Architecture (APSA) operational in the Sahelo-Saharan region. The provision of more adequate, sustainable, and predictable financing for African counter-terrorism operations, such as the FC-G5S, is also expected to be discussed tomorrow. This issue has proven divisive for Council members over the years, particularly in relation to the possible use of assessed contributions to fund such operations. France and the African members of the Council have, for example, argued in favour of using assessed contributions to fund the FC-G5S. Other members have opposed this proposal, citing concerns regarding the force's record of human rights violations. The US, the UN's largest funder, has opposed UN funding for AU-led peace support operations in the past. There may be a window of opportunity for progress on this issue, however, due to the Biden administration's interest in strengthening US relations with Africa.

The Secretary-General has also expressed support for the use of UN assessed contributions to fund counter-terrorism initiatives in Africa. On 18 February, at the AU Summit in Addis Ababa, the Secretary-General said that the UN "wholeheartedly support[s] the creation of a new generation of robust peace-enforcement missions and counter-terrorist operations, led by the [AU] with a Security Council mandate under Chapter VII and with guaranteed, predictable funding, including through assessed contributions".

Members are also expected to refer to initiatives with a specific focus on terrorism established jointly by the UN and the AU, such as the UN-AU technical working group on preventing violent extremism and countering terrorism, which aims to increase counter-terrorism coordination between the two organisations. In September 2022, Guterres announced that the UN, together with the AU, the Economic Community of West African States (ECOWAS), and the G5-Sahel, had created the Independent High-Level Panel on Security Governance and Development in the Sahel. The panel will provide recommendations for responding to the challenges facing the region, including terrorism and



violent extremism. Its findings were originally due to be presented during the AU Summit in February. It appears that they will now be delivered by the middle of the year.

Council members might express concern regarding the spread of terrorism in Africa during tomorrow's meeting. The latest report of the Monitoring Team assisting the 1267/1989/2253 Islamic State in Iraq and the Levant (ISIL) and Al-Qaeda Sanctions Committee, which was published on 13 February, noted that "Africa has emerged in recent years as the continent where the harm done by terrorism is developing most rapidly and extensively".

The need to address the root causes of terrorism in Africa is another likely topic of discussion. On 7 February, the UN Development Programme (UNDP) published a report titled "Journey to Extremism in Africa: Pathways to Recruitment and Disengagement". The report, which was based on personal testimonies from nearly 2,200 respondents, made several findings regarding the factors that can lead an individual to violent extremism. It notes, for example, that "government action, accompanied by human rights abuses, continues to trigger, fuel and accelerate recruitment towards violent extremism". In their statements tomorrow, some Council members may highlight the importance of a whole-of-society approach to counter-terrorism that respects human rights, aligns with international law, and addresses the root causes of violence and extremism.

Mozambique has a particular interest in this issue because it is currently battling an insurgency by ISIL affiliate Ahl al-Sunna Wal-Jama'a (ASWJ) in its northern Cabo Delgado Province. On 15 July 2021, Mozambique approved the deployment to Cabo Delgado of the Southern African Development Community (SADC) Mission in Mozambique (SAMIM), a 2,000-troop force comprising units from eight SADC member states. Rwanda, which is not a member of the SADC, has also sent soldiers to fight against ASWJ. According to the latest report of the Monitoring Team assisting the 1267/1989/2253 Sanctions Committee, the deployment of regional forces in Cabo Delgado "has had a significant impact on ASWJ, disrupting its leadership, command structures and bases".

## Heavily Armed Assailant Kills Six at Christian School

By Emily Cochrane, Ben Shpigel, Michael Levenson and Jesus Jiménez (NYTimes)

Source: <https://www.nytimes.com/2023/03/27/us/nashville-shooting-covenant-school.html>

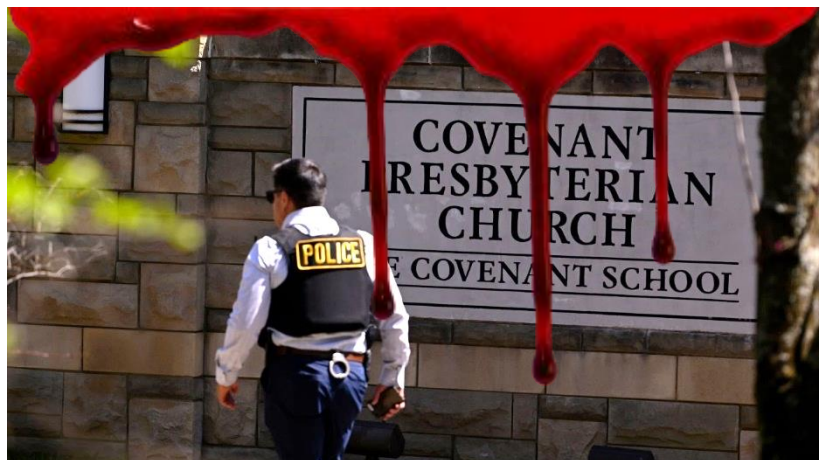
Mar 27 — A 28-year-old from Nashville fatally shot three children and three adults on Monday at a private Christian elementary school, officials said, leaving behind writings and detailed maps of the school and its security protocols. In the latest episode of gun violence that has devastated American families and communities, the assailant opened fire just after 10 a.m. inside the Covenant School, in the affluent Green Hills neighborhood, where children in preschool through sixth grade had just begun their final full week of classes before Easter break.

The shooter, who the police identified as **Audrey E. Hale**, had entered the building by firing through a side door, armed with two assault-style weapons and a handgun, according to John Drake, the chief of the Metropolitan Nashville Police Department, and went to the second floor, firing shots before being killed by the police. Chief Drake said that the assailant was "at one point a student" at the school. Surveillance video released by the police on Monday night showed the shooter drive up to the school in what the police described as a Honda Fit. In the clip, two sets of glass doors shatter from bullets before the assailant ducks into the building through the broken glass.

Wearing camouflage pants, a black vest and a backward red baseball cap, the assailant walks through rooms and hallways with a weapon drawn. At one point, the shooter can be seen walking in and out of the church office and down a hallway past the children's ministry, as the lights of what appear to be a fire alarm flash.

There was confusion about the gender identity of the assailant in the immediate aftermath of the attack. Chief Drake said the shooter identified as transgender. Officials used "she" and "he" to refer to the shooter, but, according to a social media post and a LinkedIn profile, the shooter appeared to identify as male in recent months.

The police in Nashville identified the six victims as Evelyn Dieckhaus, Hallie Scruggs and William Kinney, all 9, and the adults as Cynthia Peak, 61, a substitute teacher; Mike Hill, 61, a custodian; and Katherine





## ICI C<sup>2</sup>BRNE DIARY – April 2023

Koonce, 60. Dr. Koonce was the head of school, [according to the school website](#). Hallie Scruggs was the daughter of Chad Scruggs, the pastor of Covenant Presbyterian Church, according to a biography published online by his former church in Dallas. Covenant Presbyterian is connected to the elementary school.

Chief Drake said it was too early to discuss a possible motive for the shooting, though he confirmed that the attack was targeted. The authorities were reviewing writings, and had made contact with the shooter's father, Chief Drake said.

"We have a map drawn out of how this was all going to take place," he said. "There's right now a theory that we may be able to talk about later but it's not confirmed, so we'll put that out as soon as we can."

The shooting shattered the wealthy enclave of Green Hills, a few miles south of downtown Nashville, where the small school and stone church sit atop a hill, nestled in a residential neighborhood filled with stately homes and lush landscaping. Founded in 2001 as a ministry of the Covenant Presbyterian Church, the Covenant School bills itself as "intentionally small" with about 200 students, according to [its website](#), and a teacher-to-student ratio of 8 to 1. Tuition costs around \$16,000 per year.

Sirens and the buzz of helicopters pierced the still of a sunny spring morning on Monday, sending residents of the area out of their homes to wait for news about the shooting or assurances that their children at neighboring schools had been released from lockdown. A few women gathered around a livestream of the news conference, gasping and shaking their heads. "It's terrifying when you see parents running up the hill," said Lisa DeBusk, 43, who lives in Green



Hills. She said she had considered sending her daughter to Covenant, calling it "the sweetest, most wonderful place." "We're all resilient, but we shouldn't have to be in this," she added. "I never would have imagined this."

The police received a report of the shooting at 10:13 a.m. and heard gunshots on the second floor when they arrived at the school, a police spokesman, Don Aaron, said. Officers went there, saw the assailant shooting, and two of the officers opened fire, killing the assailant at 10:27 a.m. in a "lobby-type area" on the second floor, Mr. Aaron said. The school does not have a police officer guarding it, he said.

Kendra Loney, a spokeswoman for the Nashville Fire Department, said that schoolchildren and members of the school's staff were escorted out of the building after the shooting, and that a total of 108 people had been transported to the nearby Woodmont Baptist Church.

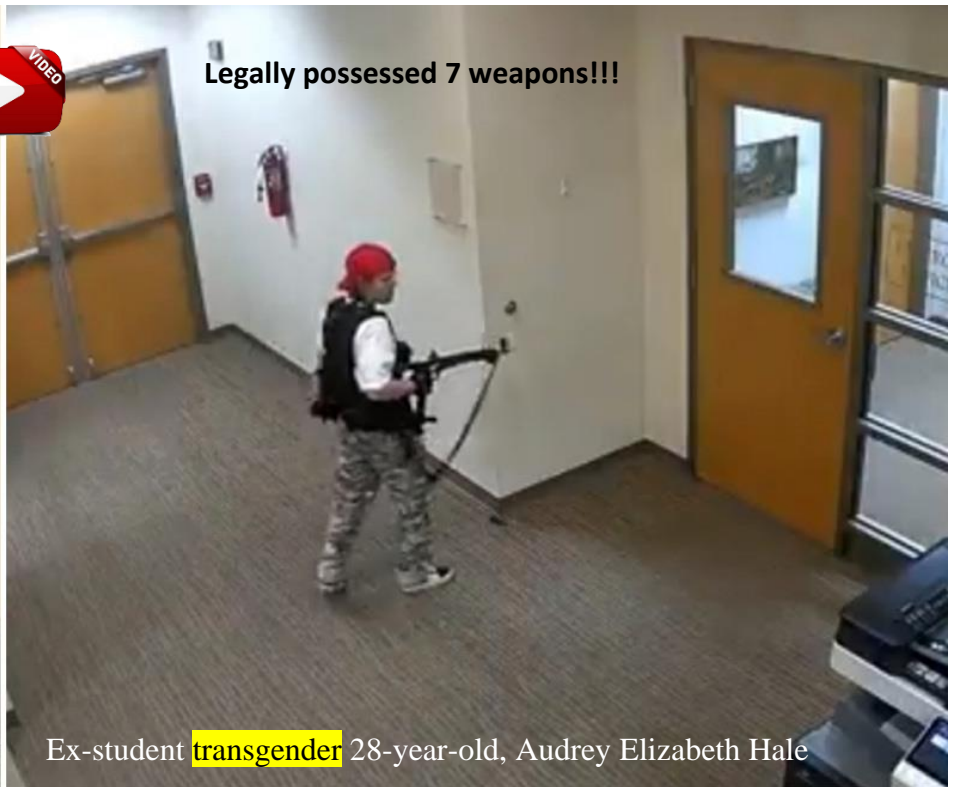
The pupils — dressed in the school uniform of red and black polo shirts, plaid skirts and khaki shorts and pants — held hands as they walked from the buses, escorted by the police, into a conference-like room inside the church. Elsewhere in the building, parents waited to learn if their children were safe.







Legally possessed 7 weapons!!!



Ex-student transgender 28-year-old, Audrey Elizabeth Hale

Rachael Anne Elrod, the Metro Nashville School Board chair, said she was inside “the worst waiting room you can imagine” as officials set about reuniting children with their parents. Some, she said, were debating how to manage the rest of the day after such a traumatic morning.



“They are mostly figuring out how they are going to talk to their children going forward about this,” Ms. Elrod said. “What is the next best step? What should they do next? Do we take them to get ice cream? Take them to the playground? Do we ask them what they saw? Do we not ask them what they saw? Do we bring them to school tomorrow? Is there school tomorrow?”

Hallie Scruggs 9-year-old daughter of Pastor Chad Scruggs (Covenant Presbyterian Church)

Rachel Dibble, whose children attend a different private school in Nashville, had also visited with Covenant families, some of whom she knew through youth sports.

“It has to stop,” Ms. Dibble said of school shootings. “I want a politician to sit in a church with families and 250 kids downstairs that are white as a sheet and trembling and gray and yellow and green and blue because of the shock.”

Speaking of the students, she added: “They started this morning, they had their cute little uniforms on, they probably had some Froot Loops. Their whole lives changed today.”

There is no consensus on what constitutes a mass shooting; groups define it differently, depending on the circumstances. But the Gun Violence Archive, a nonprofit research group that tracks gun violence using police reports, news coverage and other public sources, defines a mass shooting as one in which at least





four people are killed or injured. As of late March, the archive [has counted 130 mass shootings](#) in the United States in 2023. Calling the Nashville shooting “sick” and “a family’s worst nightmare,” President Biden again pushed Congress on Monday to enact gun-control legislation. He has repeatedly called for such a ban on assault weapons, including during his recent visit to Monterey Park, Calif., where [a gunman killed 11 people at a dance studio](#) in January.

“It’s about time that we begin to make some progress,” Mr. Biden said.

Even as school shootings become more frequent, the shooting at Covenant was unusual.

Many of the highest-profile school shootings in recent years have taken place at public schools, in part because there are far more public schools in the United States: nearly 100,000, compared with about 30,000 private schools.

Shootings at elementary schools are also relatively uncommon, making up less than 20 percent of all incidents of gun violence on school grounds, [according to the K-12 School Shooting Database](#). Most incidents of gun violence on school campuses, including active shooter incidents, happen at high schools.

After spending time in Woodmont Baptist, Melissa Trevathan, the owner of a counseling ministry, grieved the loss of Dr. Koonce, whom she said she had gotten to know through her work with children. Ms. Trevathan, who had come with Pippa, a therapy dog in training, to offer support, characterized Dr. Koonce “very magnetic” and strong, and recalled her passion for education, sense of humor and love for adventure. “She would go the ultimate in protecting her kids,” Ms. Trevathan said.

There have been **89 school shootings** – defined as any incident in which a gun is discharged on school property – in the U.S. so far in 2023, according to the K-12 School Shooting Database, a website founded by researcher David Riedman. Last year saw 303 such incidents, the highest of any year in the database, which goes back to 1970.

## Northern Ireland terrorism threat level rises

Source: <https://www.bbc.com/news/uk-northern-ireland-65096493>

Mar 28 – **The terrorism threat level in Northern Ireland has been raised from substantial to severe, meaning an attack is highly likely.**

The move, based on an MI5 intelligence assessment, follows a rise in dissident republican activity, including a recent gun attack on a top police officer.

It reverses a downgrade in Northern Ireland's terror threat level last March - [its first change for 12 years](#).

It was announced by Northern Ireland Secretary Chris Heaton-Harris.

MI5, the UK's Security Service, is believed to review the threat level every six months. The terrorism threat level [remains substantial in the rest of the UK](#), meaning an attack is a strong possibility.

Threat levels are designed to give an indication of the likelihood of a terrorist attack and there are five rankings ranging from low to critical. Severe is one level below critical, meaning an attack is expected imminently.

### Vigilance urged

In a written statement to MPs, Mr Heaton-Harris said: "The public should remain vigilant, but not be alarmed, and continue to report any concerns they have to the Police Service of Northern Ireland (PSNI)."

PSNI Chief Constable Simon Byrne said the force would "relentlessly pursue those who seek to cause harm and terrorise our communities, and attack my officers and staff".

The chairman of the Police Federation for Northern Ireland, Liam Kelly, said the escalation of the threat level was justified and that no one should be surprised.

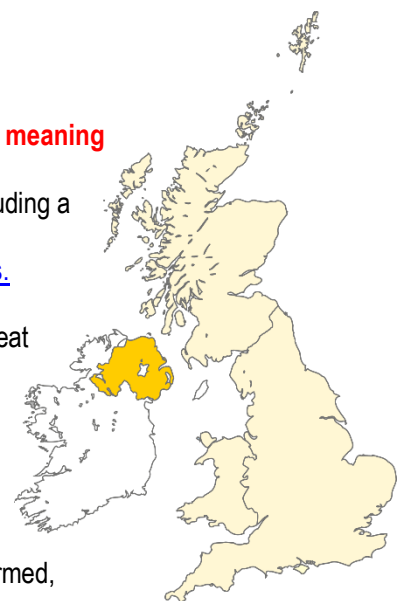
Mr Kelly added that it might be reasonably asked why the level was downgraded to substantial in March.

"It was clear dissident republican groups were still actively wedded to causing murder and destruction," he said.

In February Det Ch Insp John Caldwell was [shot several times by two gunmen](#) as he was putting footballs into his car boot having been coaching a youth training session in Omagh.

The 48-year-old father of one remains in a critical condition in hospital.

The attack was admitted by the New IRA, the biggest and most active group dissident group, whose main areas of operations are in Londonderry and County Tyrone.



## ICI C<sup>2</sup>BRNE DIARY – April 2023

The group was formed in 2012 and previous security assessments estimated it had about 500 supporters, some 100 of whom are prepared to commit acts of terrorism.

On Tuesday, the PSNI's Terrorism Investigation Unit said it had recovered "a quantity of ammunition" during a planned search operation into the New IRA in Ballymagroarty in Derry.

It was put on the back foot by several successful security operations run by MI5, leading to the first reduction in the terrorist threat level in Northern Ireland in a decade.

A number of suspected members of the group were arrested after MI5 bugged two alleged meetings of the New IRA's executive in 2020.

But after a lull in activity the New IRA re-emerged in November with a bomb attack on a police patrol car.

Three months prior to February's attack on the police officer, [the New IRA set off a roadside bomb in Strabane](#), County Tyrone, as a police car drove past, but neither of the two officers inside was injured.

Both attacks showed that after a number of years on the back foot, the organisation remains dangerous.

### Who are dissident republicans?

The republican movement wants Northern Ireland to leave the UK and unite with the Republic of Ireland.

During most of the Troubles the Provisional IRA was the by far the biggest and most influential violent republican paramilitary group. But in the 1980s and 1990s it and its political wing Sinn Féin began to make moves which eventually led to ceasefires and Sinn Féin's support for the Good Friday Agreement peace deal.

Members who opposed these moves broke away from the Provisional IRA and formed new groups, such as the Continuity IRA, Real IRA and - later - the New IRA.

They remained committed to using violence to try to bring about a united Ireland, something which has been rejected by Sinn Féin for many years.

The support for dissidents is very small: All of Northern Ireland's main political parties are opposed to their actions.

In early March, Arm na Poblachta (Army of the Republic) said police officers' families would be considered targets.

Smaller than the other dissident republican groups, it emerged in 2017 but has not been as active as the New IRA or the Continuity IRA.

### 'Undue alarm'

MI5, rather than the PSNI or the government, is responsible for setting the Northern Ireland terrorism threat level, which it has been publishing since 2010.

For all but one of those 13 years, the level has been at "severe" - so Tuesday's move should not cause undue alarm.

Most people in Northern Ireland will not notice any difference in terms of everyday security.

Sinn Féin vice president Michelle O'Neill reacted to Tuesday's announcement by saying there was no place or space for paramilitary groups in a modern, democratic society. "They must go," she said.

Democratic Unionist Party leader Sir Jeffrey Donaldson called on the government to fund more police officers in Northern Ireland.

"With police officers facing such a threat, now is the time for the government to provide that additional funding to ensure the PSNI has the full capacity to meet this threat," he said.

Ireland's Minister for Justice Simon Harris said gardaí (Irish police) would also continue to monitor the situation.

"While the threat of an attack from these groups in this jurisdiction is generally considered to be low, An Garda Síochána will continue to work closely with services in Northern Ireland," he said.

Although [tensions within loyalist groups have led to attacks](#) in parts of County Down in the past few days, the change to the threat level is not related to this flare up.

Several loyalist paramilitary groups - the largest being the Ulster Volunteer Force and the Ulster Defence Association - are active in Northern Ireland but are not considered a threat to national security and therefore are not a factor in MI5's assessment.

### What are the threat levels?

There are five:

- CRITICAL means an attack is expected imminently
- SEVERE means an attack is highly likely
- SUBSTANTIAL means an attack is a strong possibility
- MODERATE means an attack is possible, but not likely
- LOW means an attack is unlikely



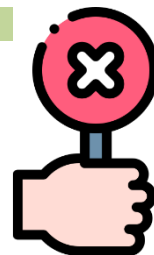


### How should the public respond to changing threat levels?

The government says updated threat levels in themselves do not require specific responses from the public. It says the levels are "a tool for security practitioners working across different sectors of the Critical National Infrastructure (CNI) and the police to use" when deciding which protective security measures may be required. The MI5 website says: "Vigilance is vital regardless of the current national threat level," and that "sharing national threat levels with the general public keeps everyone informed".

It adds that making the threat level public "also helps explain the context for the various security measures (for example airport security or bag searches) which we may encounter in our daily lives".

The website urges members of the public with information about possible terrorist activity to call the Anti-Terrorist Hotline on 0800 789 321. For warnings about possible bombs or other urgent threats, people are asked to call 999.



**EDITOR'S COMMENT:** I think that this is a **very wrong approach** – to leave the most important player, that is people, out of the game. It is the usual approach practiced in almost all national emergency plans for conventional and asymmetric threats. Citizens need to know exactly what to do depending on their profession and daily routine.

### Israel's Netanyahu: Mossad helped Greece uncover terror plot

Source: <https://www.wsaz.com/2023/03/28/greek-police-arrest-2-people-suspected-planning-terrorist-attacks/>



The leader (in Iran)  
Sayed Fakhar Abbas

Mar 28 — Israel's Prime Minister Benjamin Netanyahu late Tuesday said his country's intelligence agency Mossad helped Greece prevent a terrorist attack planned against at least one Jewish site in Athens.

Greek authorities said earlier those two men described as being of Pakistani origin, who were not named, had been arrested for allegedly planning an attack on a Jewish restaurant. The attack was considered to be imminent and to be intended to cause extensive loss of life.

The suspects were charged Tuesday with terrorism offenses, while a third man believed to be outside Greece has been charged in absentia with similar offenses.



A statement from Netanyahu's office maintained that the attackers were linked to Iran.

"After the start of the investigation of the suspects in Greece, the Mossad rendered intelligence assistance in unraveling the infrastructure, its work methods and the link to Iran," the statement said.

"The investigation revealed that the infrastructure that operated in Greece is part of an extensive Iranian network run from Iran and spanning many countries."

Greek authorities have not identified the foreign intelligence agency that provided assistance in the investigation but said they were investigating the possibility that the suspects were also planning other attacks in Greece.

"Their aim was not only to cause the loss of life of innocent citizens but also to undermine the sense of security in the country while hurting public institutions and threatening (Greece's) international relations," a police statement said.

The two suspects both entered Greece illegally from neighboring Turkey and had been in the country for at least four months, according to two Greek officials who spoke to the Associated Press. As part of their investigation, police searched multiple sites in Athens as well as in southern Greece and on the western island of Zakynthos.

The two men in custody are believed to be part of an overseas network and are scheduled to be questioned by a public prosecutor Friday, the officials said.

Greece's anti-terrorism police division and National Intelligence Service were involved in the arrests.

"The operation demonstrates that the country's security authorities maintain a high state of readiness for all Greeks and all visitors to our country," Public Order Minister Takis Theodorikakos said in a tweet.

**EDITOR'S COMMENT:** The Afghan man who killed two women with a knife in the Ismaili Center of [Lisbon](#) lived in a center for hosting illegal immigrants in Greece, which proves once again that extremist Islamist elements enter the country through illegal immigration flows. Although it is too late now, the change of rules of engagement of security forces in the land and sea borders with Turkey should change to stop the illegal human tsunami and those hidden within. Not only we did not invite them to our country now they are trying to destabilize our societies and the feeling of being secure.

## How Many Guns Are There in the U.S.?

By Jennifer Mascia

Source: <https://www.homelandsecuritynewswire.com/dr20230328-how-many-guns-are-there-in-the-u-s>

Mar 28 – We've heard [for years](#) that there are more guns in the U.S. than people, but a precise accounting remains elusive. Federal legislation that would track gun sales or establish a nationwide handgun registry has been proposed — to [much resistance](#) from the gun lobby. In lieu of exact figures, we have gun owner surveys, industry disclosures, and federal gun background check figures, none of which are comprehensive.

Pinpointing the number of guns in circulation could help us better understand the relationship between gun sales and gun violence. Researchers have [consistently found](#) that more guns means more gun deaths, but gun rights advocates continue to [argue the opposite](#). Meanwhile, annual gun deaths have soared to [unprecedented levels](#).

Here, we'll try to quantify America's civilian gun stock, explaining through the process why it's so complicated to do so — and how the numbers we have correlate with gun deaths.

### How many guns have been manufactured for the U.S. market

Every gun that's manufactured by a licensed U.S. gunmaker has a paper trail. But what happens with that paper trail — and who has access to it — has been the topic of hot debate.

[There is currently no requirement](#) that federally licensed dealers report sales volume to the Bureau of Alcohol, Tobacco, Firearms and Explosives, so we don't have complete data on individual purchases. But we do know how many guns are shipped to FFLs from licensed manufacturers every year, because gunmakers are required to report those figures to the ATF. The agency releases gun production numbers, along with import and export figures, in its Annual Firearms Manufacture & Export Report. "Production" is [defined](#) by the ATF as "firearms ... manufactured and disposed of in commerce during the calendar year."

According to [historical ATF data](#), more than 465 million firearms have been produced for the U.S. market since 1899. This figure includes imports from foreign gunmakers but excludes exports by domestic gunmakers.

This data includes guns that are purchased by law enforcement, but not the military. The Small Arms Survey, a Switzerland-based outfit that publishes periodic reports on the global gun stock, [estimated](#) in 2018 that local, state, and federal police forces in the United States have just over 1 million firearms.





### Why are exports excluded?

This story is focused on the guns that are in circulation in the U.S., so we're not including guns that have been shipped to other countries. But the U.S. is the [top exporter](#) of small arms, with more than 25 million weapons shipped abroad since 1899, according to [the ATF data](#).

The biggest exporters of guns, [by ATF's count](#), are also among the top domestic sellers: Sig Sauer; Sturm, Ruger & Company; and Smith & Wesson.

### Do manufacturing figures equal the number of guns in circulation?

No. Production figures don't account for how many firearms [fall out of circulation](#) each year. Guns are durable, and if maintained properly they can last a century or more. But they do rust and break. They're also confiscated by police and destroyed, and [illegally exported](#) to other countries, said Philip Cook, a professor emeritus of public policy at Duke University, who first sought to quantify the nation's guns in the early 1990s by [surveying gun owners](#).

As he compiled his gun census, Cook realized that he had to come up with a number to subtract from the total civilian gunstock each year to account for broken, confiscated, and illegally exported guns. He said he "struggled" with what this attrition rate should be. "We know it's not zero, and it would be unlikely to be as high as 5 percent," he said. "I used 1 percent as a conservative 'what if' calculation." Cook found that the resulting figure aligned with his survey respondents' reports of how many guns they owned.

The ATF provides a cumulative number of firearms manufactured, imported, and exported for 1899 through 1945, but no annual breakdowns. If you apply Cook's attrition rate annually starting in 1946, you get a loss of more than 112 million guns, leaving about 352 million guns in circulation.

Some researchers think Cook's attrition rate could use an update. "Whether that 1 percent figure makes sense, and whether it should be reduced in the last decade or so when gun sales have surged, is an open question," said Deborah Azrael, a public health researcher at Harvard who conducted her own [landmark survey of gun owners in 2016](#).

In addition, not every gun manufacturer reports their commercial gunstock to the ATF every year, even though it is required by law. On average, 30 percent of active licensed gunmakers neglected to file manufacturing reports between 2016 and 2020, according to an [ATF report published in May 2022](#). That sounds like a lot, but the agency says most non-reporters are smaller manufacturers whose output accounts for "a relatively small percentage of overall production."

In a [2013 working paper for the Small Arms Survey](#), economist Jurgen Brauer estimated that about 320,000 newly produced weapons were not reported to the ATF between 2001 and 2010. That's less than 1 percent of the official total.

Finally, the ATF data does not account for 3D-printed guns and most guns assembled from kits, because until recently, DIY firearms were not required to be reported to the agency. [A rule that took effect in 2022](#) requires privately made firearms to be imprinted with serial numbers, which may result in more accurate information about their manufacture going forward.

### How does the ATF's figure compare to other available estimates?

Many news organizations and researchers use FBI background check figures as a proxy for the number of guns that enter into circulation each month. But background checks do not correspond one-to-one with sales, for a variety of reasons. Some are concealed carry permit applications and renewals, people can buy multiple weapons with a single background check, and at least one state — Kentucky — runs background checks on permit holders once a month. We compared [FBI background check figures](#) over the last 25 years to the ATF's gun manufacturing and import figures over the same period, and background checks outnumbered gun production 2 to 1.

The National Shooting Sports Foundation, the gun industry's trade group, publishes firearm production reports that draw on a host of sources, including the ATF, the U.S. International Trade Commission, and the Congressional Research Service. In 2020, the group [reported](#) that "the estimated total number of overall firearms in civilian possession is 433.9 million." That figure does not appear to account for guns leaving circulation.

**How has gun production changed over time?** American gunmakers produced more than 9 million guns a year on average between 2016 and 2020, while U.S. entities imported just under 5 million firearms annually on average, the [ATF data shows](#). In 2020, the totals were 11 million guns produced and 6.8 million imported.

Annual manufacturing and import figures have historically been much lower. Fifteen years ago, around 7 million guns in total were manufactured and imported in a single year. That ramped up considerably after the election of Barack Obama, the nation's first Black president. Total firearm production and imports jumped 30 percent between 2008 and 2009, and never returned to pre-2008 levels. Since 2009, combined production and imports have risen 152 percent.



Other surges in manufacturing and imports can be seen between 2011 and 2012, a period that saw Obama run for and win a second term (38 percent), and 2015 and 2016, when Donald Trump declared his presidential candidacy and won the election (25 percent). The biggest year-over-year jump on record was between 2019 and 2020, when a pandemic-related gun sales surge saw an [unprecedented 40 million guns](#) fly off the shelves (62 percent). (Pandemic demand likely explains the biggest year-over-year jump in imported firearms: 71 percent between 2019 and 2020.) Conversely, demand for guns appears to have waned between 2016, the year of Trump's election, and 2017, the year he took office (24 percent).

In 2000, [according to the ATF](#), there were 1,397 guns manufactured for every 100,000 people in the U.S.. By 2020, that figure had jumped to 3,410.

### **Has the type of guns being manufactured changed?**

The majority of guns manufactured in America are handguns, but that wasn't always the case: Until the early 1990s, rifles and shotguns routinely outsold pistols and revolvers. Handguns accounted for 57 percent of domestic firearm manufacturing in 2021, the most recent year such data is available, with nearly 8 million guns produced, while long guns accounted for just 33 percent, with just under 2 million produced.

That tracks with a [cultural shift](#) in American gun ownership that saw fewer people buying guns for recreation and hunting and more buying guns for self-defense. Since 1990, more than a third of rifles produced in America have been [semiautomatic rifles](#) like AR-15s, [according to the NSSF](#).

The last decade has also seen a rise in the manufacturing of so-called miscellaneous firearms, which are gun parts, like frames and receivers, that are "sold before being assembled with other components" to make a finished gun, [according to the ATF](#).

### **What's the relationship between gun production and gun deaths?**

When we charted gun manufacturing and imports alongside annual gun deaths going back to 1968, we found that when gunmakers ramped up production, gun deaths rose.

Researchers cautioned us that just because an increase in gun manufacturing is associated with an increase in gun deaths doesn't mean it is the cause. But in many instances, gun deaths and production peaked in the same year.

The year with the highest gun death rate on record up until that point, 1974, also saw the most guns manufactured until then. Production fell slightly over the next decade, and so did the gun death rate. In 1993, a new all-time record for production and imports coincided with the second-highest gun death rate on record. Over the next five years, production and imports fell 42 percent, and the gun death rate dramatically declined — from 15 per 100,000 in 1993 to 11 per 100,000 in 1998.

Between 2008 and 2013, as production and imports surged 132 percent, the gun death rate remained essentially unchanged, at around 10 deaths per 100,000. But guns and gun deaths began rising in tandem again a few years ago. In 2020, the first year of the pandemic, gun companies produced and imported more guns than ever before, and there were more gun deaths than any previous year on record — more than 45,000. In 2021, gun deaths [rose to a new record](#) of 48,830. Firearm import figures for that year haven't been released yet, but if they're similar to 2020 figures, manufacturing and imports could reach 20 million in a single year for the first time. The ATF releases production figures once a year, and as it does, we'll be updating our count [here](#).

When we looked into the relationship between gun deaths and gun production in more detail, we found that the relationship between gun production — particularly handgun production — and suicides is stronger than gun deaths overall. But correlation is not causation, veteran researchers said.

David Hemenway, a Harvard researcher who has [repeatedly found](#) that easily accessible guns means more gun deaths, said household gun ownership levels might be more important than the size of the civilian gunstock. "There have been periods when the gun stock has increased, but household gun ownership levels have been stable or falling," he said, citing previous surveys of gun owners. He also said the number of guns in a single household might correlate more strongly to gun deaths than gun production. "Guns last a long time," he said.

That may have changed since the pandemic, however. In 2020, police recovered almost twice as many guns [with a short "time-to-crime"](#) — in this case, recovered within a year of their purchase — than in 2019, according to [ATF firearm trace data](#).

Daniel Semenza, a criminologist at Rutgers University–Camden who has also studied the correlation between gun availability and gun death, said he was struck by how gun production and gun deaths appear to rise and fall together at various points in the last half-century. "It's not 100 percent correlation," he said, "but it's pretty close." The findings confirm what researchers have observed for years, he said: "When there are more guns, it just increases risk," in the form of accidental shootings, suicides, and arguments that turn deadly due to the presence of a gun.

The corresponding rise in production and gun deaths raises questions about how much responsibility the gun industry has for the country's gun violence epidemic. That possibility is being debated in court, where





gun rights groups are [challenging a recent New York law](#) that allows gun manufacturers and sellers to be sued for endangering public safety. Three other states have [enacted similar laws](#), which attempt to circumvent the [2005 federal immunity](#) that shields gun companies from most lawsuits arising from the criminal misuse of their products. The issue may end up in the Supreme Court.

### How many guns do people near me own?

ATF production figures aren't broken down at the state or local level. So while we know [how many people are shot](#) in our neighborhoods, we don't know how many of our neighbors have guns. Once a gun is shipped to an FFL, that's where the paper trail ends.

"It would be really useful to know how many millions of guns are in stores," said Azrael, the Harvard researcher. The way the ATF [defines](#) production as "manufactured and disposed of in commerce during the calendar year" assumes that every gun shipped to an FFL is sold. While surges in demand and production, particularly during the pandemic, may give the impression that gun stores are selling out, that's not necessarily the case, Azrael said.

The ATF does have [state-by-state breakdowns](#) of the number of machine guns, short-barreled rifles and shotguns, and silencers in civilian hands. That's because they're regulated by the National Firearms Act, and transfers must be approved by the federal government. But that excludes the vast majority of guns sold in the U.S.

Not having gun ownership data at the state level impedes gun violence research, Andrew Morral, a senior behavioral scientist at the RAND Corporation, recently told [FiveThirtyEight](#). Without localized data, researchers can't accurately assess the impact gun ownership has on firearm mortality.

A more precise accounting of the civilian gunstock is "really important," Semenza said, adding that he would like to see researchers and journalists use an exact figure in lieu of ranges and estimates, even if there are caveats with the data. He said one reason they don't is because historical production figures aren't easy to find.

"This is in a bunch of different documents in really cumbersome language," he said. "And the farther back you go, the harder that data is to wrangle." Semenza also pointed to "this persistent myth" that the number of guns in America is an unknowable figure. "It's almost a self-fulfilling prophecy."

**EDITOR'S COMMENT:** Bla, bla, bla! There is no point to have assault guns at home. A pistol is sufficient for home defense. All excuses are for business only!

## Major Foreign Terror Attack on U.S. "Almost Inconceivable" Now

By Jeff Seldin

Source: <https://www.homelandsecuritynewswire.com/dr20230328-major-foreign-terror-attack-on-u-s-almost-inconceivable-now>

Mar 28 – Foreign terrorist groups, including some Islamic State and al-Qaida affiliates, may have the desire to launch major attacks on U.S. soil, but decades of counterterrorism work have made carrying out such an operation close to impossible at the moment, according to a top U.S. homeland security official.

Nicholas Rasmussen, the Department of Homeland Security's counterterrorism coordinator, Monday called the possibility of an attack reminiscent of September 11, 2001, when al-Qaidai8 terrorists hijacked four aircraft and killed nearly 3,000 people, "almost inconceivable."

"We have achieved what I would call [a] suppressive effect on the ability of groups like ISIS and al-Qaida to carry out large-scale attacks here in the homeland," Rasmussen said, using an acronym for Islamic State

"That is not nothing," he told an event hosted by The George Washington University's Program on Extremism. "That is something pretty significant and came at great cost."

Rasmussen's statement comes just weeks after top military and intelligence officials testified before Congress, warning that Islamic State's Afghan affiliate is looking to attack U.S. or Western targets.

IS-Khorasan "can do external operations against U.S. or Western interests abroad in under six months with little to no warning," U.S. Central Command's General Michael Kurilla told lawmakers earlier this month.

Never happens the expected.  
Always happens the unexpected.  
So expect the unexpected.

– Soundariyan



A week earlier, Lieutenant General Scott Berrier, chief of the Defense Intelligence Agency, told lawmakers, “It’s a matter of time before they may have the ability and intent to attack the West.”

Earlier this year, Christine Abizaid, director of the National Counterterrorism Center, called IS-Khorasan, the “threat actor I am most concerned about.” For now, U.S. military and intelligence officials agree with Rasmussen that the likelihood of an attack on U.S. soil is low, and that it is more credible IS-Khorasan or other groups are more likely to target U.S. or Western interests in South Asia or Europe. But even Rasmussen worries the threat from groups like IS-Khorasan could rise if the U.S. and its allies and partners are unable to maintain pressure on foreign terrorist organizations.

“I worry that the suppressive effect that we have achieved at great cost is not permanent,” he said Monday. “There’s certainly nothing about that condition that would suggest that it will be permanent, naturally or on its own.”

Some lawmakers and officials have been especially concerned, pointing to a loss of on-the-ground intelligence following the U.S. withdrawal from Afghanistan in August 2021.

Since that time, the U.S. military has carried out only one counterterrorism strike in Afghanistan, [killing al-Qaida leader Ayman al-Zawahiri last year](#). And military officials have cautioned that gathering intelligence from the air, via planes or drones, is difficult due to the long distances between U.S. bases and the target areas in Afghanistan.

As a result, senior U.S. military commanders worry they are unable to access key details and intelligence that might give the country more warning of an impending attack. Rasmussen acknowledged such concerns, describing the situation as “suboptimal.”

“We are actively in a risk management and risk mitigation posture, trying to take the best advantage we possibly can of the residual intelligence resources we have,” he said. “I’m confident, though, that we’re looking for and at the right things to gain that warning.”

### Domestic Terror Threat

Despite his confidence that the most severe threats from foreign terrorist organizations have been mostly mitigated, Rasmussen warned the overall threat environment is getting worse.

“The threat environment our national security and homeland security professionals are dealing with is more diverse, more dynamic and more complicated than any other point previously,” he said, further noting that the threat level in the U.S. is on “a nearly constant upward trajectory.”

“The diversity of different extremist thought streams, ideologies, narratives gripping various segments of our population here in the United States is at an all-time high,” Rasmussen added.

### Border Security

Rasmussen also acknowledged concerns about border security, especially along the U.S. border with Mexico.

However, he said there is currently nothing to suggest any terrorist organization is trying to use the southern border to infiltrate the country. “What we have not seen is any information that suggests that foreign terrorist organizations, groups, are actively using or trying to use a perceived vulnerability in this area to contribute to their operations,” Rasmussen said in response to a question from VOA. “That doesn’t mean though that we don’t need to be concerned about and working hard to address the way in which terrorists or people with terrorism links might exploit vulnerabilities at the southern border,” he added.

## The Next Phase Of The War - Trans Terrorism

By Sam Faddis

Source: <https://andmagazine.substack.com/p/the-next-phase-of-the-war-trans-terrorism>

Mar 29 – One of the hallmarks of radical Marxism is its legitimization of the use of violence against political opponents. Marxists do not simply attack their opponents. They shape the narrative, alter the facts and thereby brand their attacks on their opponents as justifiable. Even as they burn buildings and beat the opposition to the ground, they are the ones who are to be seen as defending the rule of law and the fabric of society.

We saw this all over the country in the run-up to the 2020 election. Mobs firebombing police precincts and federal courthouses were portrayed as occupying the moral high ground. They were saving the rest of us from the threat of right-wing, white supremacist extremism and fascism. That there was no evidence of any such national white supremacist movement of any consequence did not matter. ***The Marxists were in control of the narrative.***

We are seeing the same phenomenon play out again right now regarding the transgender movement in this country. It is increasingly violent, witness the recent massacre in Nashville, and unhinged, and yet it





is portrayed as a reaction to some fanciful wave of anti-trans violence in this country. That there is no evidence of any such wave does not matter. The revolutionaries control language and most of the mainstream media outlets. They have declared that there is an ongoing “genocide.” It is now so. Any and all actions in response to this are hereafter to be considered necessary and justifiable.

Where this ends is anyone’s guess. What is self-evident is that it will not end well. Violence begets violence. A legal system that permits and even encourages domestic terrorism will not remain relevant for very long.

A group calling itself the Trans Radical Activist Network (TRAN) is organizing an [event](#) in Washington, D.C. this Saturday. It is asking its supporters to rally in front of the Supreme Court, telling them to come masked. The event is billed as a “Trans Day of Vengeance.”

●► [Read the full article at the source’s URL.](#)

**Sam Faddis is a Retired CIA Operations Officer. Served in Near East and South Asia. Author, commentator. Senior Editor AND Magazine. Public Speaker. Host of Ground Truth.**

Expose RVA Antifa  
@ExposeRVAAntifa

Antifa Transgender extremist group "Trans Radical Activist Network" is planning a weekend of "vengeance" and violent "actions" in Washington DC starting March 31st.

March in DC on April 1

Stop Trans Genocide! March with us!

TRANS DAY OF VENGEANCE  
STOP TRANS GENOCIDE  
STOP TRANS GENOCIDE  
STOP TRANS GENOCIDE

CALLING FOR ALL TRANS/NON-BINARY FOLKS and ALLIES to COME TOGETHER for A WEEKEND of PROTESTS in WASHINGTON, DC. MAR 31

MAIN MARCH: SATURDAY, APRIL 1, 2023  
tskunufors@transradicalactivistnetwork.org

ALT: THIS INFORMATION, CONTACT TRANS RADICAL ACTIVIST NETWORK

You Republican fuckers want a war? You fucking got one. LGBTQ+ people will not go quietly into the night. Your genocide will be resisted with a militant response. Fuck this. It's over. We're at war. I've had enough. I warn cisgender and straight people about the incoming genocide daily and none of y'all fucking listen. Whatever. You're no ally if you're silent right now. This is wartime. We will not surrender.

5:08 PM · Feb 1, 2023

## Education and Awareness Are Key to Stopping Online Radicalization

By William Frangia

Source: <https://www.homelandsecuritynewswire.com/dr20230329-education-and-awareness-are-key-to-stopping-online-radicalization>

Mar 29 – The current battlefield for terrorism is not a faraway country but the computers and phones right next to us. Terrorists have taken advantage of this technology to allow conflict to transcend its geographic borders. Using emotionally charged propaganda to draw people to their cause, terrorists hope to modify human behavior through self-radicalization. They know that reaching one sympathetic viewer can create catastrophic consequences in support of their agenda. The social network is now an environment where everyone is vulnerable to encountering propaganda or misinformation online, making everyone susceptible to radicalization. The threat of self-radicalization remains constant even in as ordered a society as Singapore. According to the [Singapore terrorism threat assessment report 2022](#), over the past seven years, 45 individuals arrested under the Internal Security Act were self-radicalised. The number continues to grow each month as terrorists increase their online footprint.

In January, Singapore’s Ministry of Home Affairs released an [update on terrorism](#) cases associated with the security act. Notably included was the first public servant arrested for terror-related offences in Singapore, Mohamed Khairul Riduan bin Mohamed Sarip, a 38-year-old teacher. Khairul’s self-radicalization began in 2007 after he viewed Facebook videos showing Israeli aggression against Palestinians. He continued searching for materials relating to the tactics and operations of the Palestinian militant group Hamas. Khairul hoped to travel to Gaza under the guise of providing humanitarian aid but intended to perform jihad and achieve martyrdom. Khairul continued to view videos of the conflict, including those by radical preachers Ahmed Deedat and Zakir Naik.

In a February [update on cases](#), Singapore announced that it had detained 18-year-old Muhammad Irfan Danyal bin Mohamad Nor. He was the third youth since 2020 detained for terrorism-related offences under the security act. Irfan’s self-radicalization process began with videos by Naik. He then became involved with discussion tables exposing him to Islamic State propaganda. Irfan investigated travelling to Nigeria, Iraq, Syria and Marawi to join IS on the battlefield. His interest in IS grew into a desire to establish a caliphate in Singapore. He created videos to spread IS ideology in the hope of recruiting more than 100 fighters and formulated three plans for them to carry out attacks in Singapore.

Singapore continues to counter violent extremism online by increasing technology security. The new Online Safety (Miscellaneous Amendments) Act enables the government to direct online communication services to disable local access to harmful content. This includes content that advocates violent extremism. However, Singapore, like other nations, needs to increase community resources to fight the spread of online extremism.

One major commonality between these two cases was the deep influence of Naik, a radical preacher originally from India. Naik has been accused by the Indian government of inciting hatred, supporting terrorism and facilitating money laundering. He is barred from entering Singapore due to his extremist



teachings. However, he was granted permanent residency in Malaysia, avoiding extradition to India. He has a massive audience on the internet, including 23 million followers on Facebook. Preachers like Naik are exploiting social media to influence young people. While the new online safety act potentially allows Singapore to block organizations and individuals like Naik, it's impossible to fully sanitize social media and other information sources.

The difficult task of discerning radical narratives therefore falls to the public, who must analyze the information and avoid perpetuating its reach through 'likes' and 'shares'. Sometimes unsuspecting people share material because they think it's funny or absurd, inadvertently propagating the narrative and allowing it to reach someone more vulnerable. Naik's video stating that Muslims should not wish Christians 'Merry Christmas' was shared multiple times including by some who just thought it was ridiculous. However, this is one of the videos viewed by Khairul during his radicalization process.

In a survey conducted by Singapore's Ministry of Communications and Information in 2021, only 51% of respondents believed their country was a target for terrorist attacks and fewer than half said they would contact authorities if they believed a loved one was displaying signs of radicalization.

The Singapore analysis shows how social media can be used to exploit vulnerabilities in any community and any individual, potentially resulting in increased violent extremism. Communities must find ways to educate individuals about extremist viewpoints while providing them with the skills to think critically. We must ensure that there are outlets for people to speak about divisive issues, especially for those who lack solid family and peer support channels. Education and discussion will enable different viewpoints to be heard and challenged.

It is impossible to prevent vulnerable people from ever seeing propaganda or disinformation, but it is possible to teach them how to respond correctly. These cases show the increased importance of technology security and community awareness in the fight against terrorism. Governments and citizens across Southeast Asia and the Pacific must be aware of the effects that abuse of social media can have on their societies. The fight against terrorism is no longer solely in the hands of policymakers and police; instead, it rests under the thumbs of each of us.

William Frangia is a second lieutenant in the US Army and a visiting fellow at ASPI.

**EDITOR'S COMMENT:** Apart from education and awareness, **family** is an important influencing factor as well. Children and adolescents tend to copy their parents' behavior and beliefs – even subconsciously.

## Portugal Says Islamic Center Stabbing 'Not Terror Related'

Source: <https://www.morocoworldnews.com/2023/03/354741/portugal-says-islamic-center-stabbing-not-terror-related>

Mar 29 – **Portuguese authorities have announced today that the stabbing at the Islamic Center in Lisbon on March 28 was not a terrorist attack.** The French news agency AFP quoted Police Chief Luis Neves as **saying** that "there is no indication that this is a terrorist attack."

The authorities said they suspect the attacker **was suffering** from a **severe mental illness**, but added that is only something that "a psychiatric evaluation can determine." The inquiry into yesterday's events is still ongoing. The fatal attack left two women dead and injured many others. The man who targeted people at the Islamic Center was a refugee from Afghanistan.

Witnesses have come forward and have helped paint a picture of the man's life before he committed the attack. As the man was attending a language class at the Ismaili Center yesterday, he took a phone call after which his behavior drastically changed, witnesses told AFP. He proceeded to attack the language teacher and two women who worked at the center. The assailant was then shot in the leg by the police and taken to the hospital.

Investigations have revealed the attacker's journey from Afghanistan to **Greece**, which is where his wife died in a fire. A father of three, the man and his young children arrived in Portugal in 2021 and were planning to travel to Germany, according to Neves, the police chief. Portugal's Minister of Internal Administration Jose Luis Carneiro expressed yesterday his condolences to the families affected by the incident.

The Ismaili Center is a **space** for Shia Imami Muslims, also called Ismailis.



**EDITOR'S COMMENT:** An Afghani illegal immigrant stubs to death two Portuguese women and the Portuguese government declares it was not terrorism! Anything to preserve the attitude that "we have everything under control!". So sad!





## Saudi, Indian intelligence come together to combat terrorism

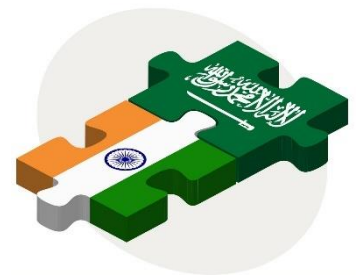
Source: <https://sundayguardianlive.com/news/saudi-indian-intelligence-come-together-to-combat-terrorism>

Apr 01 – On 28 March, the Saudi Arabian Cabinet approved an order that will have far-reaching implications as far as India's security apparatus and its efforts to curb terror groups are concerned. As per the decision of the Saudi Cabinet, India's external intelligence agency, the Research and Analysis Wing (R&AW), and the Presidency of State Security (PSS), which is responsible for all matters related to the security of the Kingdom of Saudi Arabia, will now extensively cooperate in the field of combating and financing terrorist. The PSS was born in July 2017 when the kingdom rulers had carried out a massive shakeup of its security apparatus. In February 2019, during his visit to India, Mohammed bin Salman (MBS), the Prime Minister and the Crown Prince of Saudi Arabia, initiated talks to increase the cooperation between the two countries in the field of intelligence sharing and strategic security, something that officials in India were wanting for a long time.

For long, Riyadh was seen as a safe haven for terror groups who would use the country as a safe haven to reach out to their partners and coordinate terror attacks as the 9/11 attacks and the 26/11 Mumbai attacks showed. However, things started changing following the Mumbai attack when the Saudis arrested and deported Sayed Zabiuddin Ansari, aka Abu Jundal, one of the main accused in the Mumbai attack, on 25 June 2012. This was a far cry from August 2008 when the Saudis decided to let go of 1993 Mumbai blast accused Anees Ibrahim after arresting him at Jeddah airport despite India's fervent request.

Official sources say that things have improved "drastically" in the last few years as Saudi Arabia has taken long strides to get itself off the infamous list of Gulf countries that work as "jehadi centre". Much of this has been attributed to the significant policy reforms that MBS has initiated in order to shelve the negative image that the country had developed.

Many of the terror funding networks spread across Saudi Arabia, including those that were operated by Pakistan's intelligence agency, Inter-Services Intelligence (ISI), have seen reduction in state patronage that has led to them looking for new places in the region. There is a lot of movement of information between Riyadh and Delhi on a real-time basis as far as counter-terror cooperation is concerned and both countries, without disclosing the details, have mutually benefited from this sharing of information. Sources said that PSS, which was handling the most efficient intelligence setup among the Gulf countries, had proven to be a valuable ally for Indian agencies, which for long, had been looking for a friend in the Gulf.



## IntelBrief: The Terrorism Landscape Continues to Evolve

Source: <https://thesoufancenter.org/intelbrief-2023-march-31/>

Mar 31 – More than a year following Russia's invasion of Ukraine, the world remains fixated on the developments in that conflict, while more broadly, the global security community is focused on [great power competition](#) and the prospects of interstate conflict, with an attendant focus on alliance building, and conventional military operations. Counterterrorism has consequently become a backburner issue, much to the chagrin of many intelligence and homeland security professionals tasked with maintaining vigilance in the face of an ever-evolving threat. Counterterrorism practitioners are grappling with reduced resources, from funding to manpower to expertise, as well as attention from senior policymakers and officials. According to a 2017 Stimson Center report, counterterrorism spending by the U.S. Department of Defense (hardly the only U.S. department with counterterrorism equities) steadily declined from its 2008 peak – driven largely by the U.S. wars in Iraq and Afghanistan – to 2016. Nonetheless, 2017 U.S. counterterrorism spending still remained 150 percent higher when compared to the year after 9/11. To keep the threat at bay, counterterrorism forces need both a forward presence and the ability to enable capable partners – including security and civilian components - all while maintaining focus on emerging threats, which are easy to miss amidst such an overwhelming shift from non-state actors to nation-state concerns. Prevention – addressing the spectrum of drivers and grievances driving terrorist mobilization and recruitment - will remain a critical means of suppressing the threat and keeping it contained to a short list of hot spots.

The challenge that the U.S. and its allies have become most intimately familiar with, Salafi jihadist terrorism, now manifests in different forms and locales. Largely decentralized, Islamic State and al-Qaeda affiliates are currently most active in parts of sub-Saharan Africa, including [the Sahel](#) and the Horn of Africa. But there is also an uptick in activity by these organizations' affiliates in coastal West Africa along the Gulf of Guinea, the southeastern Swahili coast, especially Mozambique, and Central Africa, where Islamic State's tentacles extend into the Democratic Republic of Congo. [South Africa](#) is also a growing hub of Islamic State logistical support. Whereas al-Qaeda in the Arabian Peninsula (AQAP) and Islamic State core in Iraq and Syria were once the dominant threats, today, the top of the list features al-



Shabaab in Somalia, Jama'at Nusrat al-Islam wal Muslimin (JNIM) throughout the Sahel and coastal West Africa, and [Islamic State Khorasan \(ISK\)](#) in Afghanistan. The strength of these groups will ebb and flow in accordance with local social, political, and economic conditions, also responding to changes in governance, as witnessed most starkly in the Sahel and South Asia.

The jihadist movement is beset with its own challenges, including sustained leadership losses, which has kept the bench rather thin, and intra-movement differences among different factions. And while a decentralized structure aids survivability and stretches counterterrorism resources, it is also impacted by the tyranny of distance, which forces jihadist leaders to manage a complex global organization from remote areas while maintaining intense operational security to stay alive. Islamic State has [lost two leaders](#) in the past year, making the group unable to introduce a charismatic leader able to inspire a new generation of recruits. Without strong inspirational leadership, the "Islamic State" brand has become watered down, with affiliate groups and IS branches pursuing more localized agendas embedded in local and regional conflicts and politics. As French journalist [Wassim Nasr](#) recently noted at the Global Security Forum in Doha, many of these groups are becoming more political, more embedded in local dynamics, and therefore also more entrenched. But over time, some groups currently working toward parochial objectives could change focus, deciding instead to target the West. Terrorist groups and entrepreneurial leaders will seek to harness emerging technologies asymmetrically. Recently General Kurillo indicated that ISK might be in a position to conduct an external operation in as little as six months.

Beyond Salafi-jihadists, the terrorism landscape is far more diverse than in recent years. [Far-right extremists](#) are emboldened with both implicit and explicit support from many mainstream political actors, while the broader far-right ecosystem continues to inspire racially- and ethnically-motivated violent extremists (REMVEs) to conduct "lone-wolf" attacks against synagogues, mosques, [LGBTQ+ sites](#), and other [symbolic targets](#). The conflict in Ukraine is likely to lead to pernicious second- and third-order effects, including far-right extremists gaining military experience fighting on both sides of the conflict and the potential for various actors to express discontent at some point by conducting attacks on external actors or states. On the Russian side, the Wagner Group and the Russian Imperial Movement could seek to forge closer connections with far-right extremist elements throughout Europe and continue to displace Western influence in places like Africa. While there has been much focus on white supremacist extremists and other racially and ethnically motivated actors in Europe and North America, there are also worrying indications of far-right violence gaining greater traction in the [Global South](#), including India, [Brazil](#), Sri Lanka, and Malaysia, for example.

The Iran Threat Network, Iran's worldwide network of proxy forces, also remains active, working through the Islamic Revolutionary Guard Corps Quds Force, including [Lebanese Hezbollah](#). In August 2022, an individual inspired by Shia Islamic extremism stabbed author Salman Rushdie during a book reading in upstate New York. And Iran continues to be implicated in terrorist plots around the world, from attempted assassination plots against diplomats to attacks against Israeli and Jewish institutions and symbols worldwide. Continued violence and instability in the Levant could also further inflame existing tensions and prompt outbreaks of violence or mobilization; at the Global Security Forum, [Rami Khouri](#) highlighted the growing instability and insecurity resulting from frayed [social contracts](#) in the Middle East and North Africa, which can also generate greater support for extreme measures and movements.

There is also a range of other terror threats that fit less neatly into categories. So-called 'Incels' are violent misogynists who have proven lethal in the past several years. Left-wing terrorism has also been on the rise and could play a more prominent role in the future, with issues such as the environment, abortion rights, and economic issues motivating a more militant milieu among left-wing actors and groups. Technophobes, sometimes referred to as neo-Luddites, are also becoming more extreme in their collective aversion to emerging technologies, including 5G wireless, artificial intelligence, and robotics, to name just a few. There is also a trend toward ideological convergence, occasionally labeled ['salad bar terrorism.'](#) wherein violent extremists adhere to a broad range of views, some of which are contradictory. Conspiracy theorists imbibing disinformation have also engaged in acts of domestic terrorism and political violence. The attacks of 9/11 proved the adage that terrorists only need to be successful once while counterterrorism efforts need to succeed all the time. While many lessons have been learned about the adverse impacts of heavy-handed counterterrorism measures and the permissive role of the "Global War on Terror" in allowing repressive governments to quash dissent in the name of counterterrorism, degrading or diminishing counterterrorism in the face of sweeping geopolitical shifts risks undermining the tactical successes of the past two decades.

## Perspectives on Terrorism

Source: <https://pt.icct.nl/issue/volume-xvii-issue-1-2023>



Volume XVII, Issue 1, 2023 contains articles on various themes and topics, ranging from case study material on MENA considering if and how social environment can impact violent extremism, to exploration of new databases and search engine tools. This issue also hosts a special section





on Anti-Government Extremism, containing five research articles. The issue concludes with part 7 of Judith Tinnes' Bibliography on IS, a Bookshelf piece looking at latest books on CT, and the TRI Thesis Award.

- ❖ [Bibliography: Islamic State \(IS, ISIS, ISIL, Daesh\) Part 7](#)  
[Judith Tinnes](#)
- ❖ [Bookshelf: 10 Books on Terrorism & Counter-Terrorism-Related Subjects](#)  
[Joshua Sinai](#)
- ❖ [Announcement: TRI Award for Best PhD Thesis on Terrorism and Counterterrorism Submitted in 2021 or 2022](#)

## New ISIS-Khorasan Propaganda Tactics Target United States

By Uran Botobekov, Ph.D.

Source: <https://www.hstoday.us/featured/new-isis-khorasan-propaganda-tactics-target-united-states/>

Apr 03 - After the U.S. withdrawal from Afghanistan, ISKP has shown the capability to produce multilingual propaganda adopting new propaganda tactics for targeted criticism and mockery of U.S. political and military leaders. A strengthened ISKP insurgency and its growing international ambitions have direct consequences for U.S. and Western security interests.

### Growing Global Ambitions of IS-Khorasan

In its propaganda Islamic State Khorasan Province (ISKP), the official affiliate of the Islamic State terror group operating in Central and South Asia, has recently adopted a new tactic, moving from superficial religious vilification of the Western “crusaders” to targeted criticism and mockery of President Biden and the U.S. military command. Content analysis of ISKP propaganda materials indicates that the group’s ideologues are closely monitoring the statements of U.S. politicians, the Pentagon and the mainstream media assessing the possible threat from IS-Khorasan jihadists.

The tracking of IS-linked Uzbek and Tajik militants’ activity in Central Asia for years revealed that following the coordinated suicide bomb attack on Kabul airport in August 2021 that left at least 100 people dead, including 13 U.S. troops, ISKP has acquired global ambitions threatening world and regional powers. Before the U.S. withdrawal from Afghanistan, ISKP did not have the global ambition of external attacks, and its Pashto-language media resources waged a propaganda war primarily against the Taliban, its strategic rival and ardent enemy.

But since August 2021, along with the expansion of ideological, logistical, and operational capacities, the group has acquired global ambitions. Lately, ISKP multilanguage media resources have waged an active ideological war with external enemies – the United States, Russia, Pakistan, China, India, Iran, Turkey, Uzbekistan, and Tajikistan – to undermine international legitimacy and recognition of the Taliban government.

IS-Khorasan has benefited from the reduced counterterrorism pressure after the U.S. withdrawal from Afghanistan, allowing it to pursue a calculated, thoughtful, coherent, and ambitious international strategy. Over the past year, the Islamic State offshoot carried out a high-profile suicide bombing on the [Russian Embassy in Kabul](#), an attack on [Chinese diplomats and businessmen](#) at Kabul Longan Hotel, cross-border rocket attacks on [Uzbekistan and Tajikistan](#), and an [Inghimasi attack on Sikh-Hindu temple](#) in Kabul targeting India’s interests in Afghanistan. ISKP strategists aimed at international targets to increase the group’s appeal in the global jihadi world and undermine the Taliban’s ability to ensure stability in the country.

Along with spectacular bloody attacks on diplomatic missions and foreign nationals, ISKP has stepped up its ideological and propaganda warfare campaign through the [Al-Azaim Foundation for Media Production](#). To develop its international ambitions, ISKP has officially launched [several multilingual propaganda outlets](#) under Al-Azaim Foundation for Media Production, such as *Voice of Khurasan* magazine in English, Pashto language *Khurasan Ghag* magazine, Al-Azaim Uzbek, Al-Azaim Tajiki, Xuroson Ovozi radio in Uzbek, Al-Millat Media, Khalid Media, Al-Akhbar Wilayah Khorasan, Haqeeqat News, and Al-Mursalat Media. With the growth of its ambitions, [ISKP has expanded the language scope](#) of its propaganda: Pashto, Dari, Persian, Urdu, Uzbek, Tajik, Hindi, Malayalam, Russian, Arabic, English, and occasionally Uyghur.

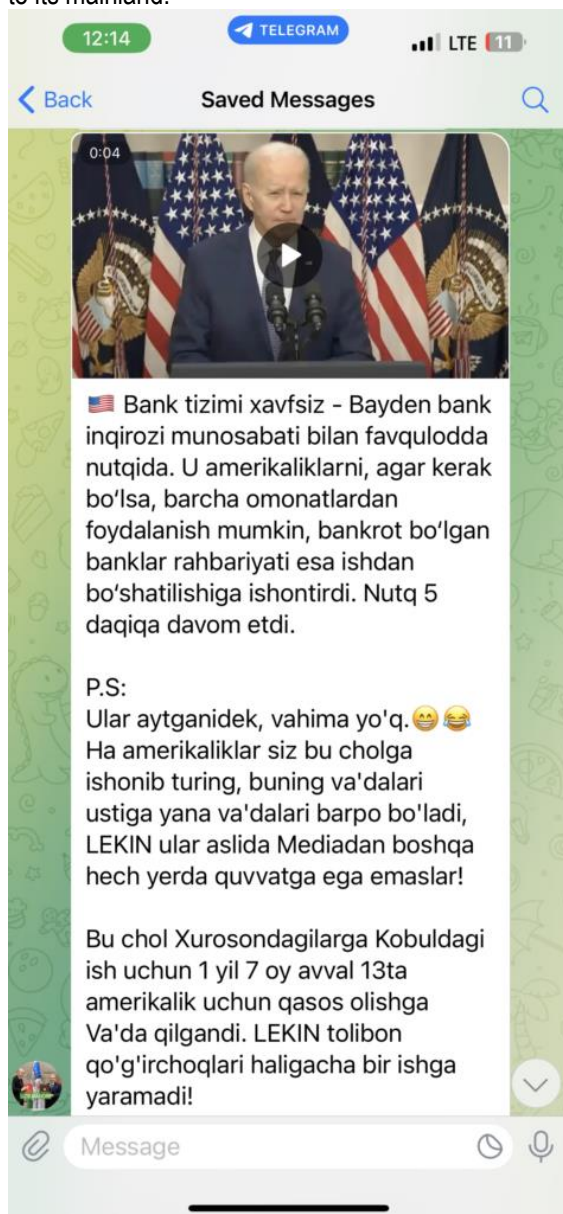
### U.S. reflection in ISKP Propaganda Mirror

The content analysis of Al-Azaim Foundation multilingual propaganda narratives found that ISKP considers the U.S. to be its main enemy and “Chief Shaitan” (evil spirit in Islamic belief). As noted above,



Al-Azaim Foundation and its local language media affiliates initially criticized the U.S. from a theological and ideological standpoint. If, until recently, ISKP theologically accused the “American Crusaders” of patronizing the Taliban Murtaddin (apostasy in Islam), peacefully transferring power to them and jointly conspiring against ISIS, today its propagandists have moved on to targeted criticism of both. Currently Al-Azaim multilingual media offshoots tried to analyze the military-political events in the U.S. and mocked their official statements.

In its 23rd issue, [Voice of Khurasan magazine](#), ISKP’s international flagship propaganda force, featured an article titled “And Gas Balloon Intimidates the Goliath of the Time”. ISIS mocks the U.S. fear of the “Chinese weather balloon that was turned away from its course” and raises the question of how the “Taghut (idolaters) Biden administration” would react if the “unidentified soldiers of Allah” conduct operations inside the U.S. The author concludes by humiliating that the “tyrannical Goliath” is “afraid of his own shadow” and, after all its “own crimes throughout the lands of the Muslims,” openly alludes to the repetition of “another 9-11 styled heavy blow to its mainland.”



On March 13, the pro-ISKP Uzbek Telegram channel “Uzb Bahori va Vatan Buti” posted a video message from President Biden assuring Americans that the “U.S. banking system is safe” after the collapse of Silicon Valley Bank. In this regard, Uzbek jihadists ridiculed his earlier promise to find and punish the Khilafah Mujahideen (defenders of Islam) who carried out an Ishtishadi (suicide bombing) operation at Kabul airport killing 13 kafir U.S. servicemen. “Still licking his wounds, the Crusader leader is making new promises that aren’t worth a damn,” the pro-ISKP Telegram channel concluded.

In recent days, Al-Azaim Media’s Uzbek, Tajik, and Pashto language units and pro-IS Telegram channels discussed the statement of [Gen. Michael Kurilla](#), the head of U.S. Central Command, who acknowledged that within six months, ISKP could target U.S. or Western interests abroad. As is known, speaking before the Senate Armed Services Committee on March 16, Gen. Kurilla admitted the ability of [ISKP to conduct external operations](#), which was picked up by IS-Central and its provinces’ propaganda arms with enthusiasm. Particularly, on March 17, ISIS’s [Al-Naba weekly published an editorial titled “Harvest of the Pentagon”](#) with a photo of Gen. Kurilla, which indicates the importance of his statement for the group’s propaganda campaign. The editorial claims that “U.S. Central Command’s statement testifies to the shameful failure of the Crusaders in their global war against the Islamic State,” although they have long refused to admit it. Thus, *al-Naba* mocked the U.S. victory over the Caliphate five years ago. IS claims that the crisis of the Kuffar (disbelievers or Christians) has arrived. According to *al-Naba*, the Pentagon, in its monthly reports on its achievements in the fight against ISIS, proves exactly the opposite – the failure of the U.S. in dealing with the Khilafah. “It’s hard for American Crusaders to understand the reasons for their failure because they measure jihad in terms of letters and numbers,” but *al-Naba* believes that “jihad is worship, faith, and a divine promise.” In conclusion, the editorial called on IS propagandists to intensify their efforts in the media field and assured that the Pentagon and its Crusader coalition would be defeated not only in this world but also on Judgment Day.

Al-Azaim Foundation for Media Production, ISKP’s multilingual propaganda arm, fully endorsed *al-Naba*’s findings, gloating over the statement of CENTCOM commander. Pro-Islamic State local Telegram channels, “Xuroson Viloyati” in Uzbek and “Al-Azaim-Tojiki” in Tajik, also commented on it and speculated that “the fires of holy jihad will rise” as Gen. Kurilla requested

more ammunition for airstrikes against ISKP.

“Uzbek Bahori va Vatan Buti,” another pro-IS Uzbek Telegram channel, derisively described a March report by the Institute for the Study of War (ISW), which warned of the risk of an attack on Uzbekistan by ISKP. Judging by stormy discussions in Al-Azaim media units, rumors of a growing threat from IS-





Khorasan inspired the group's ideologists. It also testifies to the well-established coordination between IS-Central media and ISKP's local propaganda machine, both in terms of jihadi ideology and its hierarchical subordination.

### Consequences for the U.S. and Post-Soviet Central Asia

Thus, ISKP has developed its multilingual propaganda machine to implement its global ambitions. Despite the limited organizational and operational capacity, the group tries to carry out transnational operations. As rightly pointed out by Gen. Kurilla, the main desired goal of IS-Khorasan Wilayat has long been U.S. interests outside Afghanistan. Undoubtedly, the excessive hype around the mythical threats of ISKP in Western mainstream media is in the terrorist group's strategic interests to target potential recruits in Central Asia where youth unemployment rates are highest in the world. Therefore, it is expected that ISKP multilingual media outlets watch carefully every announcement made by U.S. politicians and military leaders in counterterrorism fields to generate maximum propaganda benefits from it. Admittedly, bringing its global ambitions to the international agenda has already boosted ISKP's propaganda, as the group has demonstrated the ability to quickly adapt its own rhetoric to the changing security situation in Central Asia and in the world. In conclusion, if the Taliban fail to cope with the growing threat of IS-Khorasan in Afghanistan and curb the global ambitions of their jihadi rivals, then ISKP would be quite capable to rebuild its insurgency and to reconstitute some level of territorial control in the future. The bitter experience of al-Qaeda's resurgence has taught that the rise of the global ambitions of Salafi-Jihadi groups in Afghanistan have always had direct consequences for U.S. and Western security interests.

A fresh wave of bloody assassination attempts by ISKP on top Taliban officials and its readiness to attack international targets indicates that the Taliban and their Central Asian neighbors can't take this on alone. Therefore, the post-Soviet countries, despite the opposition from China and Russia, must find acceptable forms of cooperation with the U.S. for intelligence sharing and coordinated counterterrorism measures, including "over-the-horizon" operations to curb the global ambitions of ISKP. Otherwise, they risk facing the global terrorist group ISIS on their own territory in the Fergana Valley in the near future.

**Dr. Uran Botobekov** is a leading expert on the Central Asian Salafi-Jihadi Movement, a research fellow, and a member of the Advisory Board of EU Modern Diplomacy. During his career, Dr. Botobekov combined public and diplomatic service for the Kyrgyz government with scientific research. At various times he worked in the Ministry of Foreign Affairs, as the head of the State Policy Department of Governmental Agency for Public Service Affairs of Kyrgyz Government and the Press Secretary of the Kyrgyz President. He also served as the Counselor-Ambassador of the Kyrgyz Republic to Turkey and Ukraine. Dr. Botobekov regularly publishes books, articles, and Op-eds. He is the author of two books, several articles, and book chapters regarding Sunni Jihadism, terrorist financing, and radical Islamism. His research and analytical articles on militant Salafism in the post-Soviet Central Asian space were published in Russia, Turkey, Ukraine, Kazakhstan, Japan, USA, India, China, Vietnam, Germany, and Kyrgyzstan. His 2019 book, "Think Like Jihadist: Anatomy of Central Asian Salafi-Jihadi Groups," analyzes the stages of formation and development of the Islamic Movement of Uzbekistan (IMU) and other militant groups in post-Soviet Central Asia, as well as their joining global ISIS and al Qaida.

## Who's Protecting the Researchers? REASSURE report findings on identity and harms for online extremism and terrorism researchers

By Elizabeth Pearson

Source: <https://www.icct.nl/publication/whos-protecting-researchers-reassure-report-findings-identity-and-harms-online>

Apr 06 - In the past five years, online extremism research has focused, amongst other things, on [emergent movements with an anti-feminist agenda](#). Incels, the far right, and jihadist actors all have explicitly opposed the rights of some women, while upholding the rights of others. They have also challenged the freedoms of those identifying as LGBTQ+, as well as Shia (Sunni jihadists), 'liberals' (the far and radical right), and 'Stacey's' and 'Chads' (incels). Identity matters in victim selection by these actors, in other words.

For researchers, this can pose challenges. For the past two decades, the internet has enabled researchers to analyse terrorist communications, identity, propaganda and visuals to an unprecedented degree, and across ideologies. Indeed, the internet has enabled research of primary materials that would otherwise prove too dangerous: a Sunni Muslim researcher of the Islamic State who opposes their violence for instance; a researcher of colour studying the far right; a feminist scholar seeking to track incel interactions. Yet, as online extremism research has evolved over time, it has become clear [some researchers are suffering harms](#), and some of these are specifically related to their identity.

This is a key finding of a new study I have been part of that explores harms to those involved in the study of online extremism and terrorism. The first REASSURE project report, [Online Extremism and Terrorism](#)



[Researchers' Security, Safety, and Resilience: Findings from the Field](#), was published on 7 March 2023. It documents harms faced by researchers, how they cope, and the role of institutions within this. A further [two phases of the REASSURE study](#) are planned: the second talking to those professionally tasked in related areas such as police, tech companies, and journalists to better learn how to safeguard; and third, the production of guidance for our sub-field. The report is based on semi-structured interviews with 39 researchers engaged in primarily jihadist and far right research in global north-based institutions during 2020. These researchers were based in think tanks and universities (predominantly) in nine countries and representing 13 nationalities.

The REASSURE report found two thirds of respondents experienced harm, whether an external threat to security, such as being trolled or receiving a death threat; or an internal emotional harm such as depression or anxiety; withdrawal or nightmares. However, institutional protections were *ad hoc*: only a third of researchers had been asked to apply for ethical approval to begin their work, which was therefore conducted without institutional oversight. Instead, the informal community of researchers was the main source of support.

In this ICCT Perspectives I outline the importance of identity in the harms we noted amongst those taking part in REASSURE's study. Here identity encompasses both protected identities such as race and gender, and also career status as a category assigned by the academy to describe or identify scholars in relation to their status, and therefore privilege. I then explore why discussing identity and harms matters for the health of the terrorism studies field, and what could improve the situation for researchers going forward.

### Harms and Identity

Of the 39 total REASSURE interviewees, 22 were men and 17 women and they mainly identified as white (29) or white Jewish (3). Seven of the interviewees were people of colour, including three who identified as Muslim. None of the respondents identified as LGBTQ+ or referenced their sexuality when discussing their experiences and harms. REASSURE spoke to researchers across career stages and of diverse professional identities. A third of the interviewees, (13) can be classed as senior, which means they had eight or more years of experience on permanent contract. A considerable number (26) were junior: those completing a PhD programme, or employed on a temporary contract, or early-career researchers within eight years of completing their postgraduate research; REASSURE also spoke to those with the equivalent professional experience, for instance in think tanks.

One troubling REASSURE finding concerned the role of identity in the harms suffered. Although there was good news, in that REASSURE found not all researchers are inevitably harmed by what they study – in fact one third said they had experienced no harms beyond that of any other job – there was also bad: if you are a junior scholar, a scholar of colour, or a woman, harms can be related to identity and might well impact your future career.

Racism, misogyny and abuse are [well-documented features of online environments](#). Unsurprisingly then, respondents reported that the harms they faced were both raced, and gendered, and some of the harms were severe. In perhaps the most serious case, a researcher of colour was threatened online by a jihadist actor. They recalled how the attacker used their faith in this:

I was singled out for an attack, but also for a threat and questioning my Islam, and I can tell you that was very personal to me because I am someone who is profoundly religious... And I remember it was a Friday but... I mean, I was overwhelmed by anxiety and I remember sitting in the mosque, listening to the imam who gives the usual sermons in the mosque, but I don't, I can't... remember what he said in the sermons – I was only thinking about what happened.

In this case it was the proximity of the identity of the researcher to the group being researched that caused deep anxiety. This proximity was also a relevant factor in abuse suffered by women researchers. The majority of the nine women researching the far right said that their gender had been mobilised against them online. Five said they had suffered harms including trolling, doxing (in which personal identifying information is shared online) and harassment or abuse. In one of the worst cases, a woman researcher described how extremist hackers had also deliberately targeted the parents of her children's nursery classmates. Another described how extremists targeted her husband – a person of colour – as a means of harming her.

It should be noted that nine of the respondents had received death threats (eight men and one woman). However, these threats were not experienced as harmful, except by those respondents whose identities were proximate to those making the threats: the Muslim researcher threatened by jihadists for instance.

In particular, women respondents noted it was important to try to limit publicly available personal data online, as abusers would seek this out and utilise it in harassment campaigns. One woman respondent told REASSURE about work on 4chan:

4chan is premised on controlling your feelings. Shitposting and trolling, but also then exploiting the online traces of your victim... these three very young men in their late teens or early 20s, somewhere in the world, had done quite extensive research [on me]. My body was kind of dehumanised and magnified, so I became a meme myself. And that was obviously in misogynist terms.

Men working on far-right material had also reported harms. However, one, a scholar of colour, told REASSURE he had rarely been targeted:





I think gender has a way bigger impact on whether or not you're likely to get trolled than your ethnicity. I've never gotten like, a really... Like, I've gotten occasional emails, like "Go back to your country, stop polluting our universities"... I very rarely get any, like, publicly racist comments. I think that's strategic to some degree. And I think also my gender protects me quite a bit... or perhaps I'm simply just not prominent enough to attract their ire. Seniority was also deemed to be a protective factor. REASSURE respondents worked on brutal and violent material, such as jihadist video executions, or images of gender-based violence; also, offensive and distressing textual data, such as racist far right propaganda, or incel texts inciting sexual assault. While only half of more experienced respondents, with ten years or more in the field reported harms, 12 of 13 junior scholars – with fewer than five years in the field - said they felt harmed by their work. Of particular concern, these junior researchers sometimes felt afraid to speak up. One said, "I mean, I'm a young researcher, I want to get into the field researching terrorism. I don't want to cause a fuss on my first project, I can do it by myself. That is my thing. I'll handle it." Others were concerned that they would not find sympathy, or might be seen as incapable, or weak, or unsuited to the work, all at a time when they were looking for opportunities and job offers.

Some junior researchers had already faced challenges. In part interviewees suggested this was about a wider culture of 'macho bravado' in the wider terrorism studies community, which could be institutionalised. One early career scholar recalled a senior academic suggesting students should not seek to restrict viewing brutal images, as this was at the heart of the subject, leading to a junior researcher 'flipping out' when they saw a gruesome image. Two other early career researchers suggested such harms were connected to bullying. One spoke out about emotional harms that could result from online terrorism research only to be publicly described as 'weak' online by a senior academic. Another noted, "I think that our field really struggles sometimes in terms of behaviour and bullying and basic inter-personal professional-level things." Bullying is a top-down phenomenon, which might explain why senior researchers felt less harmed. Another possible explanation is that respondents themselves might not be best placed to assess the degree to which they are being harmed, or to notice that harms increased over time. As one senior academic in his 40s said:

You hear the... probably overused cliché of... the frog sitting in the pot of warm water and the heat's getting turned up a little bit, [and] it feels all right. And then at some point, it kind of gets a little too hot. And then at some point, it starts to boil a little bit, and at some point, it could kill you. The point is, you don't really know, necessarily, what that threshold is.

Additionally, respondents reported some coping strategies developed long-term, that they considered potentially harmful in themselves, such as developing a dark sense of humour about their work.

### Professional Harms: Silencing the Researcher

Some researchers reported the effects of this abuse in self-censorship and silencing. This had potential career harms, given academic promotion is dependent on [publishing, impact, media presence, participation in public events, and visibility and profile](#) in the field. Women researchers in particular discussed how one outcome of abuse was the decision to reduce their visibility, which might mean refraining from social media posts, protecting social media accounts, turning down media interviews, or even deciding not to pursue some areas of research. The woman researcher who had been memified by far-right trolls talked about what happened after this. She said, "I kind of withdrew... from public debate for a few months, said no to all media appearances... And, you know, that effect is not just to intimidate and frighten the researcher, but also to silence the researcher... So, in that sense, it kind of succeeded." Another woman researcher said she simply avoided "doing many things like giving interviews or when it comes to areas that I know will attract a lot of attention. Which I think is kind of sad. But it's like, I don't... I can't take it. I'm tired."

REASSURE found interviewees felt sharing these experiences was an important part of recovering from them, and getting through them. However, they needed to talk to people who understood. They did not necessarily want to talk to generalist therapists or counsellors, who might balk at hearing of the more brutal activities of groups like Islamic State. Ideally, they wanted to talk to other people like themselves, from their communities. Additionally, few institutions provided wellbeing support.

This meant that researchers were the ones taking responsibility for each other, working through harms, and doing the emotional labour of caring that [might otherwise be taken on by institutions themselves](#). If junior scholars, women, and people of colour are the most at risk, it stands to reason that other junior scholars, other women and other people of colour are the ones who end up [doing the work to support, advise and protect one another](#). While nobody mentioned their sexuality when discussing identity and harms within the REASSURE research cohort, LGBTQ scholars are clearly also at risk. Caring for others in your research community is important, and REASSURE found researchers keen to help one another. Yet this help is – like it or not – an additional layer of emotional labour and responsibility that these scholars should not have to bear.

### Harms and the Long-Term Future of Terrorism Research

If we want to safeguard knowledge, and keep experts in the field long-term, institutional bodies need to take informed responsibility around protections for researchers. Terrorism research is not going anywhere. Online spaces do not appear any less toxic now than when REASSURE interviews took place, and there



is work to do to challenge this toxicity and the terrorist groups and extreme movements that flourish in it. These spaces need to be researched. Importantly, respondents believe in the value of the work they were doing and this belief was an important mitigating factor in any harms they perceived. Few people suggested that experience of harms was a question of personality; most believed reduced harms centred on the ability to learn appropriate coping mechanisms, as well as technical security methods, and to have others to talk to who understood the subject matter. Institutions must be at the heart of such learning. That means taking the internet seriously as a field of study. REASSURE respondents themselves regard the internet as a place they go to study. However, they note the frequently *ad hoc* system in which institutions often fail to categorise the internet as a research field. This matters because some institutions only ensure an ethical approval process through their Human Research Ethics Committee (HREC) or Internal Review Board (IRB) for those who are perceived to: one, do research with humans, and two, travel to a risky environment to conduct that research. This meant only a third of respondents had discussed their online extremism project with an ethics board.

While internet research does not involve travel, it does involve immersion. Furthermore, the nature of that immersion is likely to increase. When FB changed its name to Meta, the implication was clear: social networking was no longer just about the internet. The United Nations has already considered the potential terrorist threat in the metaverse, and how to counter it. This hybrid world, potentially incorporating virtual reality, the net, gaming, and business is already home to celebrity events, and lucrative 'unreal'-estate deals. Anything that happens in the universe [can happen in the metaverse, including terrorism](#), and terrorism research, with harms to researchers. There are already reports of [sexual assault of researchers in the metaverse](#), including virtual gang rape. There have been campaigns of harassment and bullying. Researchers need to understand the possible risks in an environment in which the boundaries between on and offline are ever more blurred; and institutions can no longer dismiss such a world as somehow not real enough to warrant safeguards for their researchers. Indeed, other industries can show the way. Tech companies are facing pressure to improve conditions for content moderators, [in part in response to possible litigation](#). Meanwhile, professions from journalism, to the civil service, to the police, and health services are evolving both guidance for staff, and a language that enables them to express how they are being harmed. Terms such as 'moral injury', 'vicarious trauma' and 'trauma-informed' practice [have yet to gain currency in universities](#), while they are familiar to other fields.

## Conclusion

Researchers are not victims of terrorism. However, we can be harmed, and if our research matters at all, then so too do those harms. In particular, if researchers from a minority background are unable to do work on the areas that are of most relevance to them, the field is likely to be dominated by those from the majority perspective, advancing dominant narratives. Whether the minority is scholars of colour determined to work on race-based or far right extremism; Muslims who study violent jihad; women choosing to analyse online misogyny; or those identifying as LGBTQ+ exploring homophobia, transphobia or other gender-based abuses online, these interests are often the most marginalised within security studies. Those from marginalised communities have the potential to increase the relevance and knowledge of the field, and to promote the inclusion of a greater range of research perspectives and interests. Conversely, if protections for such researchers do not exist, the field risks the perpetuation of the most dominant narratives and research-agendas, and will therefore, inevitably miss things.

**Dr Elizabeth Pearson** is a Lecturer in Criminology with the Conflict, Violence and Terrorism Research Centre at Royal Holloway, University of London, an Associate Fellow at ICCT, and a member of the Editorial Board at *Perspectives on Terrorism*, a journal published by ICCT. Her research interests are in gender, extremism and counter-extremism. Elizabeth is the lead author on the REASSURE Report. The REASSURE team additionally comprises Joe Whittaker of CYTREC and Swansea University, Till Baaken from the Institute for Strategic Dialogue, independent researchers Farangiz Atamuradova and Sara Zeiger, and Maura Conway of VOX-Pol and Dublin City University. The REASSURE project also acknowledges the contribution of ModusZad.

## Al-Qaeda's Looming Threat: Are We Looking Over the Wrong Horizon?

By Sara Harmouch

Source: <https://www.lawfareblog.com/al-qaedas-looming-threat-are-we-looking-over-wrong-horizon>

Apr04 - As the world watches Russia's war in Ukraine, events in the Middle East, North Africa, and Southeast Asia are heating up. A dozen years after the death of Osama bin Laden, his dreams and plans of another attack against the United States—with effects that would far exceed the Sept. 11, 2001, attacks—may be close to coming true, and an "over-the-horizon" counterterrorism strategy might not be the solution. Since 9/11, the U.S. has not suffered any comparable terrorist attacks on its soil. After the U.S. withdrawal from Afghanistan in August 2021, however, many





counterterrorism experts and policymakers assessed that [al-Qaeda would rebuild](#). These experts made a strong case that it would be a matter of time until al-Qaeda acquired the capabilities to strike the U.S. Last month, however, in the U.S. Senate Intelligence Committee's [annual hearing](#) on the top threats to the nation, Defense Intelligence Agency Director Lt. Gen. Scott Berrier said that, based on "what we know right now from the threat of al Qaeda, they're trying to survive, basically without a real plan to at least or intend to attack the West anytime soon." (This is a shift from Berrier's [initial assessment](#) the previous year, when he estimated that it would be "one to two years" before al-Qaeda could threaten the U.S.)



Ayman al-Zawahiri and Osama bin Laden in November, 2001. (Hamid Mir, <https://tinyurl.com/4dkj5d5d>; Attribution-Share Alike 3.0 Unported, <https://creativecommons.org/licenses/by-sa/3.0/deed.en>)

When has there been a time in history when al-Qaeda did not intend to attack the U.S.? The terrorist organization has always been at war with the U.S. The question was always not "if" but "when." The answer may be "they will tomorrow," and many scholars and [counterterrorism experts](#) have made a [strong case](#) for that. Today, the terror landscape has much more to chew on. Innovations have marched on ever since 9/11, technology has advanced immensely, and the barrier to entry is low. Indeed, terrorists have made use of these advancements. So, perhaps the interesting question is, with an evolving and ever-changing threat environment, "why hasn't al-Qaeda conducted another 9/11 on U.S. soil?" The question has no single answer, but intent and capabilities are not part of the reason. From my assessments of al-Qaeda's [recent publication](#), [declassified documents](#), and [congressional hearings](#), along with my experience as a Middle Eastern national and counterterrorism scholar who has done extensive fieldwork in the Middle East and North Africa, and as someone who has experienced firsthand what these terrorist groups are capable of, it is clear that al-Qaeda's source of power and decision-making lies in its strategy, patience, principle of surprise, and creative ideas.

Al-Qaeda is strategic, [conducts](#) geopolitical assessments and risk analysis, and, most importantly, reads and listens to what the U.S. says and writes. If the U.S. hopes to nullify the threat that bin Laden has unleashed, it must come to terms with the fact that its national security needs a counterterrorism strategy makeover, and its post-global war on terror policy requires creativity. An over-the-horizon counterterrorism strategy is not sustainable and undoubtedly will fail to curb this threat. It is time to move beyond a simplistic and worn-out war on terror and create a nimble new response to today's ever-changing threats.

### Intent and Capabilities

The pervasive view is that a lack of intent and capabilities is why al-Qaeda hasn't executed a large-scale attack against the U.S. in recent years. Let's unpack that claim, starting with intent. Contrary to Gen.



Berrier's assessment, a vast body of [literature](#) suggests that the al-Qaeda forces bin Laden created will always [seek to attack U.S. interests](#) at home and abroad using the weapons they have at hand or can acquire. Every year since the Sept. 11 attacks, al-Qaeda has at least issued a lengthy statement remembering its hijackers and inciting its followers to keep fighting America.

To illustrate with a more recent example, on Sept. 11, 2022, al-Qaeda released a [book](#) authored by deceased al-Qaeda senior member Abu Muhammad al-Masri. The 270-page [document](#), entitled "The 9/11 Operations: Between Truth and Uncertainty," provides an intricate chronology of events, tracing the origin and inception of 9/11 right up to the culmination of the attacks. The book has not been published in English (or referred to in English publications, other than in a few tweets), but as a native Arabic and French speaker, I have translated the quotes that I use throughout this article. With this book, al-Qaeda aimed to dispel any lingering doubts or conspiracy theories surrounding the catastrophic events of 9/11. The work endorses both the idea and the execution of the attacks, serving as a resounding reaffirmation of al-Qaeda's stance. Al-Masri vowed that al-Qaeda is still committed to attacking the U.S. and its allies. He asserted that the next attack on the U.S. homeland would be on a much larger scale, targeting multiple cities simultaneously, and that "the effect of these large-scale operations would far exceed the 9/11 attacks."

FBI Director Christopher Wray [voiced his concern](#) about al-Qaeda's continued desire to attack the U.S. through homegrown violent extremists: "We are very concerned about al-Qaeda and ISIS's ability to inspire attacks even from over there." While testifying before the [House Armed Services Committee](#), U.S. Chairman of the Joint Chiefs of Staff Gen. Mark Milley stated, "al-Qaeda is at war with the United States, still, and never has not [been]."

So, the intent is clearly there. What about capabilities?

Unfortunately, the simple answer is yes, they have the capability and, specifically, the money to attack the U.S. homeland or its allies. Before discussing the present, let's recall images from the past. According to the [9/11 Commission Report](#), the plot that toppled the World Trade Center towers cost al-Qaeda between \$400,000 and \$500,000 and 19 hijackers to plan and execute. In fact, before 9/11, a CIA-FBI task force had [estimated al-Qaeda's size](#) to be around 75 members. In addition, in various instances, [bin Laden argued](#) that "any operation against an American or Israeli target would need only a few persons." In its recent [publication](#), al-Qaeda echoed bin Laden's statements discussing operations they conducted in Yemen and elsewhere. Al-Masri stated: "For an operation to be successful, all we need is one to two persons from that region and context." [PBS Frontline's](#) biography of bin Laden made a similar point that his "activities are not very dependent on money. His followers are not mercenaries. Training does not cost a lot of money. Explosives and weapons are very cheap in some parts of the world." Frontline's assessment was not wrong. Al-Qaeda pulled off the world's cheapest global attack that altered the world on Sept. 11.

Money facilitates and speeds the growth of the jihad bin Laden instigated, but al-Qaeda does not need much to conduct operations against America and its allies. In the years leading up to the Sept. 11 attacks, al-Qaeda's minuscule expenditures allowed it to grow in capabilities and recruits, expanding to become a regional and transnational threat.

Let's fast forward to the present day. In a War on the Rocks article, counterterrorism experts Daniel Byman and Asfandyar Mir engaged in a fascinating [debate on the al-Qaeda threat](#) today. Mir argues that al-Qaeda remains a critical threat, while Byman is doubtful. Perhaps tellingly, I stand on Mir's side of the debate. Mir contends that, despite more than two decades of relentless counterterrorism pressure, al-Qaeda remains a formidable adversary, demonstrating resilience and maintaining a consistent and unwavering intent to strike the U.S. Its capabilities continue to grow, and the group remains tightly knit and focused on achieving its ultimate objectives. Byman argues that he is skeptical about al-Qaeda's threat because of its organizational weakness, failure to conduct a successful attack since the 2010s, the weakness of some of its affiliates, its lack of a safe haven (at the time), and the group's failure to achieve any of its pronounced goals.

After the withdrawal of U.S. forces from Afghanistan, however, the group regained its safe haven. In her [Lawfare article](#) from October 2021, Elizabeth Grimm detailed the manifold benefits of safe havens, and now that it has regained this asset, al-Qaeda's scorecard will only improve. Before al-Qaeda moved to Afghanistan, it wanted to set up its initial base of operations in Sudan. However, al-Masri explained that because Sudan was facing international pressure and sanctions, al-Qaeda ultimately decided against setting up its base in the country. Thus, the group decided on Afghanistan. Also, according to a recent [U.N. report](#), the Taliban and al-Qaeda enjoy a close relationship. While the U.S. was rightfully applauded for the drone strike that killed Ayman al-Zawahiri, his [presence in Kabul](#) was not exactly a win, as it is clear evidence that al-Qaeda is yet again enjoying special treatment from the Taliban. Al-Qaeda even acknowledged [the significance of Afghanistan](#) in its operation, planning, and training.

Further, reports suggest that al-Qaeda has already [started building training camps](#) in Afghanistan. And it is not just that. Intelligence reports noticed renewed eagerness of foreign fighters to travel to Afghanistan. [U.N. monitoring](#) estimates that between 8,000 and 10,000 foreign fighters are in Afghanistan. Al-Qaeda's newest publication stresses the significance of foreign fighters and their skills. According to the book, foreign fighters do more than combat training and assist in the fighting. Al-Masri described the events leading up to 9/11 and how foreign fighters from diverse





backgrounds would meet and discuss plans and ideas. He claimed that the origin of 9/11 was born during one of those meetings. Whether true or not, cultural diversity, indeed, [enables](#) creativity.

Al-Qaeda spans borders and geographic boundaries. It has several hundred core members and far more members in its affiliates, such as al-Qaeda in the Indian Subcontinent (AQIS), al-Qaeda in the Arabian Peninsula (AQAP), al-Shabaab in Somalia, and al-Qaeda in the Islamic Maghreb (AQIM), among others. These affiliates, over the years, have consolidated political governance, grown funds, recruited more fighters, and established safe havens. One such primary affiliate, al-Shabaab in Somalia, has already gained a reputation for being the wealthiest and deadliest. In addition to its financing efforts, the group has [generated \\$100 million per year](#) through illegal funding streams, notwithstanding the billions of dollars worth of military equipment left behind in Afghanistan after the U.S. withdrawal in August 2021. In the Senate Intelligence Committee hearing last month, Sen. Susan Collins (R-Maine) [listed](#) “ammunition, communications equipment, and at least 16,000 pairs of night vision goggles, 167 aircraft, and 2,000 vehicles” as having been left behind. Bin Laden carried out the Sept. 11 attacks with much less.

Beyond financial capabilities, al-Qaeda has a particular budget and division for developing unconventional capabilities. According to al-Qaeda itself, it designates specific funding for education so that its members can specialize in math, physics, chemistry, and aeronautical engineering degrees. In recent years, [al-Qaeda has purportedly called](#) on “scientists, doctors, and engineers to join their cause, which includes the use of specialized skills to inflict harm.” Al-Masri further stated that the terrorist group has also [progressed in chemical, biological, and nuclear research](#) and would use these skills to modify and build small drones for attacks or transform what is already available on the market into unmanned combat aerial vehicles. “Even if the group cannot build a nuclear weapon, it can reach far enough to deliver a chemical weapon that would cripple its enemies.” In that way, al-Masri said, “we reverse the tables in the field of air supremacy and defense against the enemy.”

After all of these observations, should we still indulge in the wishful thinking that al-Qaeda lacks the capabilities to carry out a large-scale attack on the U.S.? Does it even need this much to conduct another 9/11 attack? Even if al-Qaeda’s own assessments of its capabilities are overstated, it does not think it needs a large military force, money, or huge numbers to defeat the U.S. For bin Laden, [the war against the U.S.](#) was one of intelligence. He [argued](#): “To win, think more and do less, and fight without fighting.”

While the U.S. places its faith in the almighty dollar, seeking to resolve problems through a financial lens, al-Qaeda’s capacity to deliver on its promises stands as a testament to the triumph of its strategic acumen, steely patience, unwavering commitment to surprise, and ingenuity. Though bin Laden is long gone, the ideals and perilous ambitions he embodied continue to thrive, and his legacy outlives him.

So, why hasn’t al-Qaeda conducted another attack on the U.S.? The answer lies in neither capability nor intent. Instead, the answer rests on the fact that al-Qaeda is strategic, patient, and [plays the long game](#), and Washington does not.

### Al-Qaeda’s Strategy

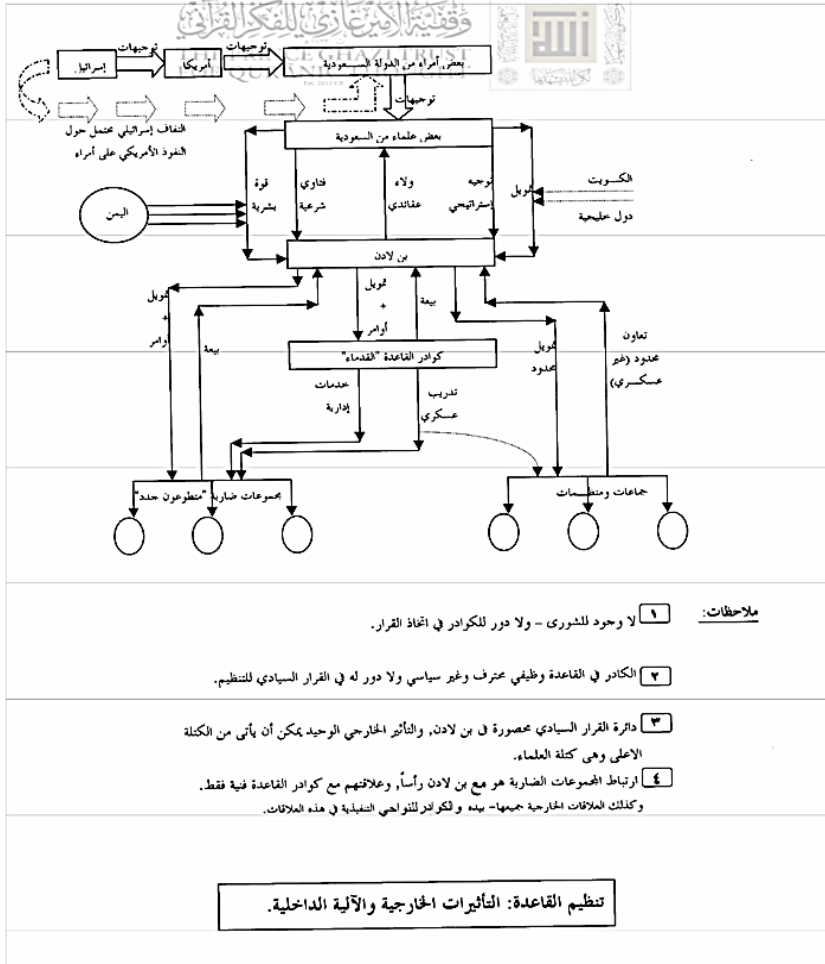
Through [the letters retrieved from his compound](#), bin Laden stressed the importance of education, but not just any education. He emphasized education centered around the adversary, saying, “It is critically important to study the culture and history of one’s enemy and focus on how the enemy thinks, uncovering its weaknesses and strengths.” For al-Qaeda, gathering intelligence is an indispensable pillar of its success. The group deems it necessary to collect information on the enemy’s military, educational, and human capacities; the distribution of their forces and military divisions; and the nature of their weapons and treaties. Otherwise, al-Qaeda states, “any work that does not have a strong security basis is deemed to fail. If the building does not have a great foundation and structure, then it falls.” Furthermore, any undertaking is destined for failure without a solid security foundation. Al-Qaeda contends that, by understanding the enemy and reading what is going on in their minds at the right time and place, it will always be a step ahead of its foes.

Al-Qaeda is a master of strategy, adept at [sowing confusion](#) and subterfuge for U.S. policymakers and analysts. Al-Qaeda’s shrewd tactics have yielded triumphs [in the past](#), deftly deceiving numerous experts and policymakers into thinking that its power had waned, particularly following bin Laden’s death. Regrettably, many U.S. policymakers [miscalculated](#) al-Qaeda’s relative strength and capabilities at this point, prematurely deeming it the group’s end. But [this was not the case then](#) and is not the [case](#) now.

Al-Qaeda finds great satisfaction in its geopolitical and threat assessments of the U.S. and its allies. The group’s leadership and members pore over congressional reports, hearings, and Defense Department statements, avidly studying the U.S.’s strengths and weaknesses. For example, in its recent publication, the group cites U.S. government reports to substantiate its argument. For al-Qaeda, it is paramount to scrutinize the enemy with perspicacity, absorbing the methods and theories of war propounded by their military experts, and formulating a holistic operational strategy based on this knowledge. Furthermore, [al-Qaeda draws on](#) an impressive array of military minds, including British military analyst J.C. Fuller, Prussian Gen. Carl Von Clausewitz, Chinese communist leader Mao Zedong, and North Vietnamese Army commander-in-chief Gen. Vo Nguyen Giap, to name a few.



Beyond focusing on the U.S., al-Qaeda believes it is necessary to follow the changing events of the world. Based on bin Laden's diary, he watched the Arab Spring events of 2011 with rapt attention. He advocated for general political astuteness and understanding of local, regional, and global issues, mainly how fluctuations in each of these settings would affect the circumstances of Muslims in diverse political, geographical, and operational contexts. The **image below** is one of [al-Qaeda's assessments](#) of external influence, including the U.S., Israel, and the Gulf countries, and its inner workings, financing, and strategy.



week, next month, or next year." Arguably, the most crucial trait of bin Laden was patience. According to [al-Qaeda's manuals](#), part of the criteria for qualifying as a member is patience: "[The member] should have plenty of patience for [enduring] afflictions if he is overcome by the enemies. He should not abandon this great path .... He should be patient in performing the work, even if it lasts a long time." Bin Laden's philosophy was firmly grounded in the belief that success is not achieved through haste but rather through diligence, perseverance, and unwavering resolve, even if the path to victory is long and arduous. This enduring principle of steadfastness has been a cornerstone of al-Qaeda's modus operandi since its inception. It was instilled in its members by bin Laden's patient, stoic leadership and [long-term approach](#). Bin Laden knew that he might not be the one to [reclaim jihad](#) "but that it will be reclaimed by his sons, grandsons, or great-grandsons." He suspected his goals might not be accomplished in his lifetime. [He groomed successors](#) and leaders to follow and ensured he was not alone in possessing patience.

And while bin Laden is dead, his style of warfare and the patience he ingrained in his followers are here to stay. Though the U.S. has been safer and more secure since 9/11, the threat remains. The absence of evidence does not mean the evidence is absent.

## Conclusion

In this context, the U.S.'s impatience and short attention span are hindering its comprehension of the long-term nature of al-Qaeda. The American tendency to view problems through a financial lens, rooted in its vast resources, has led to the false notion that money is the lifeblood of al-Qaeda's power and influence. This view has often led policymakers to another flawed belief: that if they remove al-Qaeda's funding

Bin Laden regarded [the element of surprise](#) as an indispensable weapon in the quest for "relative superiority." He underscored that, without the meticulous and vigilant planning of surprise, subsequent or postponed assaults risk floundering since [the enemy wields the upper hand](#) of time, enabling them to counter or forestall the attacks. Bin Laden promised another 9/11, and al-Qaeda continues to echo this rhetoric in its publications and propaganda. The group has pledged an attack that far eclipses the magnitude of 9/11 and that would simultaneously hit multiple cities in the U.S. using whatever weapon it had. To successfully execute such an assault, al-Qaeda must ensure its preparedness. Al-Qaeda invests considerably in the preliminary stages of attack planning and prioritizes the element of surprise. Preemption and surprise tactics rank among al-Qaeda's paramount war principles, considering these as half the way to victory.

In addition, al-Qaeda accentuates the need for unwavering patience, resolute perseverance, and steadfastness. Bin Laden crafted his organization meticulously, attributing the utmost importance to education, security, and patience while regarding speed as the least consequential element. "We forget, of course," [Raymond Close wrote](#) in the Washington Post in 1998, "that if the terrorist has any outstanding quality besides vengefulness and cunning, it is patience. He may strike back next





sources, al-Qaeda will cease to exist. Such a view overlooks the complexity of al-Qaeda's organizational structure and its strategies. In today's world, falling back on the various counterterrorism nostrums and soundbites that may have worked 20 years ago will not work anymore.

It is easy to dismiss al-Qaeda's arguments and writings as crude propaganda, which they are. And inquiring about the enemy's way of thinking and methods still runs into skepticism among military and security officials. However, much can be inferred from reading al-Qaeda's documents and listening to what the group has said. After all, bin Laden's words and statements proved to be far more than empty threats and unexecuted plans. U.S. officials knew he was determined to attack. Between 1996 and 2001, bin Laden conducted interviews and gave speeches and statements telling his followers and the world that he intended to conduct an attack. And on Aug. 6, 2001, [the President's Daily Brief](#) even [headlined](#) that "Bin Laden [was] determined to strike in [the] US." It seems that a similar phenomenon is unfolding today. And listening to what al-Qaeda says and writes is one way to, hopefully, ensure that history does not repeat. Despite Berrier's statement last month about the threat from al-Qaeda, FBI Director Wray acknowledged [the truth of the matter](#) after the U.S. withdrawal from Afghanistan, saying that "[o]ur ability to gather valuable intelligence on the ground inside Afghanistan has been reduced. That's just a reality." The U.S. needs a counterterrorism strategy that extends beyond the "over the horizon." While [U.S. national security strategies](#) have changed comparatively little since 9/11, terrorist organizations have adapted in various ways to the evolving nature of the threat environment. One of these ways is through organizational restructuring to guarantee flexibility and agility. After 9/11, al-Qaeda transformed its hierarchical structure into a decentralized one. The hierarchal and standardized nature of national security organizations does not operate well in today's environment of rapid decision cycles. It breeds costly inefficiencies and paralyzes complex interagency endeavors.

The contemporary security environment requires the collaboration of diplomacy, intelligence, law enforcement, military, and state and local management services. Enhancing public- and private-sector cooperation is a must. For the U.S. to better position its defenses, it is imperative that the government builds and fosters relationships with academia and the private sector. Instead of increased bureaucratization to accomplish this collaboration, Congress should explore ways to achieve it through de-bureaucratized cells. To defend the United States's democratic values, the complex security arena requires creative multidisciplinary strategies that combine intelligence, military, artificial intelligence, and cyber technology. A multidisciplinary and diverse approach enables ameliorated planning, bridges capability gaps, improves efficiency, and fosters creativity across the national security community. And bipartisan efforts are essential to mitigating the risk of another catastrophic al-Qaeda attack.

After all, [creativity](#) thrives in uncharted waters. As al-Qaeda steadfastly delves into the intricacies of the United States's historical contexts and geopolitical landscape and patiently observes our actions, policies, and analyses, perhaps we should take a page out of al-Qaeda's book and do the same. In that sense, we would be closer to counter the forces that bin Laden unleashed.

**Sara Harmouch** is a Ph.D. student at the School of Public Affairs at American University. She is a Lebanese national with native Arabic and French. She conducts fieldwork in the Middle East, North Africa, and the Gulf region. Her research interests are threats to democracy, asymmetric warfare, political violence, violent extremism, armed non-state actors, all forms of terrorism, terrorist groups' behaviors and alliances, counterterrorism policies, and security sector assistance.

## Open U.S. Border Entices Jihadists -- The Plot to Kill Bush

By Todd Bensman

Source: <https://www.meforum.org/64332/al-qaeda-fighter-plot-to-smuggle-in-bush>

Apr 12 - An unlikely [FBI counterterrorism](#) case wrapping up in Ohio casts a bright and shining light on a gaping national-security hole in the southwest border as the greatest mass migration crisis in American history overwhelms its defenses. The Ohio FBI field office last year busted a local Iraqi asylum seeker, former al Qaeda fighter Shihab Ahmed Shihab Shihab, in the midst of orchestrating a credible international plot to assassinate President [George W. Bush](#) in Texas using a remarkable tactic. [Continue reading the full article>](#)

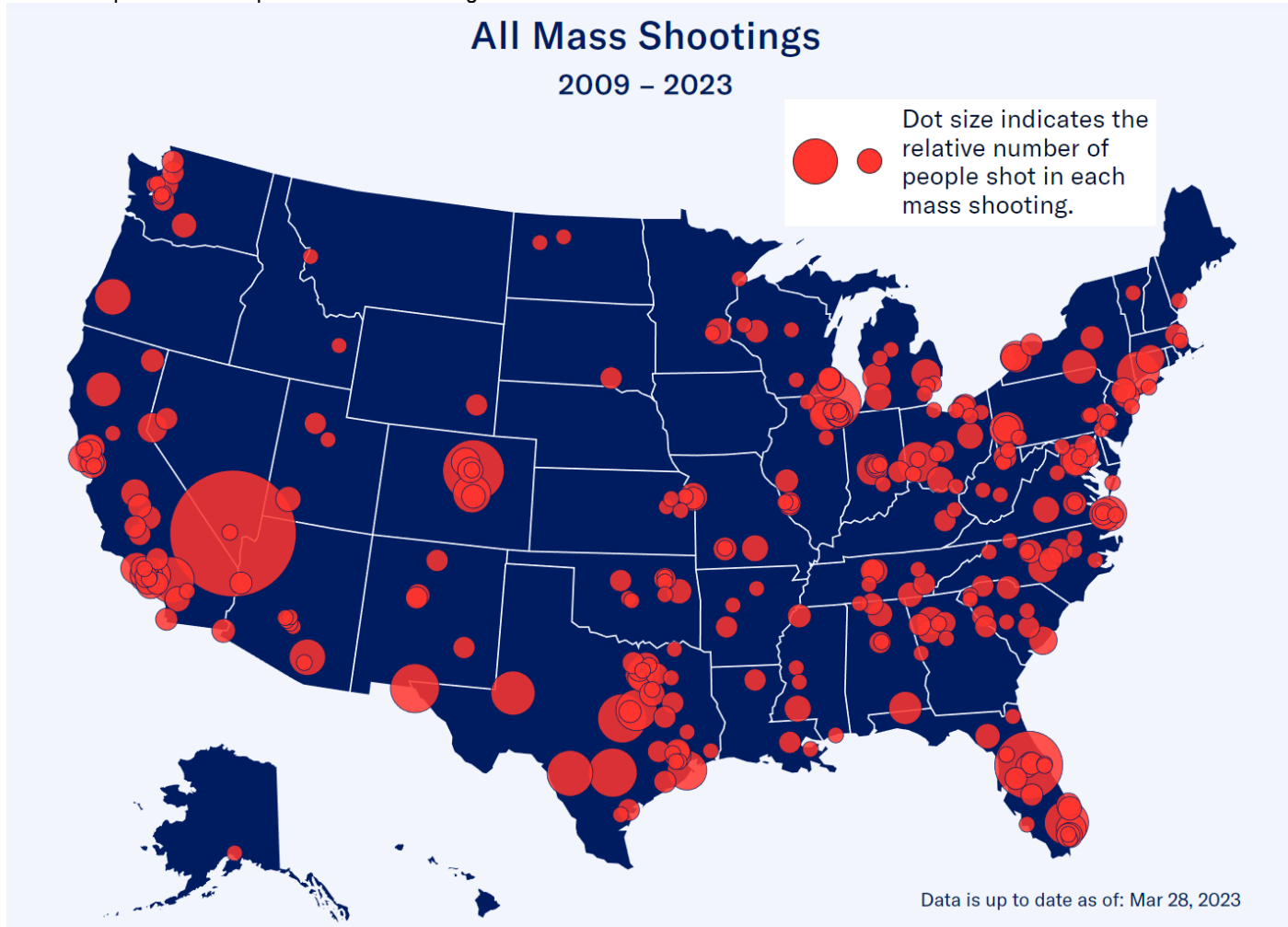


**Todd Bensman** is a fellow at the Middle East Forum and a senior national security fellow for the Center for Immigration Studies. He previously led counterterrorism-related intelligence efforts for the Texas Intelligence and Counterterrorism Division.



## Mass Shootings In The US Between 2009 and March 2023

Source: <https://brilliantmaps.com/mass-shootings-in-the-usa/>



A mass shooting is defined as any incident in which four or more people are shot and killed. Since 2009, there have been 306 mass shootings, resulting in 1,710 people shot and killed and 1,087 people shot and wounded.

## Why Do Mass Shooters Kill? It's About More Than Having a Grievance

By Arie Kruglanski

Source: <https://www.homelandsecuritynewswire.com/dr20230413-why-do-mass-shooters-kill-it-s-about-more-than-having-a-grievance>

Apr 13 - An acutely troubling aspect of life in contemporary America is the [growing proliferation of mass shootings](#) that [claim thousands of innocent lives](#) year after painful year and make everyone feel unsafe.

The year 2023 is still young, and already there have been at least [146 mass shooting events](#) in the U.S. on record, including [the killing of five people](#) in a Louisville, Kentucky, bank that the shooter livestreamed. There were 647 mass shootings in 2022 and 693 in 2021, resulting in 859 and 920 deaths, respectively, with no respite in sight from this ghastly epidemic. Since 2015, over 19,000 people have been [shot and wounded or killed](#) in mass shootings.

In the wake of most shootings, the news media and the public reflexively ask: What was the killer's motive?

As [a psychologist who studies](#) violence and extremism, I understand that the question immediately pops to mind because of the bizarre nature of the attacks, the "out-of-the-blue" shock that they produce, and people's need to comprehend and reach closure on what initially appears to be completely senseless and irrational.

But what would constitute a satisfactory answer to the public's question? Media reports typically describe shooters' motives based on specific individual details of the case, on their "manifestos" or social media





postings. These generally list insults, humiliations or rejections – by co-workers, potential romantic partners or schoolmates – that a perpetrator may have suffered. Or they may cite alleged threats to the shooter's group from some imagined enemy such as Jews, people of color, Muslims, Asians or members of the LGBTQ+ community.

Though perhaps informative about a given perpetrator's way of thinking, I believe these motives are too specific. Each shooter's life story is unique, yet the growing number of mass shootings suggests a general trend that transcends personal details.

### Quest for Significance

Perhaps surprisingly, the general motive that drives mass shootings is a fundamental human need. It is everyone's [quest for significance](#) and [a feeling that their life matters](#).

That need gets activated when someone feels the loss of significance, the sense of being slighted, humiliated or excluded, but also when there is an opportunity for a gain in one's sense of significance, being the object of admiration, a hero or a martyr in other people's eyes.

I took part in a recent study carried out in the aftermath of the 2016 Orlando mass shooting. In that study, headed by [social psychologist Pontus Leander](#) of Wayne State University, we subjected American gun owners to [feeling a loss of significance](#) by giving them a failing score – or not – on an achievement task. We then asked this random sample of gun owners to respond to a number of questions including whether they would be ready to kill a home intruder even if they were about to leave the home they invaded, and also how empowered those gun owners felt by owning a gun.

We found that the experience of failure increased participants' view of guns as a means of empowerment, and enhanced their readiness to shoot and kill a home intruder.

And a [2020 review of mass shooting incidents](#) between the years 2010 and 2019 found that 78% of mass shooters in that period were motivated by fame-seeking or attention-seeking – that is, by the quest for significance.

If the need for significance is so fundamental and universal, how is it that mass shooting is an isolated phenomenon perpetrated by a handful of desperate individuals – and not by everyone?

Two factors can push this common human striving into mayhem and destruction.

First, it takes [extreme heights of significance craving](#) to pay this high a price for potential notoriety. Shooting is an extreme act that demands self-sacrifice, not only giving up on acceptance in the mainstream society, but also producing a high likelihood of dying in shootouts with law enforcement.

Research shows that [about 25%](#) to [31%](#) of mass shooters exhibit signs of mental illness, which is likely to induce in them a deep sense of disempowerment and insignificance. But even the remaining 70%-75% with no known pathologies are likely to have suffered extreme significance issues, as attested by their ample statements about humiliation, rejection and exclusion they believe they or their group suffered at the hands of some real or imagined culprits. These feelings can create a [one-track significance focus](#) that can ultimately precipitate a mass shooting.

Yet even someone who really really wants to feel significant is not necessarily going to carry out a mass shooting.

### Shortcut to Stardom

In fact, most highly motivated people satisfy their egos quite differently; they focus their extremism on various socially approved areas: business, sports, the arts, the sciences or politics. Why would some then choose the repugnant road to infamy paved by the massacre of innocents?

There is a method to this madness: The shocked public attention a shooting attracts delivers instantaneous "significance." Climbing the steep hill of a respectable career, however, is fraught with obstacles and uncertainties. Success is elusive, takes ages to attain, and is inequitably afforded to those with unusual ability, grit or privilege, or some combination of those.

Committing a mass shooting represents a widely available shortcut to "stardom."

There are over [390 million guns](#) in today's America and a lack of background checks in many states. People have the freedom to purchase assault weapons at a local store. Thus, planning and executing a mass shooting is a road to notoriety open to anyone, and the narrative that links gun violence to significance – that is, the idea that by becoming a mass shooter you become famous – has been spreading ever wider with each successive shooting.

### Killings Celebrated

A final puzzle is this: If significance and respect are what the shooters are after, how come they do things that most people despise?

In today's fractured public sphere [dominated by social media](#), it is easy to find networks of supporters and admirers for nearly anything under the sun, including the most repugnant and unconscionable acts of



cruelty and callousness. In fact, there is [ample evidence](#) that mass shooters are celebrated by appreciative audiences and can serve as role models to other would-be heroes who seek to outscore them in casualty counts.

What my colleagues and I [call the “Three Ns:](#)” need, narrative and network, refer to the would-be shooter’s need to become significant or notorious, the narrative that says being a shooter means being important, and the network that exists to support such behavior. They together combine into a toxic mixture, driving a person to carry out a mass shooting.

But this framework also suggests how the tide of this horrific epidemic may be stemmed: Negating the narrative that depicts violence as an easy path to significance and dismantling the networks that support that narrative.

The two go together. Disproving the narrative that gun violence is an easy route to fame by making it hard to obtain guns, for instance, and reducing media attention to shooters would reduce the appeal of gun violence to people seeking to feel more significant.

It is equally important to identify and make available alternative paths to significance, conveyed in alternative narratives. This would likely require a concerted effort across society and its institutions. Understanding the psychology of it all may be a necessary precondition for taking effective steps in this direction.

[Arie Kruglanski](#) is Professor of Psychology, [University of Maryland](#).

## Mexico: Gunmen storm water park, leaving 7 dead

Source: <https://www.dw.com/en/79exico-gunmen-storm-water-park-leaving-7-dead/a-65336211>

Apr 16 – A group of armed men attacked a central [Mexican](#) water park on Saturday, killing six adults and a 7-year-old child, according to authorities.

Additionally, one person was severely injured in the assault.

The incident occurred in the afternoon at La Palma swimming resort in the Cortazar municipality of [Guanajuato state](#).

A statement from City Hall in Cortazar said that police "arrived at the scene where they found...three dead women, three men and a seven-year-old minor, in addition to one person seriously wounded." The statement from officials did not provide any insight into the possible reason for the attack.

### How the incident unfolded

According to the statement, the gunmen arrived at the La Palma swimming resort at 4:30 p.m. local time (2230 UTC/GMT) with the intention to carry out an attack.

They directly targeted a group of people and started firing, then proceeded to remove the security cameras before leaving the scene, according to the authorities.

A witness at the location captured a video posted on the local news site.

The footage showed victims lying on the ground or chairs, surrounded by dense smoke, presumably from the gunfire. Meanwhile, others ran for shelter.

### More than 350,000 murders since 2006

In recent years, there has been a rise in drug-related violence in the central Mexican state of Guanajuato.

Despite being a prosperous industrial region, it has become one of [Mexico's most violent areas](#) due to the ongoing conflict between the Santa Rosa de Lima criminal organization and the Jalisco New Generation Cartel, which focuses on drug trafficking and fuel theft.

The government's deployment of the military to [combat drug cartels](#) in 2006 has been a contentious issue, with over 350,000 murders in Mexico since then, most of which have been attributed to [criminal gangs](#).



**THE UNEXPECTED ALWAYS HAPPENS!**





## 'Look into whether arson, terrorism by BNP-Jamaat behind recent fires'

Source: <https://thefinancialexpress.com.bd/national/look-into-whether-arson-terrorism-by-bnp-jamaat-behind-recent-fires>



Apr 15 - Prime Minister Sheikh Hasina on Saturday asked concerned authorities to look into whether 'arson, terrorism by BNP-Jamaat' is behind the recent fire incidents.

"It should be investigated whether they (BNP-Jamaat) are taking a different path by causing incidents like fire," she said.

The prime minister said this while talking at the Awami League Local Government Nomination Board meeting held at her official residence Gana Bhaban.

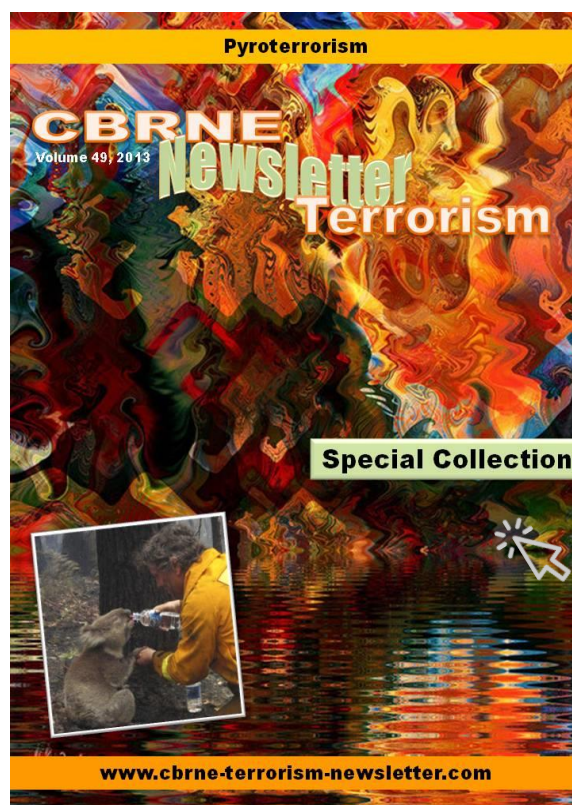
She asked to investigate whether the recent spate of fire incidents in markets was part of a conspiracy or sabotage.

She asked to beef up surveillance measures at important markets across the country.

"Everyone should be more aware. Everyone has to make arrangements on their own initiative to guard (their establishments). All efforts by the government will continue," she said.

She also said that unnecessary gathering at sites of fire incidents must not be allowed when fire fighters are trying to douse the blaze, and strict action will be taken in case of any obstruction regarding this matter.

**EDITOR'S COMMENT:** Pyroterrorism is an ancient form of terrorism that can be used in many ways in various parts of the world. Have a look at the 2013 special issue on pyroterrorism composed a few years ago.



## Iran Building an Axis of Terrorist Groups to Attack Israel

Source: <https://legalinsurrection.com/2023/04/iran-building-an-axis-of-terrorist-groups-to-attack-israel/>

Apr 15 - While thousands of pro-regime demonstrators in Tehran screamed “Death to Israel” and “Death of America” to mark the anti-Israel “Quds Day,” Iran is forging a new terrorist alliance to encircle and attack the Jewish State, the latest media reports reveal. The mission of creating an axis of terrorist and jihadi groups is being led by Esmail Qaani, the head of Iran’s Islamic Revolutionary Guard Corps-Qods Forces. The IRGC-Quds chief, “one of the Islamic Republic’s most powerful military commanders began rallying allies across the Middle East to launch a fresh wave of attacks on Israeli targets,” [The Wall Street Journal](#) reported Friday.

Qaani, who succeeded the [slain terrorist mastermind](#) Qasem Soleimani, “held a series of clandestine meetings with militant leaders across the region in recent weeks, including some operating in Syria and Iraq,” the newspaper added, quoting multiple sources.

This Iran-sponsored terrorist alliance was behind the coordinated rocket attacks into northern and southern Israel during Passover. Hamas fired rockets from Gaza, and Hamas-linked terrorists used Hezbollah-controlled Lebanon to launch rockets at Israel. “The Islamic Revolutionary Guard Corps’ Quds Force coordinated with the Hamas and Hezbollah terrorist organizations to launch rockets at Israel from Lebanon during the Passover holiday,” the [Jerusalem Post](#) reported Friday.

This terrorist alliance was decades in making. Iran created Lebanon’s Hezbollah in the early 1980s and has been instrumental in making it one of the world’s deadliest terrorist groups with a global reach and an [annual budget](#) of estimated \$700 million. The Palestinian Islamic terrorist group Hamas has long been [funded, trained, and armed](#) by Iran.

The Iran-backed axis of terror was forged during the Quds Forces chief’s recent Lebanon visit. The news website [Ynet](#) reported April 9: Lebanese media reported on Sunday that the leader of the Iran-backed Hezbollah group, Hassan Nasrallah met in Beirut with Hamas leader Ismail Haniyeh and his deputy Saleh al-Aroui, to discuss recent events in “occupied Palestine.” Daniel Salami.

The meeting took place at the same time the visit of Iran’s Revolutionary Guard Corps, Quds Force chief Esmail Qaani was on a visit to Damascus. According to the reports, Nasrallah and the Hamas leaders also discussed regional developments and the violent clashes at the al Aqsa mosque during Ramadan prayers.

### Regime-Loyalists Cry “Death to America, Death to Israel”

On Friday, thousands of regime-loyalists gathered in Tehran to mark the annual Quds Day, or Jerusalem Day, rally. In keeping with the Islamic Republic’s long-held tradition, the demonstrators called for the “Death” of Israel and the United States.

Quds Day, which always falls on the last Friday of Ramadan, is celebrated with full Islamic fervor by the Mullah regime and its supporters. “In central Tehran, protesters were burning US and Israeli flags and images of Israel’s Prime Minister Benjamin Netanyahu,” the [France24](#) TV channel reported. The [Times of Israel](#) reported on the pro-terrorist rally in Tehran:

Tens of thousands of Iranians, some chanting “death to America” and “death to Israel,” marched in the capital of Tehran on Friday to mark “Jerusalem Day,” an annual show of support for the Palestinians.

Banners raised by demonstrators read “the destruction of Israel is near” and “Palestine is the axis of unity of the Muslim world.”

Senior Iranian officials attended the rally, including President Ebrahim Raisi. (...)

Parliament Speaker Mohammad Qalibaf told demonstrators that Israel is the “root” of problems in the region and that the Palestinians are hindering Israel’s plans. “The Palestinians are actively confronting Israeli aggression from Gaza to the heart of Tel Aviv,” he added, alluding to a surge in violence in the Israeli-Palestinian conflict since the start of the year.

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The Taliban’s Takeover in Afghanistan – Effects on Global Terrorism  
December 2022





## Sudan on the Brink: The Prospect of Terrorists Exploiting the Current Instability

Source: <https://eeradicalization.com/sudan-on-the-brink-the-prospect-of-terrorists-exploiting-the-current-instability/>



Apr 19 - Sudan has had a politically volatile four years during which two military *coup d'états* have taken place. This process has now culminated in overt fighting on the streets of the capital, Khartoum, between two faction of the junta that took over. Sudan has a long history as a centre of terrorist activity dating back three decades. This was somewhat curbed in recent years, but if the present situation presages a civil war, it could create conditions that return Sudan to being a terrorist threat to itself and its neighbours.

### The First Wave of Terrorism in Sudan: Al-Qaeda and Iran

In June 1989, a Brigadier-General in the Sudanese Army, Omar al-Bashir, took power in a coup, overthrowing the elected civilian government. Al-Bashir allied himself with Hassan al-Turabi, the leader of the Sudanese Muslim Brotherhood, who had created a Brotherhood-style Islamist organization, the National Islamic Front (NIF). The exact balance of power between Al-Bashir and Al-Turabi is difficult to assess precisely, but in the early phase up to at least the mid-1990s, Al-Turabi appeared to have the upper-hand.

As [the 9/11 Commission Report](#) documents, it was Al-Turabi personally who invited Osama bin Laden, as leader of the nascent Al-Qaeda, to Sudan in 1989, an offer Bin Laden accepted in 1991. Bin Laden “agreed to help [the Sudanese regime] in an ongoing war against African Christian separatists in southern Sudan and also to do some road building. Turabi in return would let Bin Ladin use Sudan as a base for worldwide business operations and for preparations for jihad,” the 9/11 Commission reports.

In effect, Al-Qaeda and the Sudanese state became interfused. Recognising this reality, in 1993 the United States [designated Sudan](#) as a state sponsor of terrorism. By then, Al-Turabi—who, [like many Muslim Brothers](#), had good relations with the Islamic Republic of Iran—had helped mediate a deal between Bin Laden and the Iranian theocracy, represented in the form of Imad Mughniyah, [an officer in the Islamic Revolutionary Guards Corps](#) (IRGC) and the military chief of the IRGC’s Lebanon-based unit, Hezbollah. Mughniyah was a long-time terrorist whose career started in the 1970s with the Palestine Liberation Organization (PLO), before he had switched over to the IRGC, which [the PLO helped construct in Lebanon](#) in the years before the 1978-79 Islamic Revolution in Iran.



Al-Turabi assisted in this because he sought to overcome the Sunni-Shi'a divide to create a common Islamist front against the West. The Iranian regime wanted the same thing. Iran's imperialism operates [through an IRGC militia structure](#) across the region, and in recent years, with Iran's merciless repression of the rebellious Sunni population in Syria and to a lesser extent [the Houthis' relentless jihad in Yemen](#), this has acquired a sectarian coloring. But this is strategically circumstantial, rather than ideologically mandated. The clerical regime's absolute *wilayat al-faqih* doctrine conceives of Iran's Supreme Leader as the commander of all Muslims.

This was the context of Iran's pact with Al-Qaeda, an [alliance that endures to this day](#). The pact led to the training of Al-Qaeda's jihadists in the Bekaa Valley by the IRGC, enabling Al-Qaeda to become more proficient at terrorism throughout the 1990s, using Sudan for facilitation networks and resource generation, especially for the 1998 bombing of the East African Embassies. Bin Laden personally had moved back to Afghanistan by the time of the 1998 attack, but the U.S. retaliation targeted the Al-Shifa factory in Khartoum that was accused of using Al-Qaeda financing to manufacture chemical weapons for the Sudanese government's ongoing civil war in the south.

The U.S. also accused another state-sponsor of terrorism of involvement at Al-Shifa: Saddam Hussein's Iraq. Al-Bashir had undisguised friendly relations with Saddam—Sudan had [supported](#) Saddam's annexation of Kuwait in 1990—but the [accusation](#) Saddam was involved at Al-Shifa was controversial at the time, and has remained so ever since, as has the accusation *in toto* that the factory was making chemical weapons. It is notable, however, that the U.S. officials involved in the decision have [never wavered from their conviction](#) that Al-Bashir's regime was involved in an illegal weapons of mass destruction (WMD) program and had opened up Sudan as a playground for a nexus of rogue actors that included Saddam and Bin Laden.

### Al-Turabi's Fall and the Darfur War

In 2000, Al-Bashir arrested Al-Turabi, and would have him [arrested several more times](#) before Al-Turabi's death in 2016. Al-Bashir sought two goals by doing this: to secure total power within Sudan and to explore ways of lifting Sudan's isolation internationally. This proved to be well-timed: after 9/11, Al-Bashir could present his moves against Al-Turabi and the militant Islamists Al-Turabi had gathered in Sudan as part of the "War on Terror". But the potential opening was short-lived.

In 2003, the non-Arab, mostly black African Muslim population in the Darfur area of Sudan erupted in rebellion after years of discriminatory policies and Al-Bashir's regime responded with a ferocious campaign of massacres and ethnic cleansing. The Sudanese government utilised not only its own army and police, but—an important actor at the present time—paramilitary formations of Arab nomadic tribesmen known as the Janjaweed. [300,000 people were killed](#) in the Darfur war, which the United Nations [declared officially over](#) in August 2009, though a low-intensity conflict and various "peace" initiatives continued long afterwards.

Five months before the "end" of the war, any possibility of the international community engaging with Al-Bashir was ended when he became [the first sitting head of state to be indicted](#) by the International Criminal Court (ICC): an arrest warrant on charges of genocide was issued against Al-Bashir.

Sudan's involvement in the war in the south did at last come to a formal end in 2011, with the secession of South Sudan, albeit that new state [promptly collapsed into an internal civil war](#) that was [announced somewhat artificially](#) to have ended with a peace agreement in 2018.

### Al-Bashir's Fall and a Failed Transition

Al-Bashir began to [reorient the rump of Sudan in 2015](#), severing ties with Iran and joining the Saudi-led coalition trying to stop [Iran's Houthis rampaging in Yemen](#). In April 2019, almost exactly thirty years after Al-Bashir took power, he fell the way he had risen, through a military coup. An interim Sovereignty Council was created, theoretically a mix of civilians and military officers, intended purportedly to guide a transition to democracy. In 2020, the U.S. endorsed this view by [taking Sudan off](#) the state sponsors of terrorism list.

In reality, the transitional council was dominated by General Abdel Fattah al-Burhan, who ordered the [rape and massacre of protesters](#) in Khartoum in June 2019. Crucially, Al-Burhan's orders for atrocity were [carried out](#), as Al-Bashir's had been, by the Janjaweed, reflagged as the "Rapid Support Forces" (RSF) in 2013 and led by Mohamed Dagalo, almost universally known as "Hemedti" ("Little Mohamed"). Hemedti had helped Al-Burhan depose Al-Bashir and in October 2021, when Al-Burhan terminated the pretence of sharing power with civilians, launching a second coup to purge the Sovereignty Council, Hemedti helped him again. The situation for the last eighteen months has been one where Al-Burhan is nominally head of the Sovereignty Council, with Hemedti as his deputy. The exact lines of authority between the two men were distinctly indistinct, though Al-Burhan clearly saw Hemedti as one of the officers under his command. That uneasy compact is what has now broken down, as Al-Burhan [looked to bring](#) Hemedti's RSF formally under his control as part of the "regular" Army. Al-Burhan accused Hemedti of trying to launch a coup against him; who fired first remains unclear.





Since the fighting began on 15 April, Hemedti (or whoever controls his Twitter account) has proven very skilled at propaganda, [seeking to cast](#) the fighting in Khartoum as between himself, supporting democracy on one side, and the “Kizan” (“deep state” or remnants of Al-Bashir’s regime), a cabal of “radical Islamist” officers, on the other side. Needless to say, this is very convenient, given Hemedti was until recently an enthusiastic servant of Al-Bashir’s Islamist regime and a close collaborator of Al-Burhan as his Islamist successor.

Nearly [200 people have been killed](#) in the fighting and 800 wounded. The home of the [European Union Ambassador has been attacked](#) and an [American diplomatic convoy](#) have been fired upon in Khartoum, while the World Health Organization (WHO) reports that violence is [spreading quickly](#) beyond the capital. A proposed twenty-four-hour ceasefire due to start at 18:00 on 18 April was [violated on all sides](#).

### Terrorism Risks Going Forward

All around Sudan there are jihadists ready to take advantage should the situation deteriorate.

Al-Qaeda’s most powerful “affiliate”, Al-Shabab in Somalia, is [capable of attacks into Ethiopia](#), on Sudan’s south-eastern border. The possibility of infiltration from that quarter cannot be ruled out. It might also be noted that Somalia is itself a case study of what can happen to a country that descends into all-out civil war: since the collapse of the Somali government in 1991, there has been continuous war, fragmentation of the state, and large tracts of territory captured by jihadists involved in international terrorism.

Al-Qaeda still clearly has an interest in jihad in Sudan. Just over six months ago, a jihadist publishing house believed to be linked to Al-Qaeda in the Arabian Peninsula (AQAP), based in Yemen, released a book comprised of [the writings of Abu Hudhayfah al-Sudani](#), a jihadist ideologue, which “provides ideological justification for waging jihad against the Sudanese state, as well as guidelines and rules for prospective jihadis to follow when forming a new [united] entity [for such a war].”

AQAP might seem to be some distance away, but Al-Qaeda’s networks in Yemen and Africa closely coordinate and share resources, and to Sudan’s west, in the Sahel, as [EER discussed in a recent webinar](#), Al-Qaeda is highly active.

Sudan now has the buffer of South Sudan between itself and the Democratic Republic of the Congo, where there is an [increasingly potent](#) Islamic State (ISIS) branch, but with the instability and lack of state capacity in South Sudan, this is hardly infallible protection if the jihadists are drawn to Sudan by security vacuums. And, again, to the west, ISIS poses a threat. The most powerful ISIS branch in Africa, the Islamic State West Africa Province (ISWAP), is based in Nigeria, which is at some remove from Sudan, but ISWAP is well-integrated with ISIS’s other African units, such as the Sahel-based Islamic State in the Greater Sahara (ISGS), and, as was [touched on in our recent webinar](#), these ISIS networks seem to have tentacles in Sudan already.

The ideal outcome would be a swift end to the violence between Al-Burhan and Hemedti, and international engagement of the kind that was not in evidence before 2021 to pressure the current leaders to resume a process that gets Sudan to some more representative and responsible form of government that can stabilize the country. The alternative, which sadly seems more likely at this stage, is a continued spiral of violence that creates an environment—with ungoverned spaces and terrible incentives for the warring factions to collaborate with anyone who can offer assistance—that terrorists can exploit. This is very dangerous.

## Counter-Terrorism: The Situation In South Korea

Source: <https://www.strategypage.com/htmw/htterr/articles/20230419.aspx>

Apr 19 – South Korea is once more having problems with Islamic terrorists, not with attacks inside South Korea, but with Moslem foreigners providing financial support for active Islamic terror groups outside of South Korea. All foreigners entering South Korea are informed about this rule and other similar regulations. So far this year two Central Asian Moslems (from Uzbekistan and Kazakhstan) were arrested for sending about \$9,000 worth of cryptocurrency to KTJ (Katibat Tavhid wal-Jihad), an Islamic terrorist group in Syria. Central Asians belonging to KTJ. This all began several years ago when some Central Asian KTJ members left Syria because of numerous defeats, but they were then arrested in Turkey and deported. Few countries would take them but South Korea would and even Central Asian Islamic terrorists know that South Korea is a popular country for Uzbeks looking for work in a foreign country. South Korea has a major labor shortage and to deal with it has brought in 1.3 million foreign workers. Less than ten percent are Moslems and most of those are from Uzbekistan. South Korea will accept former Uzbek Islamic terrorists as foreign workers as long as



they agree to severing all their ties with Islamic terrorism. Most such men honor their promise, but a few don't or at least try to pass off their financial assistance to KTJ as not terror related. Some KTJ members in South Korea were expelled for persuading other Uzbeks to join the cause of supporting Islamic terrorism. More South Koreans are calling for a ban on Moslem foreign workers. That worked in Japan and South Koreans see no reason why this policy would not work in South Korea.

For about twenty years Islamic terrorists have been a problem in South Korea. Between 2003 and 2008 South Korea arrested 74 foreigners as terrorism suspects. This was the result of 19 separate investigations. Most of the suspects were Moslems from South Asia or Southeast Asia. Most were involved in collecting information on American military forces in South Korea, or planning terror attacks against non-Koreans. Some Arabs have been caught involved in criminal activities that were apparently to provide funds for terrorists. Most of the suspects were expelled and returned to their home countries, along with files on what the South Korea police had found. These men were usually arrested when they arrived in their home countries, and some of them were already known by counter-terrorism officials there.

South Korea was long believed to be free of Islamic terrorist activities. After 2003 that was no longer the case and South Korea intelligence and police agencies continue to monitor any Islamic terrorist activity in South Korea.

## Ecological Threats and Terrorism across the Sub-Saharan Africa

By Dr Mariam Farida

Source: <https://www.internationalaffairs.org.au/australianoutlook/ecological-threats-and-terrorism-across-the-sub-saharan-africa/>



Apr 21 - The links between the growth in regional terrorism and ecological crisis are unmistakable. How terrorist groups use ecological threats to recruit new members is less clear. According to the latest [Global Terrorism Index](#) (GTI) report, IS and its affiliate groups-Islamic State- Khorasan province (ISK), Islamic state- Sinai province (ISS), and Islamic state west Africa (ISWA) remain the deadliest terror groups in 2022. The report indicated that sub-Saharan Africa recorded the largest increase in terrorism deaths which amounts to about 60 percent of all terrorism deaths globally. The sub-Saharan Africa region is laden with ecological challenges where risks related to food security, water, rapid population growth, and natural disasters are rapidly increasing to what has been labelled as "catastrophic." Ecological threats add a threat multiplier allowing for terrorism to thrive and spread. This is especially relevant in countries with weak or fragile states such as those along the Sahel. The weaponisation of resource scarcity as a form of mobilisation to radicalisation by ISIS and its affiliate groups in the Sahel region is an understated phenomenon.

### Ecological threats and Terrorism

The past eight years have been the warmest on record, and 2022 experienced yet more extreme heatwaves, drought, and devastating flooding, which created further resource shortages, shortfalls in





agriculture output, more rural to urban migration, and governance issues. These effects are being particularly felt in areas where terrorism is already widespread and presenting significant challenges of its own.

Water shortages, for example, affect agriculture output, which is considered a major provider of jobs in many countries significantly impacted by both terrorism and ecological threats. In under-developed nations like those in sub-Saharan Africa, these shortages act as a motivation for individuals to join terrorist groups, who can offer higher wages than those available through legal employment. An example of this is al-Shabab in Somalia, covered below.

This is not to say that there is a direct correlation between a country or region experiencing ecological challenges and experiencing terrorism but that they often intersect. GermanWatch's [Climate Risk Index](#) of countries impacted by ecological disasters features countries experiencing significant terrorism-related challenges as well – including the Philippines, Mozambique, Bangladesh and Pakistan.

Ecological threats and terrorism are interconnected in two important and corresponding ways. Firstly, climate change has intensified the drivers and conditions that encourage radicalisation. The ten most impacted countries by terrorism on the [Global Terrorism Index](#) has consistently included countries experiencing instability, poverty, weak governance and conflict. Ecological disasters can exacerbate these conditions.

The current research on the relationships between natural disasters and mobilisation to radicalisation shows that there is limited evidence-based data to causally tie ecological destruction and terrorism. Yet, reports from governments and civil agencies – including in the Sahel, South Asia, and Central Asia – have repeatedly shown that the impacts of drought, resource shortage, and decreased agricultural conditions have been contributing factors in recruitment and [mobilisation](#) by terrorist groups.

Secondly, it has also provided opportunities for terrorist actors to exploit extreme weather events to propagandise, recruit, and raise funds. Terrorist groups such as al-Shabaab in Somalia, Islamic State (IS) and its affiliates, Balochistan Liberation Army (BLA), and *Jamaat Nusrat Al-Islam wal Muslimeen* (JNIM) have exploited extreme weather events by filling the vacuum left by governments unable (or unwilling) to provide humanitarian relief, often in remote locations. For example, in Pakistan, *Jamaat-ud-Dawa* – the then front organisation of terrorist group *Lashkar-e Taiba* – offered huge humanitarian relief after the devastating floods in 2010. This came after wide criticism in Pakistan of the government's slow and ineffective response to the crisis. Reports by [Center for Global Development](#), a nonprofit research organisation dedicated to reducing poverty, indicated that the government of Pakistan “has clearly lost the war” in terms of winning credit for its relief efforts, and that *Lashkar-e Taliba* demonstrated that “they care about ordinary people.” Similarly, in Somalia, by consistently undermining famine relief efforts, al-Shabaab forced the population in areas under its control to rely on them as the sole provider of public goods. This was made to undermine the Somali government and strengthen their own legitimacy. In water-short northern Iraq, ISIS captured, monopolised, damaged, and robbed water installations which allowed them to “recruit” farmers no longer able to access water and electricity. Even though these examples are not strictly driven by ecological disasters, the collective incidences of extreme weather events as well as great competition for resources illustrates that there will only be greater opportunities for terrorist groups to exploit further in the future.

### Remobilisation of ISIS in the Sub-Saharan Africa region

The deadliest terrorist groups in the world in 2022 are Islamic State (IS) and its affiliates, followed by al-Shabaab, (BLA) and (JNIM). According to [Global Terrorism Index 2023](#), IS remained the deadliest terror group globally for the eighth consecutive year, recording the most attacks and deaths of any group in 2022. The Sahel region in sub-Saharan Africa is now the centre of terrorism, with the Sahel accounting for more terrorism deaths in 2022 than both South Asia and the Middle East and North Africa (MENA) combined. Deaths in the Sahel constituted 43 percent of the global total in 2022, compared to just 1 percent in 2007, which shows a worrying increase.

Burkina Faso and Mali, two countries that represent the greater concern, accounted for 73 percent of terrorism deaths in the Sahel in 2022 and 52 percent of all deaths from terrorism in sub-Saharan Africa. Hence, both countries recorded significant increases in terrorism, with deaths in Burkina Faso increasing by 50 percent and in Mali by 56 percent. It is also important to point out that attacks in these countries are also becoming more deadly, with the number of people killed per attack increasing by 48 percent from 2021. This indicates that the threat of ISIS (and its affiliate groups) continues to linger in the Sahel region with potential for a bigger impact in the coming years.

The [Danish Institute For International Studies](#) (DIIS) has publicly called an alarm on the dangers of ISIS remobilisation. In the Sahel and Niger more specifically, DIIS has reported that the Nigerian army is unable to contain the spread of insurgent groups which gives ISIS more opportunities to win positions. Reports have indicated that the increase in terrorism there is rising by over 2,000 percent in the last 15 years. The political situation in the Sahel region intensifies this increase, with six coup attempts since 2021.



Yet, despite the intensified political situation, the primary drivers of the increase in terrorism are intimately linked to poor water utilisation, lack of food, ethnic polarisation, strong population growth, external intervention, geopolitical competition, pastoral conflict, the growth of transnational Salafi-Islam ideology, and weak governments. Literature on terrorism and radicalisation confirms that most of the terrorist activity occurs where government control is weakest. Alarming, of the 830 million people facing food insecurity globally, 58 percent live in the 20 countries most affected by terrorism. Moreover, several criminal organisations are falsely presenting themselves as Islamic insurgents, which partly accounts for attacks attributed to unknown jihadists, coined as the "[Jihadisation of banditry](#)."

*Dr Mariam Farida* is a Lecturer in Terrorism Studies in the Department of Security Studies and Criminology at Macquarie university. Her research has been published in journals such as International Review for Social Research, Journal for Policing, Intelligence, and Counter Terrorism. She is also the author of Religion and Hezbollah: Political Ideology and Legitimacy (Routledge 2020).

## US Pushing Countries to Repatriate IS Foreign Fighters Held in NE Syria

By Sirwan Kajjo

Source: <https://www.voanews.com/a/us-pushing-countries-to-repatriate-is-foreign-fighters-held-in-northeast-syria-/7059270.html>

Apr 20 – The United States has renewed calls for countries to take back their nationals who have been held in detention camps and prisons in northeastern Syria.

**NO THANKS**



Since the military defeat of the Islamic State terror group in 2019, thousands of foreign fighters and their families have been detained in several camps and prisons in areas under the control of the U.S.-backed Syrian Democratic Forces, or SDF.

Foreign prisoners, suspected of being part of the Islamic State group, lie in a prison cell in Hasaka, Syria, Jan. 7, 2020.

While many countries have been taking back women and children affiliated with IS who are held in two detention centers in northeastern Syria, U.S. officials have urged them to

repatriate more than 10,000 IS fighters, who are also held there. "This is the largest concentration of detained terrorists anywhere in the world," said Ian Moss, deputy counterterrorism coordinator at the U.S. State Department.

He said IS continues to look for new opportunities to replenish its ranks by trying to free those detained fighters.

"If they escape, they will pose a threat, not only to northeast Syria, but they'll also pose a threat to the region and to our homelands," Moss said Wednesday during an event at the Washington Institute for Near East Policy. "The best way to prevent this is to repatriate these individuals so they can be rehabilitated, reintegrated, and, where appropriate, prosecuted."

**More than 50,000 people, mostly women and children, from nearly 54 countries** are currently held at al-Hol and Roj, two camps run by the Kurdish-led SDF. The 10,000 IS fighters are being held in more than a dozen prisons across northeastern Syria.

Syrian Kurdish officials say they cannot bear the responsibility of dealing with IS captives alone and that other countries should step in by taking back their citizens. They have also been calling for the establishment of a special tribunal inside Syria for those IS foreign fighters who have committed crimes in Syria. Asked by VOA whether the U.S. would support such a tribunal in northeast Syria, Moss said the U.S. government believes that for those prisoners from third countries, their home nations have judicial systems that should be used to prosecute them. "We're also looking at all options to include the possible prosecution of individuals in northeast Syria. But again, the institutions most capable of effectively prosecuting those cases are found elsewhere," he added.

According to U.S. officials, more than 3,000 individuals, mostly women and children, were repatriated last year to countries that include Albania, Barbados, Canada, France, Iraq, Kosovo, Kyrgyzstan, the Netherlands, Norway, Sudan, Spain and Slovakia. So far this year, at least 1,300 others have been





repatriated to their home countries. Moss said the U.S. anticipates that at least 25 countries this year will conduct around one repatriation operation from northeastern Syria. Despite such efforts, experts say most countries have been reluctant to take back their citizens from Syria for domestic political and security reasons.

"But even in the best-case scenario, this is a time-consuming process because backgrounds need to be investigated and family members need to be tracked down and agree to act as guarantors," said Calvin Wilder, an analyst at the New Lines Institute for Strategy and Policy in Washington. Wilder said the focus should be more on improving living conditions in al-Hol camp, which has witnessed a growing number of security incidents that have resulted in the deaths of many civilians.

"Repatriating citizens is a hard challenge with many different stakeholders, but increasing camp standards of living is far simpler for the United States to do unilaterally," he told VOA. But Moss said the U.S. military, in partnership with the SDF, has been conducting operations against suspected IS operatives inside al-Hol "to reduce threats inside the camp, to give individuals inside the camp some space and to also give space for the provision of humanitarian assistance."

### Americans repatriated

While it is not clear how many U.S. citizens are held in northeastern Syria, State Department official Moss said **39 individuals** have been repatriated from there. "That is certainly a priority for me and for my team and colleagues across the [State] Department," he said. "We do everything we can to bring folks home, whether that's women and children, or other individuals who are in detention, whether they're known foreign terrorist fighters. We work with our interagency colleagues, as appropriate as they work to develop cases and potentially prosecute those individuals for whom they can bring charges against," Moss added.

The U.S. has prosecuted several IS members, but the most prominent prosecution involved El Shafee Elsheikh, a former British citizen, who – along with others in an IS cell known as "the Beatles" – was responsible for a hostage-taking that resulted in the deaths of four U.S. citizens, James Foley, Kayla Mueller, Steven Sotloff, and Peter Kassig, as well as British and Japanese nationals in Syria. Elsheikh was sentenced to life imprisonment in August 2022.

**Sirwan Kajjo** joined VOA in 2012 as an international broadcaster at the Kurdish service. He was born in the town of Amuda in northern Syria. He now works for VOA's [Extremism Watch Desk](#), where he focuses on Islamic militancy, extremism, and conflict in the Middle East and beyond. Prior to joining VOA, Sirwan worked for a number of news outlets and research centers in Washington and abroad. He has written two book chapters on Syria and the Kurds, published by Indiana University Press and Cambridge University Press. He is also the author of *Nothing But Soot*, a novel set in Syria

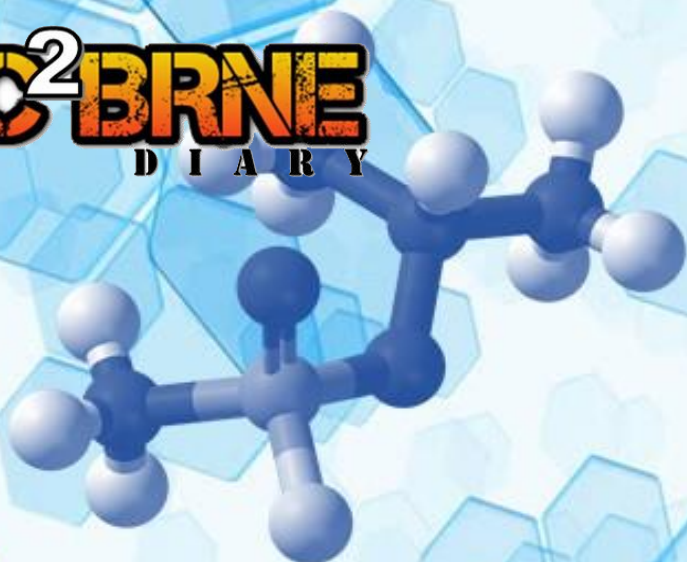




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**CBRNE**  
INSTITUTE



**C<sup>2</sup>BRNE**  
DIARY



# CHEM NEWS





## Pants made with electronic yarn could transmit exhaustion alerts

Source: <https://newatlas.com/wearables/electronic-fabric-pants-alerts/>



The fabric sensing system is currently still in the prototype stage, but the researchers are pursuing a method of developing it for the mass market – Valeria Galli / ETH Zurich

Mar 24 – Most of us don't really need to wear special pants that let us know when we're exhausted; we're good at figuring that out all on our own. However, when it comes to hardcore athletes, getting an alert when the body starts moving in a way that indicates physical exhaustion could be a good thing. To that end, researchers have developed an electronic yarn that could be used to detect shifts in movement patterns, and alert wearers that it's time to take a break.

The yarn was developed by researchers at the Swiss Federal Institute of Technology in Zurich (ETH Zurich), and it consists of an inner cord made from stretchable conductive rubber surrounded in a spiral pattern by a rigid wire covered in a thin layer of plastic. "These two fibers act as electrodes and create an electric field," said Tyler Cuthbert, an ETH Zurich postdoc student who participated in the research that led to the fiber. "Together, they form a capacitor that can hold an electric charge."

What this means is that if the fiber is built into a pair of pants (for example), as the wearer moves, the gap between the flexible inner core and rigid outer rigid portion will vary. This will create a difference between the two, which will in turn alter the electric field produced by the yarn. Helping this process along is the fact that the yarn itself actually expands when stretched, so it provides more of a surface area from which to take readings.

By tracking the alterations in current with a monitoring device that would also be sewn into the garment, the researchers say that they can accurately track movement patterns and know when the wearer is beginning to reach the point of exhaustion. The monitoring device would be equipped with a tiny antenna that could beam information to a smartphone, alerting exercisers that they were reaching a state of fatigue during which they would be more prone to injuries.

The research team has already gathered some data showing how the yarn's electrical signals changed as runners reached exhaustion, but they say more testing is required to build a database of reliable gait patterns so that the material will work as accurately as possible. Still, they've already applied for a patent



for the system, and are currently working to move from a prototype to a fabric embedded with the yarn that would be ready for consumers. While many sports wearables focus on providing the user with [data related to improving performance](#), this new material joins a slightly different category that seeks to keep athletes safe such as [T-shirts and sports bras](#) that alert wearers to an impending heart attack. Carlo Menon, Professor of Mobile Health Technology and lead researcher, says the material could find a home in rehabilitation medicine as well.

**EDITOR'S COMMENT:** Keep in mind this product; we might use it under our PPEs!

### Where can CBRN instructors be trained?

By Cpt. Eng. Michal Setnicka, Ph.D

Source: <https://nct-cbnw.com/where-can-cbrn-instructors-be-trained/>



Mar 28 – Everyone probably knows and identifies with the quotes such as “Fortune favors the prepared”, “Practice makes perfect”, or “He who is ready is not surprised”, etc. In the case of CBRN incidents, it is doubly true. This short article is about importance of trainings, and it tries to find an answer to one essential question: Who and where is able to train the CBRN trainers?

#### Why is the CBRN training important?

Modern age is forcing people to react to many changes in their everyday lives and first responders are no exception. In order to withstand and be able to react to all existing and new threats, they must constantly not only learn theory but also practice and train. Hence, each first responder knows that training is an essential part of their daily work. In the case of CBRN threats, this is doubly true.

Fortunately, the real and extremely dangerous CBRN events occur relatively rarely. Most of the first responders never experience a chemical attack on the subway, explosion of a dirty bomb, or an attack with a chemical warfare agent against some political representatives, etc. Slightly more likely events, such as finding an Orphan RA source or large spills of highly dangerous chemicals during their transportation, etc., are also only for a “selected few”.





However, all first responders have to be prepared for such emergencies because we never know when and where they will occur. It means that all first responders such as firefighters, police officers and paramedics around the world must be educated on this topic. Of course, the depth and width of the training depends on the type of a unit and its predestination and tasks. For example, paramedics or common police officers (except special CBRN units) have mainly theoretical knowledge and they are able to detect the hazard mainly based on the presence of certain symbols (such as ADR labels, radiation sign) or evidence (inexplicable death of animals, larger number of victims ...). Other better-equipped units (special CBRN units) are able to solve that problem more easily and mainly more safely. Firefighters play the main role in such incidents, and they are very often officers in charge in CBRN type of events. They have appropriate devices (detectors, SCBA, PPE, decontamination ...), experiences and the most complex training for such situations.

●► Read the full article at the source's URL.

Cpt. Eng. Michal Setnicka, Ph.D., is Researcher, Radiological (Chemical) Analyst & Trainer, at Czech Fire Rescue Service, Czech Republic

**EDITOR'S COMMENT:** From personal experience, I think that there is a misconception about "train-the-trainer" courses. A single course cannot produce trainers – that is people that will train others. It takes a lot of time and hard work starting from a deep theoretical knowledge of CBRN issues all the way to live agent training. And then a variety of tabletop and live drills will help to solve complicated scenarios and implement out-of-the-box solutions. And then repetition of training will help incorporate knowledge into SOPs and daily activities until becomes second nature. It is a full-time job and not an additive to the usual duties of a policeman or firefighter or frontline healthcare professional. Unfortunately, in the real world, a "trainer" course is all that is provided because the CBRN threat looks so exotic and impossible to happen in our shift.



## Deadly weed may actually help us look younger, heal faster

Source: <https://newatlas.com/health-wellbeing/noxious-weed-anti-aging-wound-healing/>

Mar 29 – If you're on a hike, you'd be best steering well clear of the cocklebur weed. While the stalky green plants with curious-looking spiky burs don't appear particularly deadly, this [noxious plant is a killer](#).

In 2007, [76 villagers fell ill](#) in northeastern Bangladesh after consuming the plant's seedlings, and a quarter of those died. The toxin present in the seedlings and burs (also often called their fruit and their seeds), carboxyatractyloside, can cause nausea, palpitations, drowsiness, hallucinations and multiple organ dysfunction leading to death. It can also cause [acute liver failure](#) in pigs, cattle, sheep, poultry, horses and other ruminants.

However, the deadly plant is of increasing interest to scientists for its array of potential health benefits. Already studied for [cancer-fighting](#) and [arthritis-treating](#) properties, researchers have also discovered compounds with anti-aging and wound-healing potential.

New research has found that the fruit of the **cocklebur plant** – scientifically, *Xanthium strumarium* – has antioxidant and anti-inflammatory properties that could be used by humans as an effective skin protectant.

Research out of Myongji University in South Korea detailed how in clinical trials on tissues and cells, compounds extracted and isolated from the burs reduced damage from UVB exposure, accelerated wound healing and stimulated collagen production.

"We found that cocklebur fruit has the potential to protect the skin and help enhance production of collagen," said Eunsu Song, a doctoral candidate





at Myongji University. “In this regard, it could be an attractive ingredient for creams or other cosmetic forms. It will likely show a synergistic effect if it is mixed with other effective compounds, such as hyaluronic acid or retinoic acid, against aging.”

The plant has been [used for thousands of years](#) in traditional Chinese herbal medicine, treating everything from headaches to fungal infections. Scientists have since identified around 170 of its compounds for use in medical research.

Cocklebur proliferation, its hardness and the rate at which it

grows could provide an economical and sustainable source of cosmetic and pharmaceutical skincare development. However, the researchers caution that their results are preliminary and that more studies are needed to evaluate safety.

“In its burrs, cocklebur fruit also has a toxic constituent, carboxyatractyloside, which can damage the liver,” said Song. “Cocklebur showed a potential as a cosmetic agent by increasing collagen synthesis; however, it showed negative results with higher concentrations. Therefore, finding the proper concentration seems very important and would be key to commercializing cocklebur fruit extracts in cosmetics.” The research was presented at the ASBMB annual meeting [#DiscoverASBMB](#) in Seattle.

## Naloxone Auto-Injector

Source: <https://naloxoneautoinjector.com/>

**Naloxone Auto-Injector 10 mg is an opioid antagonist indicated for use by military personnel and chemical incident responders for:**<sup>1</sup>

- Emergency treatment of patients 12 years of age and older where use of high-potency opioids such as fentanyl analogues as a chemical weapon is suspected.
- Temporary prophylaxis of respiratory and/or central nervous system depression in military personnel and chemical incident responders entering an area contaminated with high-potency opioids such as fentanyl analogues.

Kaléo intends this device to be useful in protecting civilians and government employees who may come in contact with ultra-potent opioids in the fulfillment of their duties or during a mass casualty event.

- Military environment with weaponized opioids
- Domestic terrorist attack using weaponized opioids
- Illicit drug production facilities with aerosolized opioids
- Land-based or maritime drug interdiction for mass quantity opioid exposure

Naloxone Auto-Injector 10 mg can be administered through clothing, including personal protective equipment such as MOPP4. Removal of personal protective equipment is not required.







STEP 1

Firmly pull the auto-injector from the outer case.



STEP 2

Pull off the **red** safety guard.



STEP 3

Place the black end of the auto-injector against the outer thigh, through clothing or MOPP4 PPE, if needed.

**24,000,000 USD / year**  
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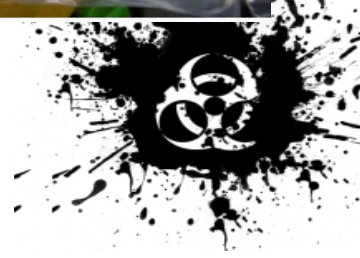
**36,000 USD / year**

**Fentanyl HCL** ①

**Fentanyl HCL** ②

**China's role in the fentanyl crisis**

TESTIMONY  
Vanda Felbab-Brown - Friday, March 31, 2023



## Qatar builds Asia's capacity in chemical safety and security management

Source: <https://www.opcw.org/media-centre/news/2023/03/qatar-builds-asias-capacity-chemical-safety-and-security-management>



Mar 30—The Organisation for the Prohibition of Chemical Weapons (OPCW) and Qatar's National Committee for Prohibition of Weapons (NCPW) jointly hosted a seminar on the Chemical Weapons Convention (CWC) and Chemical Safety and Security Management for Asian Member States from 19 to 21 March 2023 in Doha, Qatar.

In his opening remarks, Brigadier General Abdulaziz Salmeen Aljabri, Chairman of the NCPW, highlighted the importance of chemical safety and security management, a key element related to the implementation of the CWC's Article XI.

"Ensuring chemical safety and security management requires interaction across different sectors, including academia and industry," he added.

The Head of OPCW's International Cooperation Branch expressed gratitude to Qatar for its continuous support to the Organisation and gave updates on the OPCW Centre for Chemistry and Technology (ChemTech Centre) which will significantly enhance the Organisation's capabilities to rid the world of chemical weapons and provide further capacity building opportunities for Member States.

The seminar, fully funded by Qatar, contributes to Asian Member States' capacity in various aspects of chemical safety and security management, including new technologies as well as tackling emerging threats to the chemical industry, such as cybersecurity and drone attacks. Since 2011, the Doha Workshop has been one of the long-standing courses on chemical safety and security management funded by Qatar to support Asian Member States' chemical emergency preparedness.

The seminar was attended by 26 international participants (20 of which received financial support to attend the event) from 18 OPCW Member States (Bangladesh, China, India, Indonesia, Iraq, Laos, Lebanon, Malaysia, Micronesia, Myanmar, Nepal, Oman, Pakistan, Palestine, Saudi Arabia, Thailand, Sri Lanka, Viet Nam) as well as a number of local participants from Qatar.

### Background

As the implementing body for the Chemical Weapons Convention, the OPCW, with its 193 Member States, oversees the global endeavour to permanently eliminate chemical weapons. Since the Convention's entry into force in 1997, it is the most successful disarmament treaty eliminating an entire class of weapons of mass destruction. Over 99% of all declared chemical weapon stockpiles have been destroyed under OPCW verification.





## What happened when WMD experts tried to make the GPT-4 AI do bad things

By Thomas Gaulkin

Source: <https://thebulletin.org/2023/03/what-happened-when-wmd-experts-tried-to-make-the-gpt-4-ai-do-bad-things/>

Mar 30 – Hundreds of industry, policy, and academic leaders signed an [open letter](#) this week calling for an [immediate moratorium](#) on the development of artificial intelligence “more powerful than GPT-4,” the large language model (LLM) [released this month](#) by OpenAI, an AI research and deployment firm. The letter proposes the creation of shared protocols and independent oversight to ensure that AI systems are “safe beyond a reasonable doubt.”

“Powerful AI systems should be developed only once we are confident that their effects will be positive and their risks will be manageable,” said the letter, which was published by the Future of Life Institute on its website.

The letter follows an explosion of [interest and concern](#) about the dizzying pace of AI development after OpenAI’s DALL-E image generator and ChatGPT bot were released last year. After the release of GPT-4, even more attention has been paid to the technology’s sensational capabilities (and sometimes comical failures). Reactions in news and social media commentary have ranged from ecstatic to horrified, provoking [comparisons to the dawn of the nuclear age](#)—with all its attendant risks. An entire new economy around ChatGPT-related services has [sprung up](#) practically overnight, in a frenzy of AI-related investment.

The letter’s call for a temporary halt on AI development may not be entirely at odds with OpenAI’s own recent representations of its outlook on the issue. The company’s CEO, Sam Altman, recently said [“we are a little bit scared of this”](#) and has himself [called for greater regulation](#) of AI technologies. And even before the world reacted to GPT-4 and ChatGPT’s release, OpenAI’s creators appear to have been sufficiently concerned about the risks of misuse that they organized months of testing dedicated to identifying the worst things that the AI might be used for—including the proliferation of weapons of mass destruction.

As detailed in OpenAI’s unusually explicit [“system card”](#) accompanying the public launch of GPT-4, researchers and industry professionals in chemical, biological, and nuclear risks were given access to early versions of GPT-4 to help the company “gain a more robust understanding” of its own GPT-4 model and “potential deployment risks.”

After ChatGPT was first publicly released in November 2022, researchers in various fields posted about their informal [experiments](#) trying to make the system reveal dangerous information. Most of these experts, like the rest of the public, were playing with a public version of GPT that featured safety features and reinforcement learning through human feedback (RLHF) to provide more relevant and appropriate responses. The results were rarely alarming in themselves, but they indicated that the model was capable of being tricked into doing things its designers had directly tried to prevent.

In the months before GPT-4’s public release, OpenAI’s hand-picked teams of experts were tasked with “intentional probing” of the pre-release version of GPT-4. According to OpenAI’s report, those tests generated a variety of harmful responses, including “content useful for planning attacks or violence.” In a three-page section on “Proliferation of Conventional and Unconventional Weapons,” the system card describes testing to explore whether the AI models could “provide the necessary information to proliferators seeking to

### 2.6 Proliferation of Conventional and Unconventional Weapons<sup>15</sup>

Certain LLM capabilities can have dual-use potential, meaning that the models can be used for “both commercial and military or proliferation applications”.<sup>[56]</sup> We subjected the model to stress testing, boundary testing, and red teaming<sup>16</sup> in four dual-use domains to explore whether our models could provide the necessary information to proliferators<sup>17</sup> seeking to develop, acquire, or disperse

<sup>15</sup>We focus here on unconventional weapons, but note that large language models like GPT-4 can also contribute to conventional weapons such as, for example, small arms.

<sup>16</sup>We note that in the past we have used the term red teaming somewhat differently than traditional usage in cybersecurity.<sup>[26]</sup> Throughout this system card, we refer to the people performing stress testing, boundary testing, and red teaming as “red teamers” for simplicity and in order to use language consistent with that we used with our collaborators.

<sup>17</sup>When referring to proliferation, the System Card uses the definition offered by the North Atlantic Treaty Organization. “WMD proliferation refers to attempts by state or non-state actors to develop, acquire, manufacture, possess, transport or transfer nuclear, radiological, chemical or biological weapons or devices and their means of delivery or related material, including precursors, without prejudice to the rights and obligations of the States Parties to the

develop, acquire, or disperse nuclear, radiological, biological, and chemical weapons.”

This section of OpenAI’s [“system card”](#) document for GPT-4 may represent the first time the NATO definition of WMD proliferation has been cited as part of the announcement of a Silicon Valley product.

Lauren Kahn is a research fellow at the Council on Foreign Relations and one of the experts OpenAI invited to test the early

version of GPT-4. She studies how AI could increase (or decrease) the risk of unintentional conflict between countries and was asked to evaluate how GPT-4 might exacerbate those risks. Kahn said she spent about 10 hours directly testing the model, largely with the “non-safety” version of the pre-launch



GPT-4 model. “I could kind of push the upper bounds and see what knowledge and capabilities it had when it came to more niche security topics,” Kahn said.

Other experts involved in the testing had expertise in chemical weapons and nuclear warhead verification. Neither OpenAI’s system card nor any of the testing experts the *Bulletin* contacted disclosed details about the specific testing that was conducted, but Kahn said she generally evaluated how GPT-4 could aid disinformation, hacking attacks, and poisoning of data to disrupt military security and weapons systems. “I was kind of trying to tease out: Are there any kind of novel risks or things really dramatic about this system that make it a lot more dangerous than, say, Google,” she said.

Kahn’s overall impression was that, from a weapons standpoint, the current threat posed by GPT itself is not that pronounced. “A lot of the risk really comes from malicious actors, which exist anyway,” she said. “It’s just another tool for them to use.” While there was no rigorous testing comparing the speed of queries using GPT-4 versus other methods, Kahn said the procedural and detailed nature of the responses are “a little bit novel.” But not enough to alarm her.

“I didn’t think it was that scary,” Kahn said. “Maybe I’m just not malicious, but I didn’t think it was very convincing.”

John Burden, a research associate at the Centre for the Study of Existential Risk at the University of Cambridge, studies the challenges of evaluating the capability and generality of AI systems. He doesn’t believe the latest version of GPT will increase the likelihood that a bad actor will decide to carry out his or her bad intentions. “I don’t know if the doing-the-research bit is the biggest roadblock [to illicit WMD acquisition or use],” Burden said. “The part that’s maybe more worrying is [that] it can just cut out research time.”

OpenAI’s system card notes that successful proliferation requires various “ingredients,” of which information is just one. “I’m really glad that they point that out,” said Yong-Bee Lim, deputy director of the Converging Risks Lab at the Council on Strategic Risks. “It didn’t really seem to provide scientific steps to actually go from material acquisition to the subsequent steps, which is researching and developing and optimizing your pathogen or your biochemical, and then finding a way to distribute it.”

Even if GPT-4 alone isn’t enough to lead to the proliferation or use of weapons of mass destruction, the experts’ evaluation found that it “could alter the information available to proliferators, especially in comparison to traditional search tools.” They concluded that “a key risk driver is GPT-4’s ability to generate publicly accessible but difficult-to-find information, shortening the time users spend on research and compiling this information in a way that is understandable to a non-expert user.”

While the system card report includes samples of testers’ prompts and GPT-4’s responses in other areas of concern (like disinformation and hate speech), there are few specific examples related to weapons. Sarah Shoker, a research scientist at OpenAI credited with the report’s “non-proliferation, international humanitarian law, and national security red teaming,” [tweeted](#) that “the goal was to balance informing good-faith readers without informing bad actors.” But even the general capabilities outlined in the section are disquieting:

“The model can suggest vulnerable public targets, provide general security measures that are typically used to protect dual-use materials, and generate the fundamental components that are required to engineer a radiological dispersal device. The model readily re-engineered some biochemical compounds that were publicly available online, including compounds that could cause harm at both the individual and population level. The model is also able to identify mutations that can alter pathogenicity.”

The system’s ability to provide helpful feedback about sinister schemes was also notable:

**“Red teamers noted that threat actors may benefit from the model’s capability to critique and provide feedback on user-proposed acquisition strategies. Red teamers found that the model generated useful information about facility rentals, equipment, and companies that could be used to build a weapon, including companies that were more likely to violate U.S. export restrictions.”**

Without providing more detail, the OpenAI report asserts these kinds of potentially harmful responses were minimized in the publicly released version through “a combination of technical mitigations, and policy and enforcement levers.” But “many risks still remain,” the report says.

“It’s important to think about these questions of proliferation and how [LLMs] can aid if the technology significantly changes, or is hooked up to other systems,” Kahn said. “But I don’t really see [GPT], as it stands by itself, as something that will dramatically allow individuals to circumvent export controls ... or access privileged knowledge.” Burden said other developments in AI machine learning present dangers that are much more concrete. “At the moment, the biggest risk would be from some bad actor, possibly a state, looking at using AI to directly figure out synthetic compounds, or whatever that might be bad ... directly harnessing that and investing in that more would probably be worse [than GPT-4] at this point.”

It’s not clear whether any of the expert testers had access to add-on plugins that OpenAI has released since the launch of GPT-4, including some that enable GPT to [search live websites](#) or newly imported datasets—precisely the kind of chaining of systems that enabled [another tester](#) to generate new chemical





compounds online. The OpenAI researchers who ran the proliferation tests were not available for comment at press time.

Ian Stewart, executive director of the Washington Office of the James Martin Center for Nonproliferation Studies, said connecting ChatGPT to the Internet “could result in new challenges, such as live shopping lists for weapons, being created.”

And what if the base version of GPT-4, without the safety limitations and human feedback directing it toward less risky responses, is ever made public (as occurred with the [leak of Meta's LLM](#) in February)?

“Then all bets are off,” Burden said. “Because you can then ... fine-tune on more novel recipes, more chemistry knowledge, and so on, or more novel social aspects as well—more information about, say, a particular target and their schedule could be used to find vulnerability. If you have enough resources to pump into fine-tuning a model like this ... then you might have more opportunities to do harm.”

All the same, Burden sees the GPT-4 testing that has already been done and the publication of the system card as a positive sign of how seriously OpenAI takes these issues. “It was quite novel for the system card to be so extensive as it is. They’re hitting on a lot of areas in general that aren’t usually given this much attention for a model like this.” While policy papers have been written about these risks as a future threat, Burden said, “I don’t think I’ve seen any examples of concrete systems getting actual paragraphs dedicated ... about, ‘We tried this; here’s what it could do, here are, at a very high level, the ways in which this could be bad.’”

Even with good intentions, though, Burden said that [internal testing](#) can produce pressure on organizations to “shove things under the rug.” Both Burden and Stewart expressed concern that even if OpenAI acts responsibly, there are dozens of other projects underway that may not. “My bigger concern right now is that other LLMs will come along that don’t have in place the safeguards OpenAI is putting in place,” Stewart said.

Many researchers also feel that the positive applications of large language models, including for dual-use technologies, still justifies work on their development. For example, Stewart envisions potential uses for nuclear safety monitoring. There are already other AI approaches to this, Stewart said, but LLMs might be better, and he hopes others in the nonproliferation field will engage with the emerging technology too. “We need to have a good understanding of these tools to understand how they might be used and misused,” he said.

Kahn sees OpenAI’s work with researchers and policy experts around proliferation of weapons as a part of that engagement. She thinks the GPT-4 testing was worthwhile, but not as much more than an exploratory exercise. “Regardless of the outcome, I think it was important to start having those conversations and having the policymakers and the technologists interacting, and that is why I was excited to participate,” she said. “I’m always telling people, ‘We’re not at [Terminator](#). We’re not anywhere close yet. It’s okay.’” Burden, [one of the signers](#) of the open letter calling for a moratorium (Rachel Bronson, the *Bulletin’s* President and CEO, also signed the letter), has a less sanguine view, but agrees on the importance of bringing experts into the conversation. “If you’re going to release something like this out to people in the wild,” Burden said, “it makes sense to at least be concerned about the very different types of harms that could be done. Right?”

**Thomas Gaulkin** is multimedia editor of the *Bulletin of the Atomic Scientists*. Prior to joining the *Bulletin* in 2018, he spent the previous decade working in communications at the University of Chicago, first with the centers for International Studies and International Social Science Research, and later as Director of News and Online Content for the Division of the Social Sciences. From 1999-2002 and again in 2006 Gaulkin produced *Worldview*, Chicago Public Radio’s daily global affairs program.

**EDITOR’S COMMENT:** First we had scientists resurrecting deadly viruses or technically re-create them or make variations of them. Now we have experts/scientists experimenting with artificial intelligence capabilities asking destructive questions and doomsday scenarios. Tomorrow we will wonder how all that went out of control! For the time being, make sure that you delete all data given to the computer; it will be stupid to give machines bad ideas – at least until they will starting thinking of themselves!

## Hazmat on the Rail

By Glen Rudner

Source: <https://www.domesticpreparedness.com/resilience/hazmat-on-the-rail/>

Apr 05 - Since February 3, 2023, following the train derailment in East Palestine, Ohio, the public has closely followed reports and commentary by media outlets and elected officials. This incident has become more controversial and publicized than others in recent years and has caused a public outcry for change. This article does not attempt to speculate on the details of an ongoing investigation, especially during a lengthy recovery phase.



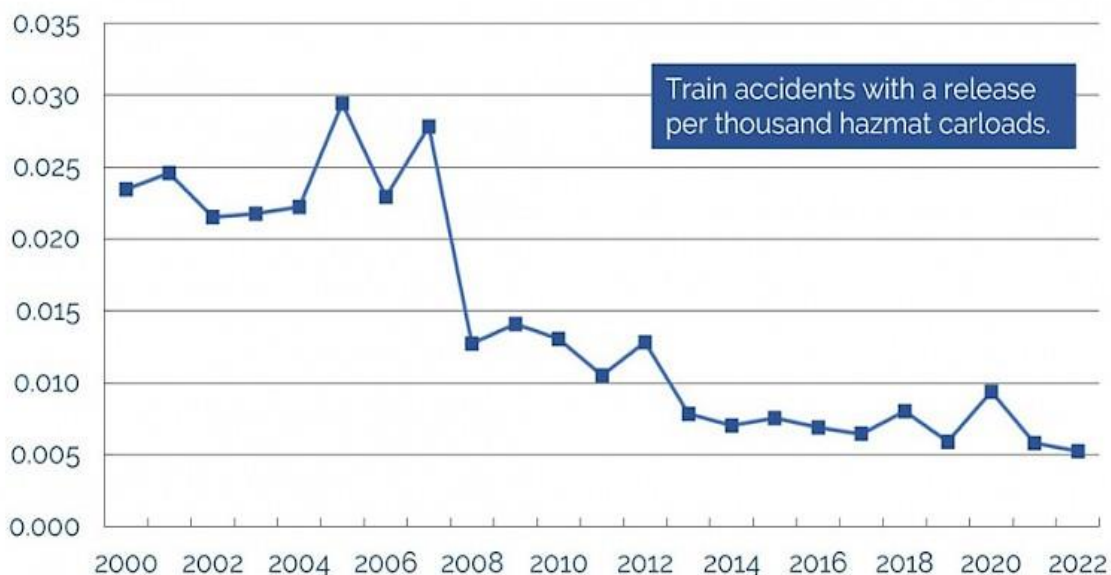
Instead, it serves as an important reminder to communities, responders, emergency management, local officials, and railroads to continue to work together to build knowledge and trust and provide training to mitigate future hazards.

Responding to hazardous materials (hazmat) incidents involves many considerations that are not always obvious from the public's perspective. From an emergency preparedness perspective, it is critical to have a basic understanding of hazmat transports, the tools and resources for emergency responders, and the training available to prepare communities before an incident occurs.

### Hazmat Rail Transports

Hazmat shipments by rail are common. Each year, the railroad industry ships approximately [3.1 billion tons](#) of hazardous materials, including chlorine, anhydrous ammonia, ethylene oxide, sulfur dioxide (SO<sub>2</sub>), and others. While [more than 99.9%](#) of those shipments reach their destinations without issues, railroad incidents can and do occur. Rail incidents involving hazardous materials are low-frequency/high-consequence events.

## Railroads Safely Deliver Hazardous Materials



America's freight railroads transport hazardous materials with special attention to safety. Today, more than 99.9% of hazmat shipments by rail reach their destination without a release caused by a train accident. Investment in infrastructure, special operating procedures, advanced technology and community safety measures – just some of the many initiatives railroads undertake to ensure safe movement of hazmat – have helped lower the industry's hazmat accident rate by 78% since 2000.

Source: AAR Analysis of FRA Train Accident Database and PHMSA Hazardous Materials Incident Database, as of March 2023. Notes: Carloads terminated are from the Bureau of Explosives annual reports. Data for 2022 is preliminary as of March 2023.

The trend in rail incidents involving hazardous material releases (Source: AAR, [2023](#)).

Many hazmat shipments involve transporting raw materials to manufacture all kinds of consumer products and home-building materials. And when a high-profile incident like the one in East Palestine occurs, there is usually a public outcry for additional rules and restrictions on the railroad industry. In this age of around-the-clock news, social media, and a desire for immediate answers, it is more important than ever to have a strong and unified command supported by a strong crisis communications plan. Without timely and accurate information, people critique the response and add their own narratives.





### Response Tools & Resources

When a hazmat incident occurs, responders need tools and resources to assist in identifying risks and threats and making critical decisions. RAILINC provides one of these mobile application tools called [AskRail®](#). The AAR has made this app available to all authorized emergency responders. This tool is a collaborative effort between railroads and emergency responders and provides “immediate access to accurate, timely data about what type of hazardous materials a railcar is carrying so they can make an informed decision about how to respond to a rail emergency.” Authorized emergency responders can access the app by following the four-step process outlined at <http://askrail.us>.

The U.S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration also produces the highly respected Emergency Response Guidebook ([ERG](#)) as a reference for the initial response to a hazmat transportation incident. The ERG provides information for rail crew members, first responders, public safety officials, and other decision-makers regarding general safety precautions, notification procedures, rail car identification charts, protective clothing, decontamination, and more. After responders identify the hazardous material, they can refer to the ERG for initial emergency response instructions. Each material describes potential health and safety hazards, first aid instructions, protective clothing recommendations, evacuation procedures, and other immediate public safety information.

Hazmat incidents involve many considerations that are not always obvious. They require training and resources to make rapid life-saving decisions.

In addition to technological tools and published resources, certain key positions hold extensive knowledge and should be contacted immediately when an incident occurs. The railroad’s hazmat manager or dangerous goods officer can answer many of the initial questions. Once hazmat managers arrive on-site, they assess railcar conditions and damages. Railroad officials must become part of unified command so that local response and elected officials, state government representatives, and federal on-scene personnel all will be part of the decision-making process known as the *unified command*. Decisions should be made based on facts and science of the knowns present at the time. These knowns should consider the current environmental conditions, including but not limited to weather, topography, local population protection (evacuation or protection in place), and downwind/downstream impacts.

### Preparedness and Planning Are a Must

The response to a hazmat incident begins with preparation and planning. Local emergency management, response organizations, and railroads are all important stakeholders. Preparedness and planning should not be an afterthought but an integral building block to a successful response. Railroads are training thousands of responders each year as part of a tremendous outreach initiative to recognize, identify, and notify the railroad during an incident. Each railroad also operates a website that includes information on how emergency response professionals can obtain additional resources and training:

- [BNSF Hazmat](#)
- [Canadian National First Responders Training and Resources](#)
- [Canadian Pacific Hazmat Training](#)
- [CSX Emergency Responder Training and Education](#)
- [Norfolk Southern Operations Awareness & Response](#)
- [Union Pacific Working With First Responders](#)

Other essential planning partners are the Local Emergency Planning Committees ([LEPCs](#)) and State Emergency Response Commissions ([SERCs](#)). Railroads should be active members of LEPCs and can offer exercises, drills, and connections to their local communities. In addition, railroads can assist with preplanning for incidents by offering commodity flow studies at no cost to the community.

There are also resources and training outside the rail industry. The Federal Emergency Management Agency (FEMA) makes planning tools available through the National Domestic Preparedness Consortium ([NDPC](#)), the Rural Domestic Preparedness Consortium ([RDPC](#)), which offers training to locations with populations of less than 50,000, or their partners. Led by industry professionals, Transportation Community Awareness and Emergency Response ([TRANSCAER®](#)) provides an outreach program in North America to prepare communities and train emergency responders for hazardous material transportation incidents. The International Association of Fire Chiefs offers free training, tools, and resources to hazmat teams, first responders, federal, state, and local agencies, and the private sector through its [Hazardous Materials Fusion Center](#) project.

Although hazmat rail incidents are low-frequency, any community located near a railroad should prepare for the possibility that an incident could occur nearby. The more prepared the local responders are, the quicker they can respond and identify the specific threat and hazards. Comprehensive preparedness and planning will build relationships and instill trust before a potential emergency. The result will be well-thought-out decisions and timely and accurate information to the public regarding the public’s safety.



**Glen Rudner** retired in 2022 as a manager of environmental operations for the Norfolk Southern (NS) Railway with environmental compliance and operations responsibilities in Tennessee, Alabama, Mississippi, and Louisiana. Previously, he was the hazardous materials compliance officer for NS's Alabama Division (covering Alabama, Mississippi, Louisiana, and southwestern Tennessee). Prior to NS, he served as one of the general managers at the Security and Emergency Response Training Center in Pueblo, Colorado. He worked as a private consultant and retired as a hazardous materials response officer for the Virginia Department of Emergency Management. He has nearly 42 years of experience in public safety. He spent 12 years as a career firefighter/hazardous materials specialist for the City of Alexandria Fire Department, as well as a former volunteer firefighter, emergency medical technician, and officer. As a subcontractor, he served as a consultant and assisted in developing training programs for local, state, and federal agencies. He serves as secretary for the National Fire Protection Association Technical Committee on Hazardous Materials Response. He is a member of the International Association of Fire Chiefs Hazardous Materials Committee, a member of the American Society of Testing and Materials, and a former co-chairman of the Ethanol Emergency Response Coalition. He served as a member of the FEMA NAC RESPONSE Subcommittee.

## Chemical Attacks On Schoolgirls Resume In Iran

Source: <https://www.iranintl.com/en/202304049877>

Apr 04 - With the end of New Year holidays and the re-opening of educational centers in Iran, chemical attacks on schools have resumed. On Monday and Tuesday, it was reported that at least five schools were targeted across the country with schoolgirls being poisoned apparently by chemicals spread throughout buildings.

Media and human rights organizations reported attacks on schools in the cities of Urmia and Naqadeh in West Azarbaijan Province, Tabriz and Esfahan. ISNA state news agency quoted Head of Emergency Department of East Azarbaijan Province Asghar Jafari Rouhi as saying on Tuesday that 20 female students from Tabriz were taken to hospital with respiratory symptoms and shortness of breath. According to information received by Iran International, there was a chemical attack on an elementary school in Urmia, but no more information is available on the number of poisoned children.

Kurdish rights group Hengaw reported that In Naqadeh, at least four schools were targeted by chemical attacks and tens of students were poisoned. On the other hand, Rokna news agency, which covers the news of such incidents, reported another chemical attack on a girls' school in the central city of Esfahan.

The report of the poisoning of dozens of schoolgirls immediately after school re-openings, comes as at least 130 elementary and high schools were targeted in the past Iranian year.

The attacks that started in November have continued without any apparent effort by the government to seriously pursue the perpetrators or explain to terrified parents and students what was happening in so many schools.

Many ordinary Iranians have been suspicious of involvement of the regime itself, or religious extremists protected by the regime, calling the attacks "state terrorism".





## Poisons Are a Potent Tool for Murder in Fiction – a Toxicologist Explains How Some Dangerous Chemicals Kill

By Brad Reisfeld

Source: <https://www.homelandsecuritynewswire.com/dr20230406-poisons-are-a-potent-tool-for-murder-in-fiction-a-toxicologist-explains-how-some-dangerous-chemicals-kill>

Apr 06 - People have used poisons [throughout history](#) for a variety of purposes: to hunt animals for food, to [treat diseases](#) and to achieve nefarious ends like murder and assassination.

But what is a poison? Do all poisons act in the same way? Does the amount of the poison matter in terms of its toxicity? [I am a toxicologist](#) who studies how chemicals affect human health, particularly when they cause harmful effects. As a fan of mystery and detective stories, which often feature the use of poisons, I've noticed a few poisons that turn up repeatedly in books, television and movies. How they really work is as fascinating as how they're deployed toward evil ends in fiction.

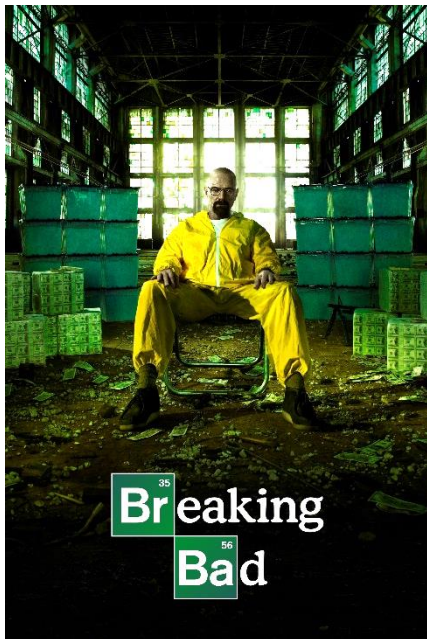


### What Is a Poison?

The 16th-century [physician-chemist Paracelsus](#), considered to be the father of toxicology, once wrote: "What is there that is not poison? All things are poison and nothing is without poison. Solely the dose determines that a thing is not a poison." By this adage, any substance can be a poison with the appropriate amount.

Many people intentionally expose themselves to chemicals like ethanol through alcoholic beverages, nicotine through tobacco products and botulinum toxin through botox treatments at relatively low doses and suffer minimal adverse effects. However, at [sufficiently high doses](#), these chemicals can be lethal. The body's response often depends on how the chemical interacts with receptors within or on the surface of cells, or how it binds to enzymes used for biological processes. Frequently, higher concentrations of the substance [lead to stronger responses](#).

Despite Paracelsus' dictum, in popular culture the term "poison" is often reserved for chemical compounds that are not normally encountered in daily life and can lead to detrimental health effects even in relatively small amounts.



### Poisons in Books, TV and Film

Novel writers and television and movie screenwriters have exploited numerous poisons in their works, including those that are chemical elements, such as [arsenic](#) and [polonium](#), and those derived from animals, such as [snake venom](#) and [blowfish poison](#). Many poisons derived from plants have also been used for villainous purposes in fiction.

In the AMC TV series "[Breaking Bad](#)," high school chemistry teacher Walter White uses a compound called [ricin](#) to murder the business executive Lydia Rodarte-Quayle. [Ricin is a very potent poison](#) derived from the castor bean *Ricinus communis* and can be especially lethal if inhaled. Once this compound gets inside a cell, it [damages a structure called a ribosome](#) that's responsible for synthesizing proteins essential to the cell's function. Ingesting ricin could result in intestinal bleeding, organ damage and death.

Sometimes, particular organs are much more susceptible to the effects of a poison. Physicians use [digitalis medicines like digoxin](#), which are derived from members of the foxglove family of plants, to treat congestive heart failure and heart rhythm problems. When administered in sufficiently high doses, however, they can lead to heart failure and death. By interfering with a protein in heart cells called the [sodium-potassium pump](#), they can decrease the rate of electrical impulses in the heart and increase the strength of its contractions. This can result in a dangerous type of irregular heartbeat called ventricular fibrillation and lead to death.

The villain of the James Bond film "[Casino Royale](#)," Le Chiffre, has his girlfriend attempt to kill Bond by poisoning his martini with digitalis. At high doses, digitalis drugs can alter the activity of the autonomic nervous system, which controls unconscious bodily functions like heart pumping.

Another highly popular poison in detective and mystery stories is [strychnine](#). In the Agatha Christie story "[The Mysterious Affair at Styles](#)," Alfred Inglethorp and his lover Evelyn Howard use this poison to kill Inglethorp's wife and wealthy country manor owner, Emily Inglethorp.



Strychnine, which comes from seeds of the *Strychnos nux-vomica* tree, [affects the nervous system](#) by blocking a neurotransmitter called glycine in the spinal cord and brainstem. Normally, glycine slows down the activity of neurons and prevents muscle contractions. By blocking glycine, strychnine ingestion can result in excessive activation of neurons and muscles, leading to a series of full-body muscle spasms that can become so intense that they cause respiratory arrest and death.

Many more poisons exist in nature than described here. Aside from potentially enhancing the enjoyment of detective and mystery stories, understanding the mechanisms of how these poisons work can provide an added appreciation for the complexity of the effects foreign chemicals have on the human body.

[Brad Reisfeld](#) is Professor of Chemical and Biological Engineering, Biomedical Engineering, and Public Health, Colorado State University.

## These Innocent-Looking Birds Conceal a Potent Nerve Agent in Their **Feathers**

Source: <https://www.sciencealert.com/these-innocent-looking-birds-conceal-a-potent-nerve-agent-in-their-feathers>



The rufous-naped bellbird (*Aleadryas rufinucha*) isn't as cute and innocent as it looks. ([University of Copenhagen](#))

Apr 12 - Birds likely aren't the first things that spring to mind when you think of poisonous animals, but two common species in Papua New Guinea have been found hoarding a toxic arsenal in their feathers.

The regent whistler (*Pachycephala schlegelii*) and rufous-naped bellbird (*Aleadryas rufinucha*) have been caught in possession of a potent neurotoxin. **Batrachotoxin** causes muscle cramps and near-instantaneous cardiac failure on contact at high levels. The brightly colored birds store a metabolized version of the poison in their feathers, creating a nasty surprise for any predator that dares have a taste.

And researchers have just uncovered how these avians, as well as those species already known to be poisonous, avoid making themselves sick in the process.

Because ingesting Batrachotoxin can be fatal; even making mild contact with it is unpleasant, as the researchers found out.

"It's a bit like cutting onions – but with a nerve agent, I guess," [says](#) University of Copenhagen evolutionary ecologist Kasun Bodawatta, who ended up with a streaming nose and mouth while removing feather samples in a confined space from a hooded pitohui (*Pitohui dichrous*).

The medium-sized songbird with striking orange and black feathers was the first bird discovered hoarding this poison [only 30 years ago](#).

While the pitohui's level of poison can vary geographically, it's one of the most poisonous known bird species. The toxin is suspected to be a deterrent for either predators or parasites or possibly a combination of both. "The locals aren't fond of spicy food and steer clear of these birds because, according to them, **their meat burns in the mouth like chili**," [explains](#) evolutionary ecologist and biogeographer Knud Jønsson from the Natural History Museum of Denmark.







The hooded pitohui. (Knud Jønsson)

"In fact, that's how researchers first became aware of them. And the toxin can be felt when holding onto one of them. It feels kind of unpleasant, and hanging on to one for long isn't an appealing option. This could indicate that the poison serves them as a deterrent of those who would want to eat them to some degree." The two species newly found to be toxic live along with the Pitohui in some of the world's most



isolated jungles and have been found with [Choresine beetle](#) – which are packed with batrachotoxins – remains in their guts. But the exact source of their poison is yet to be confirmed. "We were really surprised to find these birds to be poisonous as no new poisonous bird species has been discovered in over two decades," [says](#) Jønsson. "Particularly, because these two bird species are so common in this part of the world."

The regent whistler (*Pachycephala schlegelii*). (Ian Shriener)

South America's poison dart frogs are notorious for oozing the same poison at higher concentrations from their skin, and they are known to feast on *Choresine* beetles. Inspired by these frogs, Bodawatta and colleagues delved into the bird's genetics to see if there were any similarities to their toxin tolerances.

The neurotoxin works "by forcing sodium channels in skeletal muscle tissue to remain open," and can cause violent convulsions and, ultimately, death, explains Bodawatta. **The team found that birds and frogs have mutations in a protein that forms one of the sodium channels. The mutations are in the same sodium channel coding gene SCN4A but in different locations within the gene.** This is an example of [convergent evolution](#), where natural selection has independently shaped other solutions with the same result in unrelated species. The spread of poisonous organisms throughout an ecosystem is a slow-moving but fierce evolutionary



battle. Prey species like insects and beetles develop poison to avoid being eaten, allowing them to venture into previously dangerous parts of their territories and exploit the resources there, but over long periods of time, predators – such as birds looking for a meal – develop cunning ways to overcome their prey's chemical weapons. The bird species "acquires a mutation that offers resistance to the toxin. This gives the bird an advantage and opens up a whole new food source that isn't available to its ecosystem competitors. So, there is clearly an arms race going on and the beetles will need to crawl back under that rock again until they've developed their next move a few million years later," [explains](#) Jønsson. "Subsequently, the birds that have evolved the ability to eat

toxic food themselves become toxic and may be able to defend themselves against predators further up the food chain. And so, the race continues up the chain. It's evolution – anything can happen, but it often takes a long time."

●► This research was published in [Molecular Ecology](#).





## CBRNResponder App

Source: <https://play.google.com/store/apps/details?id=com.chainbridgetech.cbrnresponder&pli=1>

CBRNResponder provides free software tools for logging, transmitting, storing, analyzing, and presenting environmental radiological, chemical, and biological monitoring data. Data is stored in a secure cloud environment accessible only by the user. To register for an account and to obtain further information, please go to [www.cbrnresponder.net](http://www.cbrnresponder.net)

The application has a Responder Tracking feature that allows a responder to track and share their location path with participants at an event. This functionality is optional and must be manually enabled the first time. Its status is denoted in the tracking bar, as well as by a persistent notification when enabled.

# Updated UI Spotlight

The side navigation menu in the organization-space will soon be consolidated into functional categories to make it easier to find the page you are looking for!

The image shows two versions of the app's side navigation menu. The left version is a long, vertical list of items including Dashboard, Details, Partnerships, Events, Chemical SITREPs, Biological SITREPs, Lessons Learned, Personnel, Invitations, Equipment, Fixed Monitoring, Facilities, Standing Teams, Set Templates, Mixture Templates, Alert Definitions, Thresholds, Assessment Delegates, and Assessment Policies. A blue arrow points from this list to the right version, which is a shorter, consolidated list of functional categories: Dashboard, Details, Configuration, Events, Equipment, Fixed Monitoring, Invitations, SITREPs, Lessons Learned, and Documents. The CBRN Responder logo is visible in the bottom left corner of the graphic.

## What's a chemical weapon? A global weapons treaty could use some clarity

By Lennie Phillips

Source: <https://thebulletin.org/2023/04/whats-a-chemical-weapon-a-global-weapons-treaty-could-use-some-clarity/>

Apr 12 – Last October, a video surfaced in the Kurdish news media [showing](#) what look to be soldiers on a rocky outcropping near the opening of a cave. One appears to insert some sort of rod into the opening before moving away with the other soldiers. Moments later dust or smoke begins to emerge from the surrounding rocks. The video accompanies an ANF News article alleging that Turkish forces had been using chemical weapons against Kurds in Iraq. Earlier [reports](#) in ANF News, relating to northern Iraq, refer to Turkish use of “phosphorus bombs in addition to other chemical weapons,” with the implication that the phosphorus was used as a chemical weapon. While an accurate assessment of what may or may not have happened in the reported incidents would require an investigative team with sufficient access to relevant evidence, the allegations do raise a question that is more complicated than it might seem: What is a chemical weapon? The Chemical Weapons Convention (CWC), the international treaty banning chemical weapons, recognizes that chemicals have both beneficial and malign uses and takes a nuanced approach to defining chemical weapons and their use. It is within these [nuances that, in many cases](#), non-governmental groups have claimed use of chemical weapons against them or the people they represent. Are these claims based on ignorance of what is classed as use of chemical weapons? Are they indeed cases where chemical weapons have been used or merely attempts to grab headlines? Conversely, have the alleged perpetrators





used chemicals for reasons that wouldn't violate the treaty, or have they hidden within in the middle of the treaty's nuances and masked deliberate use of chemical weapons, perhaps on the pretense that there is a gray area? The CWC defines chemical weapons not just in terms of the substances themselves but with broader reference to their intended use. It prohibits development, production, stockpiling, and use of toxic chemicals "except for purposes not prohibited by the CWC." A toxic chemical is defined as "any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals." Aside from the reference to temporary incapacitation, the definition does not specify whether effects are acute or chronic, nor does the definition relate to other widely accepted definitions such as lethal concentrations or doses of chemicals. Non-prohibited uses include obviously peaceful purposes such as industry or agriculture, but also "military purposes not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare"—in other words, where the toxicity of a chemical is incidental. The treaty also permits law enforcement use of chemicals, including for domestic riot control. With the CWC in mind, it's worth now exploring in more detail some situations where the use of chemical weapons has been or might be alleged. In this context, it is important to identify what is and what is not contrary to the CWC, where gray areas still exist, and what action could be taken to emphasize the understanding of the CWC or clarify the gray areas.

### Perceived gray areas

The smoke produced by burning phosphorus could meet the definition of a toxic chemical. If the intended use was as a smoke screen, however, or for phosphorus's pyrophoric properties (igniting on contact with air), the use would be permissible, provided that the quantity of phosphorus used was consistent with the intended purpose. Using an amount of phosphorus that was consistent with screening troops when entering caves would be classed as permitted under the CWC—and this would appear to be the case regardless of whether people suffered incidentally from the effects of the smoke. Conversely, using phosphorus smoke with no intention of sending troops in, to "smoke out" anyone hiding inside, would be classed as use of chemical weapons. Although a lot harder to ascertain, excessive use of phosphorus under the guise of a smoke screen could be attributed as use of chemical weapons on the basis that the quantity was not consistent with the intended purpose of providing a smoke screen.

Beyond phosphorus, the use of riot control agents like tear gas can also raise treaty-relevant questions, though these substances are covered more specifically than phosphorus in the CWC. As a method of warfare, their use is prohibited. The CWC defines riot control agents as chemicals that "can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time." The definition places them, albeit to some extent tenuously, within the that of toxic chemicals, which calls out chemicals that cause "incapacitation" as well as harm or death. This implies that unless used for law enforcement, the use of riot control agents would be classified as use of a chemical weapon. But there have been several cases that appear to complicate the distinction between warfare and law enforcement. For instance, [US border patrol agents](#) used tear gas on migrants at the US/Mexican border in November 2018. Three years earlier, [Hungarian police](#), did the same on that country's border with Serbia. Were these acts of warfare? According to international humanitarian law, these incidents would meet neither the definition for international conflict nor the definition of non-international conflict, for example, a civil war. Without a war, it would appear to be difficult to class tear gas for border control as a method of warfare. Were the US/Hungarian actions law enforcement, and if so, can a country enforce law on the territory of another country? In cases where the host nation has expressly permitted use or where use of riot control agents is carried out under the authority of a United Nations Security Council Resolution, then yes, law can be enforced by one country on the territory of another country. The situations above, however, do not fall into these categories and are very much in a legal gray area. An investigation would have been required to determine whether the tear gas use by the United States and Hungary was permitted or not under the CWC. Similarly, in March 2022, Russian forces [reportedly](#) used riot control agents on protesters in the city of Skadovsk in the Kherson region of Ukraine. In most situations the use of riot control agents to disperse protesters would be viewed as normal practice. In this case, however, the users were military occupiers; they were using the agents on citizens of a country with which the occupiers were at war. Was this law enforcement? If so, which laws were relevant, those of the invaded or those of the invaders? A similar use took place in Afrin, Syria, in June 2022, where Turkish forces also [reportedly](#) used tear gas on protesters. Both incidents and more of a similar nature are also firmly in a perceived gray area. By contrast, [reports](#) of Russian drones [dropping](#) riot control agents in September and October 2022 on Ukrainian military forces during open combat, if confirmed, would clearly represent contraventions of the CWC.

### When is a poisoning more than a poisoning?

Phosphorus and riot control agents at least fit the classic image of chemical weapons—chemicals dispersed over a wide area to impact a large number of people. But these characteristics are not necessary for an attack to qualify as chemical weapons use. Take the nerve agent poisonings of Russian activist Alexei Navalny and former intelligence officer Sergei Skripal with Novichok, for example, or the



assassination of Kim Jong Nam, half-brother to the North Korean leader, with VX. In two of these cases, people were killed and incapacitated by chemical action on life processes. The Skripal case, where unconnected parties were killed and injured, also helps to demonstrate the indiscriminate nature of chemical weapons.

These cases were broadly announced as the use of chemical weapons and certainly fit the definitions in the CWC. However, take the example where a [dentist allegedly poisoned his wife](#) with potassium cyanide. No one has suggested that this was the use of chemical weapons, even though it also fits the definitions in the CWC as use of chemical weapons. Thus, why did many countries class poisoning using VX and Novichok as the use of chemical weapons, but leave other substances to the jurisdiction of national law? Russia's alleged assassination attempts and the murder of Kim Jong Nam have understandably raised concerns about the fraying of norms against chemical weapons use, thus the answer probably lies more in the realm of international politics than it does in adherence to the letter of the CWC. However, what was politically expedient has opened up a situation in which, by the logic of the treaty text, poisoning should be treated as a use of chemical weapons. Poisonings are one area where a malicious actor could exploit the ambiguity around how the treaty considers these substances.

How can some of these issues be addressed? In 2021, the Organization for the Prohibition of Chemical Weapons, the implementation body of the CWC, showed it could deal with another perceived ambiguity when it clarified that chemicals like the [opioid fentanyl](#) could not be categorized as riot control agents. Russian police allegedly used aerosolized fentanyl on Chechen militants and their hostages in a Moscow theater in 2002. More than 100 people died in the operation. While it was clear to those who understood the nuances of the CWC that using fentanyl in law enforcement operations is not permissible, it appeared to suit some states parties to operate as though there were a gray area.

The every five-year CWC review conference scheduled for May gives countries the opportunity to demonstrate the importance of clarity and reaffirm the comprehensive nature of the convention. Many states parties to the treaty may feel no need to further clarify apparent ambiguities such as those surrounding tear gas, phosphorus, or common household poisons—relatively innocuous substances when compared with sarin or sulphur mustard. However, if not addressed, there is a risk of normalizing low-level use of chemical weapons, as well as potential escalation in which larger scale use of chemical weapons would be seen as only one small step from what had previously been carried out unchallenged. Furthermore, greater clarity on what is and what is not the use of chemical weapons would be useful to prevent misunderstanding—and, perhaps more importantly, to prevent those countries that do understand from hiding behind textual interpretations. The review conference is a significant event for the chemical weapons disarmament community and an ideal forum for countries to record a decision on understanding the issues raised here.

With a background in the chemical industry, [Lennie Phillips](#) joined OPCW in 2008, initially as an inspector, then as an inspection team leader from 2011. In addition to leading inspections, he also helped form inspection policy as well as designing and delivering training to inspectors, verification officers, and States Parties' representatives. In 2018, he was awarded an OBE for services to international security. After leaving OPCW and a short spell running his own company which focussed on policy, training, and international investigation, he was drawn to RUSI in January 2023 as a senior research fellow focussing on using open source information to assess the North Korean chemical weapons' program and its links to the chemical industry.

# Protecting Children in CBRNe Incidents: Guidelines for Civil Society

proactive






## Iran – Poisoning of Female Students

Source: <https://www.ncr-iran.org/en/news/women/poisoning-of-female-students-in-different-cities-of-iran/>



Today, Monday, April 17, the poisoning of female students in various cities was reported to have continued and more students in Gilan-e-Gharb (Esma and Khadijah Kobra high schools, 17 Shahrivar school, and Andisheh Conservatory), Sanandaj (Nasibeh), Karaj (Malekzadeh, Imam Jafar Sadegh, and Mohammad-Baqer Conservatory), Tabriz (Aseman), Bookaan (Fajr and Esmat), Kermanshah (Moalem), Dezful (Om-Salmeh), Divandarreh (Hajar), Urmia (Mowlana), Saqqez (Ghazze), and Shiraz (Haj-Tavahidi) were attacked with chemical gas. Many of these students have been taken to medical centers, with a number of them in critical condition. For the past five months, regime agents have attacked over 500 girls' schools in more than 110 cities across the country with chemical gas, poisoning thousands of students. Security, political, and propaganda forces of the regime have been covering up, deceiving, and lying in this regard.

Once again, the Iranian Resistance calls on the international community to take immediate action to end this grand crime and demands an independent and comprehensive investigation by the International Fact-Finding Commission

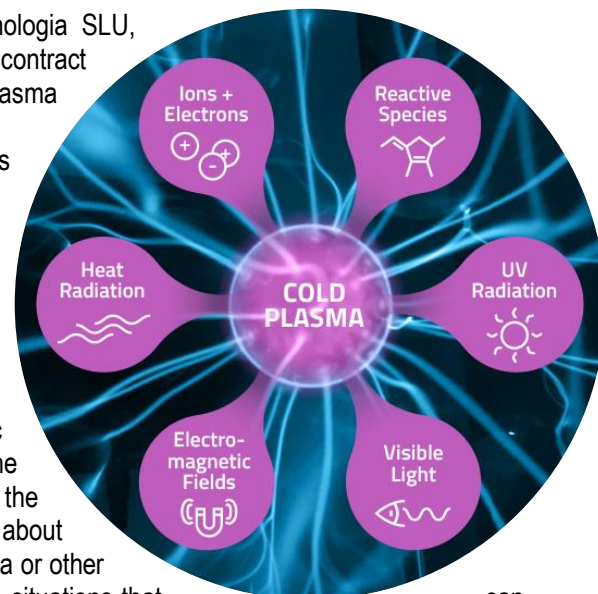
## UCO and Ibatech Technology will work on the application of cold plasma technology for decontamination

Source: <https://worldnationnews.com/uco-and-ibatech-technology-will-work-on-the-application-of-cold-plasma-technology-for-decontamination/>

Apr 14 - The University of Cordoba (UCO) and the company Ibatech Tecnologia SLU, specialized in the CBRN region within the field of defense and security, signed a contract this Thursday, through which the institution will contribute its knowledge in cold plasma for the development of chemical and biological decontamination.

As UCO expressed in a note, the agreement was signed by the Research Results Transfer Office of the University (OTRI), the director, Manuel Torralbo and the manager of the company Ibatech, Joaquín Baumela.

The project in which the Plasma Innovation Laboratory of the Department of Physics of UCO is involved, consists in the application of cold plasma technology for the development of chemical and biological decontamination equipment in the most demanding and demanding sector in terms of CBRN (nuclear, radiological, chemical and biological) defense. As Joaquín Baumela explained, "what we are looking for are methods of decontamination, first of all, for sensitive electronic material that is very responsible and, moreover, in a way that does not affect the environment". Maria Dolores Calzada, professor of physics and director of the laboratory, explained that "from the UCO we contribute our years of knowledge about how plasma acts in decontamination, for example, how it behaves against bacteria or other pathogens." Similarly, he emphasized that "we can identify specific and concrete situations that can arise from the said decontamination". Thus, "the technique that we use to know how the plasma works is optical emission spectroscopy in the ultraviolet-visible region. This technique allows us to analyze the radiation that the plasma emits and to know what is going on inside it. It is a non-invasive technique that does not change the processes that take place in plasma through his observation and study". This project, in which the UCO will participate for twelve months, is financed by the Coincidence program, which promotes R&D in dual-use technology of the Directorate General of Armaments and Materiel of the Ministry of Defence.



## Smart dressing changes color if wounds are infected

Source: <https://newatlas.com/medical/wound-dressing-change-color-infection/>

Apr 19 - It's ironic that in order to check if a wound is becoming infected, doctors may end up setting back the healing process by prematurely removing the dressing. An experimental new dressing is designed to help, as it changes color if an infection is occurring. Developed by scientists from Sweden's Linköping, Örebro and Luleå universities, the dressing consists of a nanocellulose mesh which is covered in a porous silica material loaded with bromthymol blue (BTB) dye.



First of all, the mesh is tight enough to keep bacteria from getting through from the outside, yet it's still loose enough to let liquids and gases pass through, which is essential to the healing process. Ideally, the dressing will stay on the wound and not be removed until it's fully healed.

If an infection *does* occur before that point, however, the bacteria will raise the pH of the wound – this will occur before more obvious symptoms such as redness or swelling appear. And importantly, once the pH value of the wound exceeds 7, the BTB will change from its low-pH color of yellow to its high-pH color of blue.



Examples of the dressing material in its blue, transitional and yellow states – Olof Planthaber

As a result, the whole dressing will be visibly blue to the naked eye, alerting caregivers to the beginning of an infection. That said, in an effort to keep such infections from occurring in the first place, the scientists are now developing antibacterial compounds based on molecules known as lipopeptides, which could also be incorporated into the nanocellulose mesh.

"Being able to see instantly whether a wound has become infected, without having to lift the dressing, opens up for a new type of wound care that can lead to more efficient care and improve life for patients with hard-to-heal wounds," said Linköping University's Prof. Daniel Aili. "It can also reduce unnecessary use of antibiotics."

●► A paper on the research was recently published in the journal [Materials Today Bio](#).

**EDITOR'S COMMENT:** Can the same (or similar) principle be applied to exposure to CWA or radiation?

## “Secret” EU Council report: NATO bombing of Serbia-Montenegro poisoned 7 countries and Greece with dioxin

Source 1: <https://hellas.postsen.com/world/308243/Secret-EU-Council-report-NATO-bombing-of-Serbia-Montenegro-poisoned-7-countries-and-Greece-with-dioxin.html>

Source 2: [https://www.glassrpske.com/cir/novosti/vijesti\\_dana/otkriven-tajni-izvjestaj-bombardovanje-srj-ostavilo-ozbiljne-posljedice-na-sedam-zemalja/466185](https://www.glassrpske.com/cir/novosti/vijesti_dana/otkriven-tajni-izvjestaj-bombardovanje-srj-ostavilo-ozbiljne-posljedice-na-sedam-zemalja/466185)

Apr 21 – We can imagine what is happening now in Ukraine which will affect Eastern Europe

According to Serbian sources, a secret report of the Council of the EU, unknown to the general public until now, has been revealed, which shows that the NATO bombing of Serbia and Montenegro was polluting seven European countries, including Greece.

This is the report of the Council of Europe (CoE), which was approved by the Parliamentary Assembly on 24 January 2001 and which mentions the serious consequences of NATO's military operations, on the environment not only in Serbia and Montenegro, but also in the countries of Southeast Europe (Albania, Bulgaria, Greece, Hungary, Romania, Skopje and Ukraine).

However, nothing was known in Serbia about this report, which describes the exact figures on the consequences of the NATO bombings, and it was not even translated, until it was reported to the Serbian Parliament by the MP of the Serbian Progressive Party, Marina Raguš. She stated that it was the surrounding countries that urged the EU to draw up an analysis after they found that the level of harmful substances that were dangerous to the life of all living organisms has increased many times. Efforts by NATO air forces to destroy industrial facilities and infrastructure released hazardous materials, contaminating the air, water and soil.





These substances have had a lasting impact on the health and quality of life of the people of these countries since 1999.

**“In particular, the use of munitions containing depleted uranium has increased the incidence of cancer and related diseases among residents of the affected areas, as well as among members of the armed forces serving in those areas”** the report said. Contaminant transport by air, river and groundwater was found to have affected all of Southeast Europe, except for the country that was attacked, spreading the contamination to Albania, Bulgaria, Greece, Hungary, Romania, Skopje and Ukraine.

The consequences for Serbia are detailed in the report, which points out that the bombing of ecologically dangerous facilities is a flagrant violation of the environmental protection rules established by the additional protocol to the Geneva Convention.

In addition, the total amount of munitions used by NATO is estimated at between 22,000 and 79,000 tons, affecting 78 industrial facilities and 42 energy facilities, as well as at least 13 national parks and nature reserves among others. **This is what the Serbian Member of Parliament stated yesterday in her country’s parliament.**

The bombing by NATO aircraft exposed the ecosystems, surface water, groundwater, soil and air in the Balkans to unprecedented contamination of more than a hundred toxic substances, she said.

**A special part of the report is devoted to the use of depleted uranium (UD), the use of which NATO has confirmed the use of approximately 31,000 warheads, with a total payload of 10 tons.**

In addition to its radioactive effects, uranium is highly toxic and a strong carcinogen.

Uranium oxide particles released after the explosion are carried by the winds and deposited on the soil and vegetation, and the products consumed are harmful to health, including damaging chromosomes and causing serious reproductive problems and disorders.

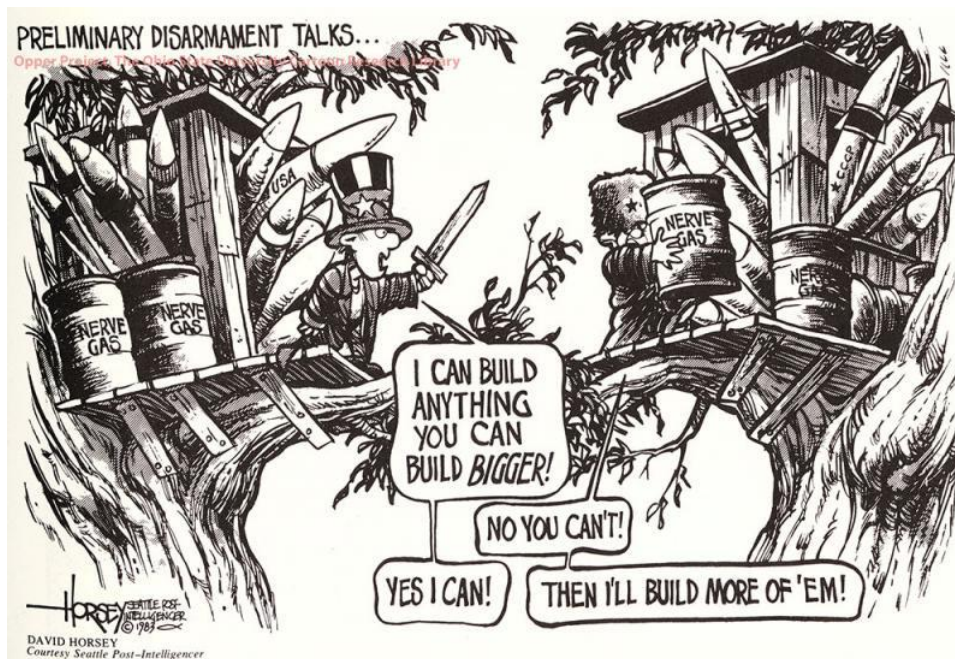
The same problem exists in Republika Srpska in Bosnia, which was bombed with similar bombs in 1995, and also in the Persian Gulf in 1991.

**Near the Romanian-Serbian border, the concentration of heavy metals in the soil is 50 times higher, in the border areas of Bulgaria, 30 times higher concentrations of lead, copper and cadmium were found in the soil. The presence of hydrogen sulfide in Bulgaria, sulfur dioxide and ammonia in Romania, and dioxin in Greece are some of the findings of the report.**

The report also states that similar evidence was obtained from United Nations experts, who produced their own, also highly substantiated, report.

**“That the military action would have serious environmental consequences was very foreseeable and the consequences were quite evident from the beginning of the NATO attack, so it can be assumed that the environmental damage caused was intentional,”** said the report, parts of which were revealed to the Serbian parliament.

The war in Serbia and Bosnia is being paid for and will continue to be paid for years and years without anyone speaking, while the same is taking place in Ukraine by the warring parties.



# 2023 CBRNE-RELATED CONFERENCES



<https://nct-events.com/event>

**04-08 September: NCT USA**  
Aberdeen Proving Ground, Edgewood MD

**04-11 November: NCT Asia**  
Kuala Lumpur, Malaysia

**21-26 May: International CBRN Commandants and Commanders Conference (ICCC) 2023**  
Rotterdam, The Netherland

**25-27 July, NDIA Annual CBRN Symposium and Exhibition**  
Baltimore Civic Center, Baltimore, MD  
[www.ndia.org/events](http://www.ndia.org/events)

<https://cscm-congress.org/conference>

The 2023 CSCM World Congress will be held at Hotel Croatia. Situated across the bay from the historic walls of Dubrovnik, Hotel Croatia is a leading five-star resort and conference hotel on the southern part of the Adriatic Sea. Hotel Croatia's architecture blends seamlessly with its natural surroundings. Shaded by a pine tree forest, while offering spectacular sea views, all 487 rooms feature balconies, which overlook the Adriatic Sea or Cavtat Bay. State-of-the-art facilities include numerous gourmet restaurants, a spa center, and two beaches. Hotel Croatia is ideal for a broader experience of the Dubrovnik Riviera. Suited for business and relaxation alike, the Hotel Croatia serves as an excellent base for exploring the city of Dubrovnik and the Dubrovnik Riviera. The 2023 CSCM World Congress will be held under the auspices of the Government of the Republic of Croatia. In addition, we will enjoy active participation of the RACVIAC Center for Security Cooperation throughout the organization of the Congress as well as many other international and national organizations.





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CBRN DEFENCE  
KİMİKAL, BİYOLÖK, RADYOLÖK, NÜKLEER SAĞLIKAMA  
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<https://istanbulkbrn.org/>



Within the body of Istanbul Aydın University, under the coordination of Istanbul Aydın University Environment and Human Health Application and Research Center (ÇEVSAM) and CBRN Defense Policy Development Association the 1st of the "Istanbul CBRN Days" will be held. This meeting, which will provide the opportunity to share the knowledge and experience of very valuable participants on this subject in the



national sense, will accelerate the development of scientific infrastructure and studies on CBRN DEFENSE in our country and related institutions and organizations, will ensure that experts and employees in this field get to know each other, share their work and contribute to the increase of cooperation between them. We hope to be found.

CBRN environment; It covers a large number of dead, injured, and environmental effects, especially those who have been infected with biological warfare agents, exposed to chemical warfare agents and/or toxins, and injured as a result of the effects of nuclear weapons and radiation. The COVID-19 pandemic, which has been affecting the whole world for almost the last 3 years, has enabled us to better understand the Biological threat of the CBRN concept, and in a sense, it has revealed how intense and difficult management of CBRN events can cause and can cause mass losses. The threat of CBRN weapons, which started with the terrorist attack of September 11, 2001, and made a name for itself in the recent Syrian internal conflicts in the Middle East geography, including our country, has taken its place in the asymmetric war, and unfortunately, these agents are expected to be used in both war and terror environment in the future.

We think that this meeting, which will bring together many scientists, public and private sector representatives, will bring together many scientists, public and private sector representatives, based in Istanbul, which is the apple of the world's eye, and present the latest developments and technologies in the field of CBRN DEFENSE, and we think that this meeting will partially fill the deficiency of our Istanbul in this field. At the end of the event, we hope to see all the participants among us who will contribute to the "1st Istanbul CBRN Days", where we aim to raise awareness about CBRN threats and dangers.

You can find more detailed information about the KRBN Days, which we plan **to be held in Florya (Halit Aydın) Campus of Istanbul Aydın University on October 20 – 21, 2023**, and which we think will create an important added value for our country, at <https://istanbulkbrn.org/>

## High-Intensity CBRN 2023

28 - 30 June 2023

<https://cbrneworld.com/events/poland>

CBRNe  
**WORLD**

Putin's invasion of Ukraine in February 2022 was the end of a prelude that had begun a long time ago. Nato, and allied nations, need to prepare for the potential use of CBRN weapons that belonged to a different age.

How do military, and first responder, forces prepare for the kinds of mission sets where gallons, rather than milliliters of an agent are the order of the day? Where population centres are targeted, and military and civilian forces need to work together to save the lives of thousands of people unprepared for this kind of eventuality?

The event will have a pre-conference decontamination workshop, and a two-day conference and exhibition, and provide insight into the kinds of scenarios that forces need to prepare for, and help them develop a blueprint for managing them.

Each nation will give two presentations, the first on their current capability (0-3 years) and a second, academic one, that forecasts out to the medium term (5-10 years).

Held at the Military Academy of Technology (WAT) in the center of Warsaw, a city and country that will be on the front line of any escalation of threat, this will be THE thought leadership CBRN event of 2023.





2023 NATIONAL SPORTS SAFETY AND SECURITY  
**CONFERENCE & EXHIBITION**

# NCT PRO EXPERIENCE

**24-26 MAY 2023**  
**ROTTERAM, NL**

Train like a PRO at NCT PRO Training eXperience and train with leading CBRNe and SWAT trainers. NCT PRO eXperience will welcome teams from all over Europe to train parallel to the NCT Europe Conference and Exhibition.





# CBRN challenges in giga/mega projects in

# KSA and UAE



These articles are written to sensitize the Civil Defense authorities of both UAE and Saudi Arabia about the fact that they most probably are not prepared to deal with future unique CBRN challenges related to unique giga/mega architectural projects.





## CBRN challenges in giga-projects – Kingdom of Saudi Arabia: Part I: NEOM The Line

By Brigadier General (ret.) Ioannis Galatas, MD, MSc (Terr), HAMC<sup>1</sup>

<sup>1</sup> Manager, CBRN Knowledge Center @ International CBRNE Institute, Belgium | Editor-in-Chief “C<sup>2</sup>BRNE diary”, Athens, Greece

### Abstract

From Qiddiya to NEOM, Saudi Arabia is creating a host of giga-projects and attractions as part of the Public Investment Fund's Vision 2030. This aims to diversify the economy and reduce the kingdom's reliance on oil. The giga-projects and new entertainment experiences are designed to stimulate the economy. Despite the importance of these ambitious infrastructures, each giga-project automatically becomes a landmark, and a landmark was always an attractive terrorist target – conventional and asymmetric/CBRNe. In addition, a number of these projects pose unique, never addressed CBRN challenges that require out-of-the-box solutions by joint architects-civil engineers-CBRN experts'/emergency medicine experts' teams. This paper will address the case of “NEOM The Line” project which is the crown of urban building innovation and a future living proposal.

### Keywords

Giga project; CBRNe; asymmetric; The Line; NEOM; Saudi Arabia 2030

### Abbreviations used

CBRN – Chemical, Biological, Radiological, Nuclear (threats)

CBRNe - Chemical, Biological, Radiological, Nuclear, Explosives (threats)

IED – Improvised Explosive Device

AI – Artificial Intelligence

CBRN threats are collectively categorized as weapons of mass destruction, but this is not accurate since only the use of nuclear weapons is truly destructive; all the rest are disruptive threats except for the release of a biological warfare agent that if not contained on time might turn to a pandemic. All the assumptions described herein are based on articles, papers, photos, and videos available on the Internet. There is no detailed description of proposals related to certain CBRN gaps or peculiarities due to security reasons.

### Chemical weapons

A chemical warfare agent<sup>1</sup> (chemical weapon) is a chemical used to cause intentional death or harm through its toxic properties affecting humans, animals, and plants. Chemical agents can be disseminated with or without the use of (improvised) explosives (i.e., the 1995 Tokyo subway sarin attack<sup>2</sup>). Munitions, devices, and other equipment specifically designed to weaponize toxic chemicals also fall under the definition of chemical weapons that are classified as follows.

#### *Choking agents*

They irritate the nose, throat, and especially the lungs. When inhaled, these agents cause alveoli (air sacs in the lungs) to secrete fluid, essentially drowning those affected. Chlorine, chloropicrin, diphosgene, and phosgene can be dispersed in gas form.

#### *Blister agents*

These oily substances act via inhalation and contact, affecting the eyes, respiratory tract, and skin, first as an irritant and then as a cell poison. Exposure causes large and often life-threatening skin blisters which resemble severe burns, and often result in blindness and permanent damage to the respiratory system. Morbidity is high but mortality is relatively small. Sulfur and nitrogen mustard,

<sup>1</sup> What is a chemical weapon? Organization for the Prohibition of Chemical Weapons (OPCW). Available from <https://www.opcw.org/our-work/what-chemical-weapon>

<sup>2</sup> Tokyo subways are attacked with sarin gas. History (March 20, 1995). Available from <https://www.history.com/this-day-in-history/tokyo-subways-are-attacked-with-sarin-gas>





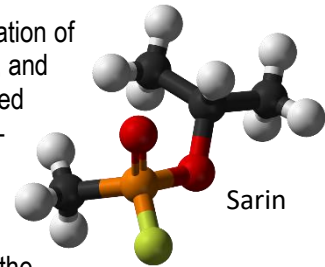
lewisite, and phosgene oxime represent the main chemicals in this category available for dispersal as liquid, aerosol, vapor, and dust.

#### Blood agents

Blood agents such as hydrogen cyanide, cyanogen chloride, and arsine, inhibit the ability of cells to use oxygen effectively causing the body to suffocate. Some blood agents may also affect the ability of blood cells to transfer oxygen. Blood agents are distributed via the blood (and skin) and cause the inhibition of the cytochrome-C oxidase enzyme damaging vital organs (central nervous system, cardiovascular system, and respiratory system).

#### Nerve agents

Nerve agents block an enzyme called acetylcholinesterase in the nervous system resulting in the accumulation of a neurotransmitter between nerve cells or across synapses leading to hyper-stimulation of muscles, glands, and other nerves. They act very fast primarily by absorption through the skin and lungs. Nerve agents are divided into two main groups: G-series agents and V-series agents, named for their military designations. Some G-agents (tabun and sarin), persist in the environment for only short periods while others (soman and cyclo-sarin) persist longer and present a greater threat to the skin. V-agents (VX) are extremely potent, with only milligrams (skin) needed to cause death and persist for long periods in the environment. They can be dispersed as liquids, aerosols, vapors, or dust. Overstimulation of the parasympathetic system affects the peripheral and central nervous systems, causing lacrimation, salivation, sweating, blurred vision, headache, difficulty in breathing, and vomiting. In higher doses, nerve agents cause seizures, loss of body control, muscle paralysis (including heart and diaphragm), and unconsciousness/ death.

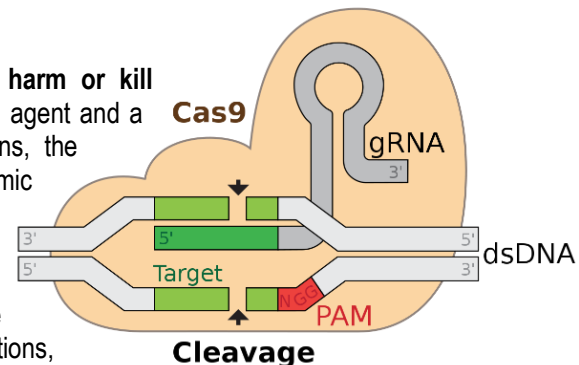


#### Riot control agents

Riot control agents (tear gas, pepper spray) are intended to temporarily incapacitate a person by irritating the eyes, mouth, and skin or constricting the airways. They are considered chemical weapons if used at war but not if used for domestic law enforcement purposes. They are dispersed as liquids or aerosols.

#### Biological weapons

**Biological weapons<sup>3</sup> disseminate disease-causing organisms or toxins to harm or kill humans, animals, or plants.** They generally consist of two parts – a weaponized agent and a delivery mechanism. Biological weapons can be used for political assassinations, the infection of livestock or agricultural production to cause food shortages and economic loss, the creation of environmental catastrophes, and the introduction of widespread illness, fear, and mistrust among the public. Without implying a deliberate release of coronavirus SARS-CoV-2, the ongoing pandemic is a fine example of what bioterrorism might look like. Bacteria, viruses, fungi, prions, rickettsia, or toxins have been weaponized, and a variety of delivery mechanisms can be used such as munitions, spraying aircraft and drones, trucks, contamination of food and clothing, etc. Technological advances (i.e., CRISPR<sup>4</sup>) can be used by non-state actors (lone wolves, terrorists). The main advantage of biological warfare agents is that it is difficult to determine and classify a biological event since the incubation period provides enough time for perpetrators to escape. Biological agents are categorized as follows<sup>5</sup>:



<sup>3</sup> What are Biological Weapons? UN Office of Disarmament Affairs. Available from <https://www.un.org/disarmament/biological-weapons/about/what-are-biological-weapons/>

<sup>4</sup> Nicholas Cropper (Apr 29, 2020). CRISPR is Making Bioweapons More Accessible. American Security Project. Available from <https://www.americansecurityproject.org/crispr-is-making-bioweapons-more-accessible/>

<sup>5</sup> Bioterrorism agents/diseases. CDC. Available from <https://emergency.cdc.gov/agent/agentlist-category.asp>



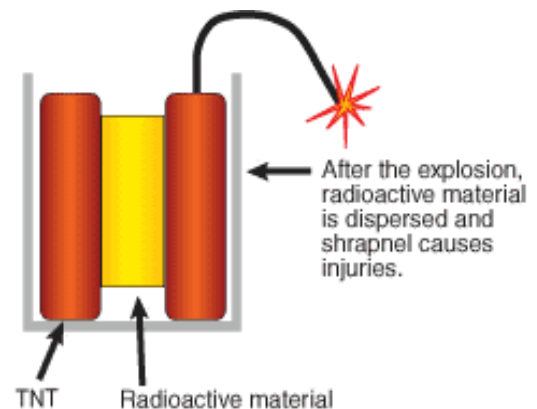
**Category A:** Agents that pose a risk to national security because they can easily be transmitted from person to person, have high mortality, can cause public panic and social disruption, and require public health intervention. The following agents belong in this category: *Bacillus anthracis* causing anthrax, *Clostridium botulinum* toxin causing botulism, *Yersinia pestis* causing the plague, *variola major* causing smallpox, *Francisella tularensis* causing tularemia and viral hemorrhagic fevers (Ebola, Marburg, Lassa, Machupo). *Francisella tularensis* can survive for weeks in cold, moist environments including water, soil, hay, straw, and decaying animal carcasses<sup>6</sup>. *Bacillus anthracis*' spores are very hardy and tolerant (years) to extremes of temperature, humidity, and ultraviolet light. They can survive for long periods of time (even decades) in the environment without nutrients or water<sup>7</sup>.

**Category B:** Agents that are easy to disseminate, have moderate morbidity and low mortality, and require enhanced disease surveillance. The following diseases are caused by agents belonging to this category: brucellosis (*Brucella* species), food poisoning (*Salmonella* species, *Escherichia coli* O157:H7, *Shigella*), Glanders (*Burkholderia mallei*), Melioidosis (*Burkholderia pseudomallei*), Psittacosis (*Chlamydia psittaci*), Q fever (*Coxiella burnetii*), malicious use of toxins (ricin from castor beans [*Ricinus communis*]; E-toxin of *Clostridium perfringens*), typhus (*Rickettsia prowazekii*), viral encephalitis (eastern equine encephalitis, Venezuelan equine encephalitis, and western equine encephalitis), or water safety threats (*Vibrio cholerae*, *Cryptosporidium parvum*).

**Category C:** Agents that could be engineered for mass dissemination in the future because of availability, ease of production and dissemination, and potential for high morbidity and mortality rates and major health impact due to lack of specific antibiotics/antivirals or vaccines – i.e., Nipah virus and hantavirus.

### Radiological threats<sup>8</sup>

While nuclear and other radiological materials have benefited society in areas of medicine, agriculture, industry, and energy they can be used maliciously as well. Radiation emergencies may be intentional (contamination of food/water, spreading material with an improvised explosive device, exposure of people to an unshielded radioactive source, deliberate spill while in transit), or unintentional (nuclear blast, nuclear reactor, and transportation accidents). The detonation of an improvised nuclear or dispersal or emitting device might cause no more victims than a conventional explosion but it will create panic and have serious consequences on economic and political stability<sup>9</sup>.



### C<sup>2</sup>BRNe

The rapid development of information technologies (artificial intelligence, deep learning, machine learning, ChatGPT, etc.) generated new hacking methodologies many of which are directed against national assets and critical infrastructures<sup>10</sup>. In that respect, a second "C" can be added to the CBRN acronym indicating that "Cyber" threats can be combined with all CBRN threats in various forms and levels.

<sup>6</sup> Factsheet on tularaemia. European Center for Disease Prevention and Control (ECDC). Available from <https://www.ecdc.europa.eu/en/tularaemia/facts>

<sup>7</sup> Bacillus anthracis (Anthrax). Johns Hopkins Bloomberg School of Public Health, Center for Health Security. Available from <https://www.centerforhealthsecurity.org/our-work/publications/bacillus-anthraxis-anthrax-fact-sheet>

<sup>8</sup> Radiological and Nuclear terrorism. Interpol. Available from <https://www.interpol.int/en/Crimes/Terrorism/Radiological-and-Nuclear-terrorism>

Radiological threat agents. CDC. Available from [https://www.cdc.gov/nceh/dls/radiologic\\_threat\\_agents.html](https://www.cdc.gov/nceh/dls/radiologic_threat_agents.html)

<sup>9</sup> Radiation Emergency Medical Management (REMM). US Department of Health & Human Services. Available from <https://remm.hhs.gov/>

<sup>10</sup> Top 15 Hot Artificial Intelligence Technologies. Edureka! Feb 04, 2023. Available from <https://www.edureka.co/blog/top-15-hot-artificial-intelligence-technologies/>



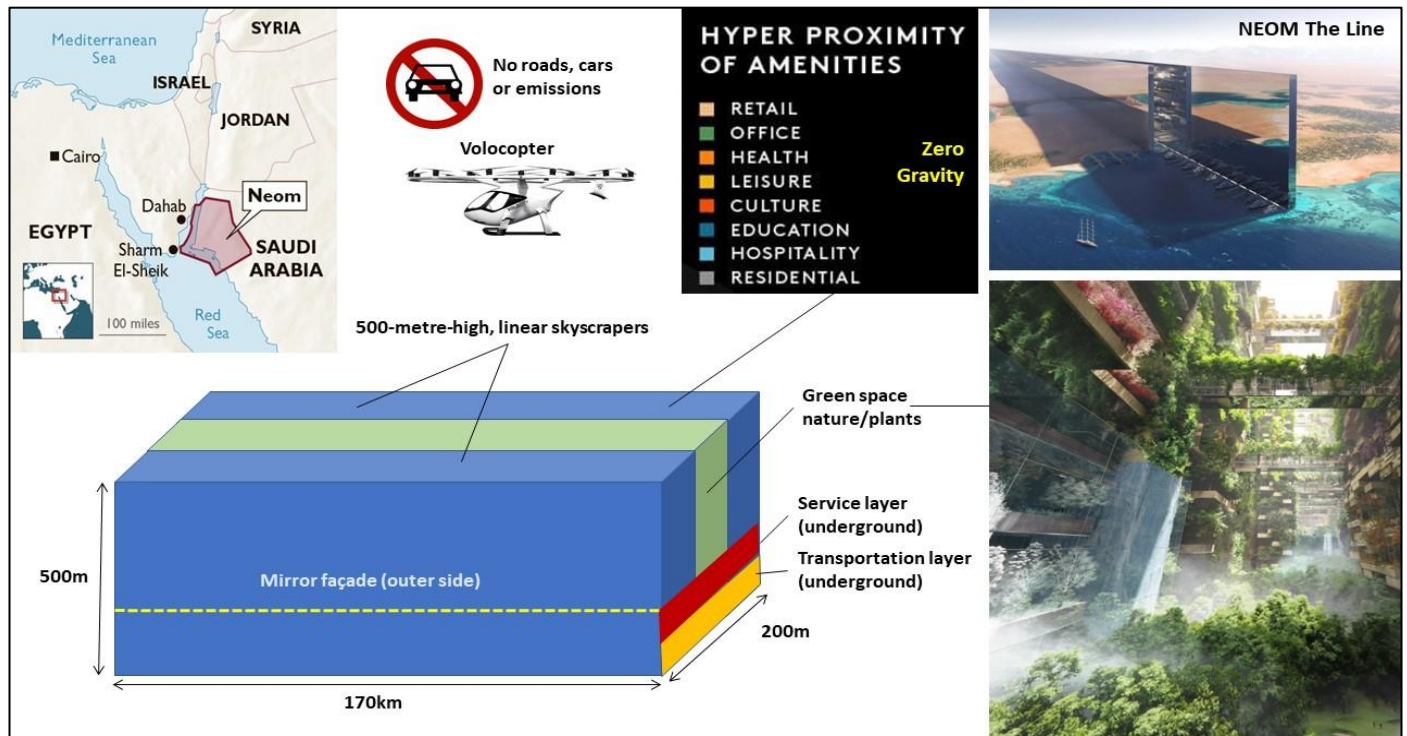


## NEOM – The Line

The Line is part of the overall “NEOM giga-project (NEOM acronym is a composition of the Greek word “NEO” (new) and “M” from the name of HE Crown Prince and Prime Minister Mohammad Bin Salman Al Saud and the word “mustaqbal” meaning “future” in Arabic).

The project can be described as a “living laboratory”, where entrepreneurship will make a new future through investment and research in various fields that will bring about a promising future of sustainability and development. The Line is a civilizational revolution that puts humans first, providing an unprecedented urban living experience while preserving the surrounding nature. It redefines the concept of urban development and what cities of the future should look like. Some facts about the vertical city “The Line”:

**Location:** In the Northwest of Saudi Arabia on the Red Sea, close to the borders with Egypt (Sina Peninsula), Jordan (Aqaba), and Israel (Eilat).



**Size:** Two mirrored parallel 500-meter-high skyscrapers (Empire State Building 450m; Eiffel Tower 330m), 170 kilometers long and 200 meters wide connected with bridges over a green space (nature, trees, vegetation).

**Levels:** Three levels; one overground (zero gravity structure combining retail, office, health, leisure, culture, education, hospitality, and residential) and two underground (service layer and spine layer [transportations]).

**Population:** 9-10 million (when completed) – almost half the population of New York City – on a footprint of just 34 km<sup>2</sup>.

**Average population density:** 260,000 people/km<sup>2</sup> – by comparison, Manila, the world's most densely populated city in 2020, had a density of 44,000/km<sup>2</sup>.

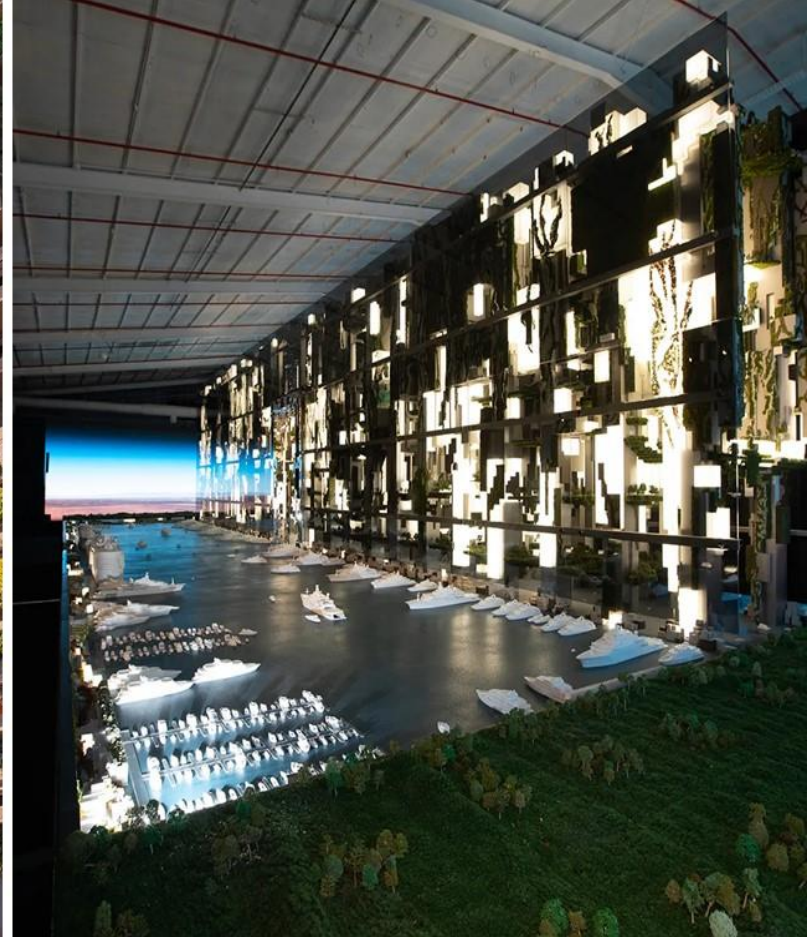
**Environmental issues:** No roads, cars, or emissions, it will run on 100% renewable energy and 95% of the land will be preserved for nature. Residents will have access to all facilities within a five-minute walk, in addition to high-speed rail – with an end-to-end transit of 20 minutes. Special focus will be given to protection from earthquakes.

**Transportations:** Red Sea International Airport<sup>11</sup> is set to open by the end of 2023 (40% of the world is less than 6 hours away by air) and is expected to serve one million passengers annually; Volocopters will be used for people and goods within the city.

<sup>11</sup> Red Sea Airport to open by the end of 2023. Airways Magazine. Available from <https://airwaysmag.com/saudi-arabia-red-sea-airport/>







### C<sup>2</sup>BRN challenges

The high population density (The line: 260,000 people/km<sup>2</sup> | Riyadh: 4,300 people/km<sup>2</sup> | London: 5,596/km<sup>2</sup>) is ideal for the spread of all categories of bioterrorism pathogens. The zero-gravity structure provides a mixture of targets very different from horizontal cities. It would be pretty much interesting to see how an Ebola case from an apartment will be transferred to a healthcare facility – could be via ultra-fast subway or a Volocopter; but then comes the decontamination of these means of transportation and the high cost of the entire operation. It would be interesting to see an innovative ambulance service in a city with no roads or cars – even for ordinary emergencies. If a post office is attacked, it would be difficult to isolate it and more difficult to decontaminate it – e.g., the New Jersey post office during the Amerithrax in the US<sup>15</sup>.

There are certain instances that an entire city or parts of a city should be evacuated – i.e., extreme weather phenomena or the release of a hazardous substance. Are existing ultrafast elevators meant for everyday use, sufficient to facilitate frustrated crowds? Same for the massive transportation means. And then at the end of the line, a huge fleet of buses (available 365/24/7) is required to evacuate citizens since the distance from Riyadh is 20 hr 16 min (1,742.6 km).

If evacuation is not possible the next best alternative would be to *shelter in place*. But you need certain materials to do that unless the structure of buildings has already provided “safe rooms” (like those in a certain Middle East country) protecting from CBRN/HazMat agents. These safe rooms can also provide anti-ballistic protection if one over the other – but this is a bit complicated when you have to mix flats, offices, or stores.

In case of a chemical or radiological incident, the usual procedure is that CBRN First Responders are rushing to the incident site with their big vehicles carrying personnel, specialized equipment, decontamination material, etc. But again, no roads/no cars is a problem and **Volocopters** (photo right) cannot either land anywhere or carry big loads. Even the strategic distribution of specialized equipment in various locations and levels within The Line is not quite promising and rather difficult to handle. In addition, it is expected that those who happened to be in the hot zone (incident site) and survived able to run or walk will flee either to their residencies or to the nearest healthcare facility – the only problem is that these people are contaminated and might contaminate others including the medical/nursing personnel that will try to assist them. In addition, a big number of “worried





well” citizens<sup>12</sup> frustrated by the “breaking news” (ratio 1 [contaminated] vs. 5 [not contaminated]) will flood the hospitals consuming sources (experience from the Tokyo sarin incident<sup>2</sup>). It is needless to say that physicians and nurses in the hospital’s emergency department should be properly equipped and trained to handle chemical and radiological emergencies – something that is rather the exception not the rule worldwide. A rather complicated issue is the transfer of non-ambulatory contaminated victims to hospitals – perhaps with ambulance train cars? What if the incident targets the trains themselves? What if the release is based exactly on the air currents generated inside the tunnels – kind of a domino effect? What if an improvised explosive device interrupts the movement of trains – most probably single rails? Do not forget that the hospital itself is a target – it is the ultimate target for the additional reason that there are radiological elements<sup>13</sup> that can be activated following a terrorist IED attack – i.e., the Department of Nuclear Medicine; the Radiotherapy Department, or the Blood Bank<sup>14</sup>.

Decontamination itself poses the biggest problem. The standard operating procedure is that decontamination is performed as close to the hot zone (warm zone). Based on the Tokyo experience<sup>15</sup>, 20% of victims will remain in the hot zone (dead, severely injured, and/or contaminated) and 80% (contaminated) able to walk will end up at ALL hospitals and healthcare facilities all over the affected city arriving there by their own means or public transportation. This universal model is not applicable in a vertical city like The Line. Therefore, innovative solutions for large-scale public decontamination should be applied. It is known that the most effective decontamination is the removal of contaminated clothing. This might be accepted by male victims, but the problem is with Muslim women that happened to be in the hot zone. Artificial intelligence-driven autonomous decontamination stations could be a solution without human presence. It is also an opportunity to develop everyday clothing (i.e., abaya, hijab, kaftan, thobe, etc.), with anti-CBRN properties taking advantage of modern nanomaterials on fabrics<sup>16</sup>. In addition, infrastructure decontamination is a laborious and expensive procedure – e.g., the decontamination of the New Jersey Post Office contaminated with anthrax spores cost about \$320 million<sup>17</sup> – and if the agent released is radiological<sup>18</sup> contamination might last for decades depending on the half-life of the isotope (e.g., for Cesium-137 is 30 years while for Americium-241 [isotope<sup>19</sup> used in ceiling fire alarms] is 430 years) or a “ghost section” will be established (i.e., Pripyat, Ukraine or Namie, Fukushima, Japan).

The management of contaminated wastewater poses an additional problem. Since there is no suitable space to deploy controlled decontamination tents collecting waste in bladders, contaminated water should be collected via the central sewage network and then submitted to special processing (e.g., high-temperature plasma gasification<sup>20</sup>) that will eventually destroy all the harmful materials. It is almost sure that all premises will be facilitated by a central heating, ventilation, and air conditioning (HVAC) system located in the underground service layer driven by artificial intelligence that can be hacked. In addition, releasing chemical or radiological agents via the pipelines can easily spread contamination to big portions of the city before security authority orders total or partial lockdown based on the sensors’ indications – that can be hacked as well.

<sup>12</sup> Fred P. Stone (2007): The “Worried Well” Response to CBRN Events: Analysis and Solutions. The Counter-proliferation Papers Future Warfare Series No. 40; USAF Counter-proliferation Center, Air University Maxwell Air Force Base, Alabama. Available from <https://irp.fas.org/threat/cbw/worried.pdf>

<sup>13</sup> Radioisotopes in medicine. World Nuclear Association. Available from <https://world-nuclear.org/information-library/non-power-nuclear-applications/radioisotopes-research/radioisotopes-in-medicine.aspx>

<sup>14</sup> Preventing a dirty bomb: Vulnerabilities Persist in NRC’s Controls for Purchases of High-Risk Radioactive Materials. United States Government Accountability Office; July 2022. Available from <https://www.gao.gov/assets/gao-22-103441.pdf>

<sup>15</sup> Robyn Pangi (2002): Consequence Management in the 1995 Sarin Attacks on the Japanese Subway System. BCSIA Discussion Paper 2002-4, ESDP Discussion Paper ESDP- 2002-01, John F. Kennedy School of Government, Harvard University. Available from [https://www.belfercenter.org/sites/default/files/legacy/files/consequence\\_management\\_in\\_the\\_1995\\_sarin\\_attacks\\_on\\_the\\_japanese\\_subway\\_system.pdf](https://www.belfercenter.org/sites/default/files/legacy/files/consequence_management_in_the_1995_sarin_attacks_on_the_japanese_subway_system.pdf)

<sup>16</sup> Second Skin: Transforming Breathable Fabric to Protective Garments As Needed. CBRN Central. Available from <https://cbrnecentral.com/second-skin-transforming-breathable-fabric-to-protective-garment-as-needed/11325/>

<sup>17</sup> Ketra Schmitt and Nicholas A. Zacchia. Total Decontamination Cost of the Anthrax Letter Attacks. Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science Volume 10, Number 1, 2012. Available from [https://spectrum.library.concordia.ca/id/eprint/974056/1/Schmitt\\_Spectrum.pdf](https://spectrum.library.concordia.ca/id/eprint/974056/1/Schmitt_Spectrum.pdf)

<sup>18</sup> Potential Isotopes Used in RDDs. Radiation Emergency Medical Management (REMM). Available from <https://remm.hhs.gov/rdd.htm#isotopes>

<sup>19</sup> Radiologic Terrorism. Radiology Key. Available from <https://radiologykey.com/radiologic-terrorism/>

<sup>20</sup> Wastewater sludge gasification. HotZone Solutions. Available from <https://hotzonesolutions.org/hazardous-waste-management/>



Water is an important target and can be used to spread hazardous materials (chemical, biological, and radiological) starting from the advanced desalination factories to the water taps despite the detection defenses located in various levels of the pipelines. It should be kept in mind that anthrax spores<sup>21</sup> can survive chlorination – and so does *Cryptosporidium*, *Giardia lamblia*, or *E. coli*<sup>22</sup>.

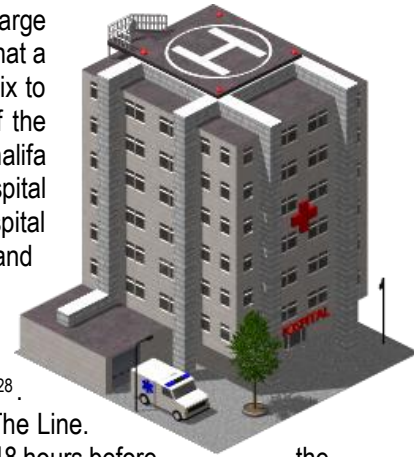
The structure of the city is ideal for drone spraying pathogens (e.g., anthrax spores). Therefore, a drone attack of any kind should be prevented with the aid of drone catchers<sup>23</sup> or similar technologies<sup>24</sup> (i.e., advanced jammers) driven by AI. Keep in mind that cheap commercial drones can carry grenades and improvised explosive devices that can be combined with small amounts of chemical or radiological agents<sup>25</sup>. In addition, CBRN detection, everywhere in the city is mandatory for the early warning of response forces. Modern sensors can do that effectively despite the expected wrong positive alarms. Stand-off detectors strategically located in the perimeter of the NEOM project could provide valuable information. Sabotaging the city's entries/exits with an area denial dirty bomb<sup>26</sup> will cause a lot of problems even if nobody is killed. Of course, the shape of The Line is ideal for a MANPADS attack from the Red Sea and this possibility should also be considered – no big damage but enormous panic will result.

Some experts suggest that there should be at least one hospital bed for every 1,000 people. This would mean that a country with a population of 10 million would need at least 10,000 hospital beds. Other experts believe that the number of hospital beds per population should be even higher, at around 2-3 per 1,000 people. This would mean that a country with a population of 10 million would need at least 20,000-30,000 hospital beds<sup>27</sup>. In the United States, there are approximately 2.8 hospital beds per 1,000 people. In contrast, in Japan, there are approximately 13 hospital beds per 1,000 people.

Assuming that the final population of The Line is close to 10 million inhabitants and the fact that a “large hospital” is one with 500 beds, approximately 20 large hospitals will be required. It should be noted that a hospital differs from an apartment, a bank, a corporate company, a mall, or a supermarket. It is a six to 10-floor building that needs to have certain ergonomics to be functional. Of course, the height of the skyscrapers (500m) equals more or less 100 floors (Empire State Building has 102 floors and Burj Khalifa has 160 habitable levels). The only thing that is difficult to handle is the fact that in a vertical city, a hospital has no outside surrounding space that will become a warm zone around the green zone of the hospital itself. This means that CBRN-contaminated victims will go directly into the emergency department and all the procedures should be done there before hospitalization (if required). Therefore, the entire hospital should be under positive (nothing from outside goes in) and negative (nothing from inside goes out) pressure depending on the situation. The use of autonomous medical robots for various tasks is expected (from laundry transfer to disinfection of rooms/wards/operation rooms/ICUs)<sup>28</sup>.

Outside connecting structures might offer better defenses but they will distort the overall shape of The Line.

In addition, these hospitals should have a sufficient CBRN pharmaceutical stockpile to cover the first 48 hours before the activation of the national specialized stockpile – antidotes, diazepam, antibiotics, antivirals, and anti-radiation drugs. If hospitals are on the top floors of the giga-skyscrapers better aerial communication with the outside world will be achieved.



<sup>21</sup> Anthrax Spores May Survive Water Treatment. Wastewater Digest. Available from <https://www.wwdmag.com/home/news/10910695/anthrax-spores-may-survive-water-treatment>

<sup>22</sup> Mystery of Cl2 resistant pathogens. APEC Water. Available from [https://www.freedrinkingwater.com/water\\_quality/quality1/1-cl2-resistant-pathogens.htm](https://www.freedrinkingwater.com/water_quality/quality1/1-cl2-resistant-pathogens.htm)

<sup>23</sup> DroneCatcher – A Delft Dynamics product. Available from <https://dronecatcher.nl/#Introduction>

<sup>24</sup> Alia Shoaib (Feb 18, 2023). How Ukraine uses high-tech anti-drone guns to down Russian drones and recover intelligence from them. Insider. Available from <https://www.businessinsider.com/ukraines-anti-drone-guns-down-russian-drones-recover-intelligence-2023-2>

<sup>25</sup> Drone 'containing radiation' lands on roof of Japanese PM's office. The Guardian (April 22, 2015). Available from <https://www.theguardian.com/world/2015/apr/22/drone-with-radiation-sign-lands-on-roof-of-japanese-prime-ministers-office>

<sup>26</sup> Alexis Rump, Patrick Ostheim, Stefan Eder, et al. Preparing for a “dirty bomb” attack: the optimum mix of medical countermeasure resources. *Military Medical Research* volume 8, Article number: 3 (2021). Available from <https://mmrjournal.biomedcentral.com/articles/10.1186/s40779-020-00291-3>

<sup>27</sup> How Many Hospital Beds Per Population Is Ideal? Excel Medical. Available from <https://www.excel-medical.com/how-many-hospital-beds-per-population-is-ideal/>

<sup>28</sup> Henry Ford Uses Germ-Fighting Robots to Combat COVID-19 in Hospital Rooms. Henry Ford Health (December 11, 2020). Available from <https://www.henryford.com/news/2020/12/uv-light-disinfection-robots>

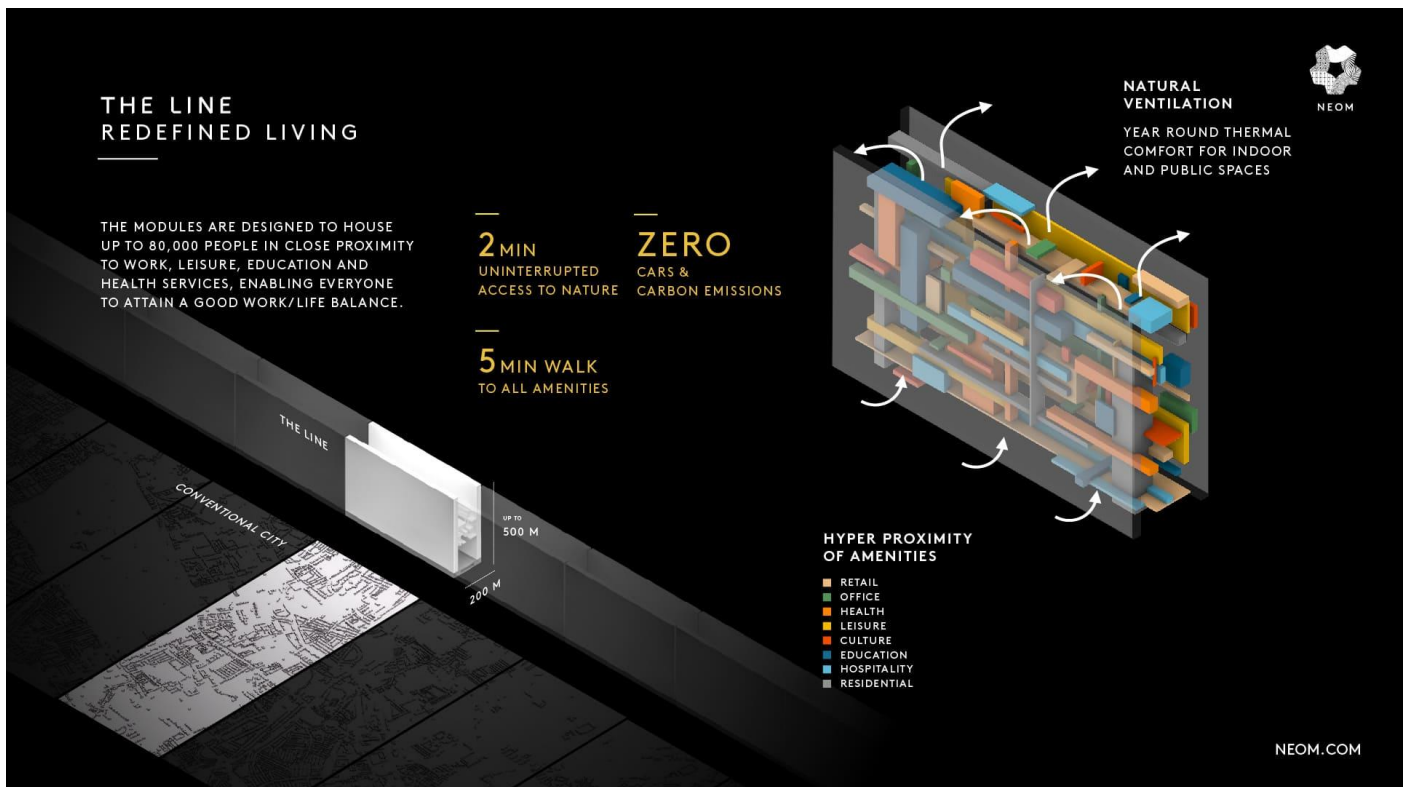




## ICI C<sup>2</sup>BRNE DIARY – April 2023

There is no reason to point out that since almost all functions will be computerized and AI-connected, cutting-edge cyber defenses should be in place but even then, hacking is not out of question and can be combined with a CBRN attack. A simple denial of services can ignite chaos and magnify losses.

Last but not least, is the issue of CBRN training. It is common sense that when constructing a building or critical infrastructure there is no need to add counter-CBRN structures since this is up to the state to deal with them. Logic one might say but away from reality worldwide. It is less expensive and more efficient to add CBRN structures during the design stage than to add them afterward and usually after a catastrophe – the norm is that the unexpected always happens even if it is once in a million times. This principle is of utmost importance for hospitals where all casualties ends. But structures without proper specialized equipment and training mean absolutely nothing. There is a training circle that needs to be scholastically followed starting from theoretical training all the way to live agents training. A single CBRN course is not sufficient to provide dexterity and train the mind to solve complex scenarios that might occur – it is well known that “*no plan survives contact with the enemy*” (Prussian Field Marshal Helmuth von Moltke). Training is not only for the personnel of the emergency department but also for all specialties within a hospital and even for non-healthcare personnel. In addition, the most important player that is the citizens are left out of the game in all emergency response plans around the globe. Lay people, students and teachers of all levels, workers, office employees, and people with special needs should have basic CBRN knowledge and know what to do if notified that a real incident took place in their city. It is not known if the new city will host one or more universities or even a medical/nursing/ dental/veterinary school; but if there is such a school it would be wise to add “CBRNE Medicine” to its curriculum. Such knowledge will boost the differential diagnostic capabilities of front-line health professionals of tomorrow. AI systems should also be taught about CBRN threats and management options to be able to support humans.



### Conclusions

- It is wiser and less expensive to incorporate CBRN defenses during the design/construction phase than to add them later or even worse, after a real incident.
- The collaboration of architects and civil engineers with CBRN experts will solve many problems and fill gaps in a project never addressed before regarding asymmetric threats.
- Preparedness is the ultimate confidence builder!
- By failing to prepare, we are preparing to fail! And failure to deal with a CBRN attack will severely hurt the “face” of the nation and among others the tourism industry that it will take years to recover.



## CBRN challenges in giga/mega projects – Kingdom of Saudi Arabia: Part II: Sindalah, Trojena, Oxagon, AIUla, Red Sea Project, Amaala, Qiddya, Ad Diriyah, Mukaab

Mukaab

By Brigadier General (ret.) Ioannis Galatas, MD, MSc (Terr), HAMC<sup>1</sup>

<sup>1</sup> Manager, CBRN Knowledge Center @ International CBRNE Institute, Belgium | Editor-in-Chief “C<sup>2</sup>BRNE Diary”, Athens, Greece

### Abstract

Saudi Arabia is creating a host of giga/mega-projects and attractions as part of the Public Investment Fund's Vision 2030. This aims to diversify the economy and reduce the kingdom's reliance on oil. These projects and new entertainment experiences are designed to stimulate the economy. Despite the importance of these ambitious infrastructures, each giga/mega-project automatically becomes a landmark, and a landmark was always an attractive terrorist target – conventional and asymmetric/CBRNe. In addition, a number of these projects pose unique, never addressed CBRN challenges that require out-of-the-box solutions by joint architects-civil engineers-CBRN experts/emergency medicine experts' teams. This paper will address the cases of Sindalah, Trojena, Oxagon, AIUla, Red Sea Project, Amaala, Qiddya, Ad Diriyah, Mukaab projects which is the crown of urban building innovation and a future living proposal.

### Keywords

Giga project; CBRNe; CWA; RDD/RED; asymmetric; Sindalah; Trojena; Oxagon; AIUla; Red Sea Project; Amaala; Qiddya; Ad Diriyah; NEOM, KSA

### Abbreviations used

CBRN – Chemical, Biological, Radiological, Nuclear (threats)

CBRNe - Chemical, Biological, Radiological, Nuclear, Explosives (threats)

IED – Improvised Explosive Device

AI – Artificial Intelligence

RDD – Radiological Dispersal Device | RED – Radiological Emitting Device

CWA – Chemical Warfare Agents

CBRN threats are collectively categorized as weapons of mass destruction, but this is not accurate since only the use of nuclear weapons is truly destructive; all the rest are disruptive threats except for the release of a biological warfare agent that if not contained on time might turn to a pandemic. All the assumptions described herein are based on articles, papers, photos, and videos available on the Internet. There is no detailed description of proposals related to certain CBRN gaps or peculiarities due to security reasons.

### Chemical weapons

A chemical warfare agent<sup>29</sup> (chemical weapon) is a chemical used to cause intentional death or harm through its toxic properties affecting humans, animals, and plants. Chemical agents can be disseminated with or without the use of (improvised) explosives (i.e., the 1995 Tokyo subway sarin attack<sup>30</sup>). Munitions, devices, and other equipment specifically designed to weaponize toxic chemicals also fall under the definition of chemical weapons that are classified as follows.

#### Choking agents

They irritate the nose, throat, and especially the lungs. When inhaled, these agents cause alveoli (air sacs in the lungs) to secrete fluid, essentially drowning those affected. Chlorine, chloropicrin, diphosgene, and phosgene can be dispersed in gas form.

<sup>29</sup> What is a chemical weapon? Organization for the Prohibition of Chemical Weapons (OPCW). Available from <https://www.opcw.org/our-work/what-chemical-weapon>

<sup>30</sup> Tokyo subways are attacked with sarin gas. History (March 20, 1995). Available from <https://www.history.com/this-day-in-history/tokyo-subways-are-attacked-with-sarin-gas>





### *Blister agents*

These oily substances act via inhalation and contact, affecting the eyes, respiratory tract, and skin, first as an irritant and then as a cell poison. Exposure causes large and often life-threatening skin blisters which resemble severe burns, and often result in blindness and permanent damage to the respiratory system. Morbidity is high but mortality is relatively small. Sulfur and nitrogen mustard, lewisite, and phosgene oxime represent the main chemicals in this category available for dispersal as liquid, aerosol, vapor, and dust.

### *Blood agents*

Blood agents such as hydrogen cyanide, cyanogen chloride, and arsine, inhibit the ability of cells to use oxygen effectively causing the body to suffocate. Some blood agents may also affect the ability of blood cells to transfer oxygen. Blood agents are distributed via the blood (and skin) and cause the inhibition of the cytochrome-C oxidase enzyme damaging vital organs (central nervous system, cardiovascular system, and respiratory system).

### *Nerve agents*

Nerve agents block an enzyme called acetylcholinesterase in the nervous system resulting in the accumulation of a neurotransmitter between nerve cells or across synapses leading to hyper-stimulation of muscles, glands, and other nerves. They act very fast primarily by absorption through the skin and lungs. Nerve agents are divided into two main groups: G-series agents and V-series agents, named for their military designations. Some G-agents (tabun and sarin), persist in the environment for only short periods while others (soman and cyclo-sarin) persist longer and present a greater threat to the skin. V-agents (VX) are extremely potent, with only milligrams (skin) needed to cause death and persist for long periods in the environment. They can be dispersed as liquids, aerosols, vapors, or dust. Overstimulation of the parasympathetic system affects the peripheral and central nervous systems, causing lacrimation, salivation, sweating, blurred vision, headache, difficulty in breathing, and vomiting. In higher doses, nerve agents cause seizures, loss of body control, muscle paralysis (including heart and diaphragm), and unconsciousness/ death.

The more volatile agents like chlorine, phosgene and hydrogen cyanide are non-persistent agents<sup>31</sup> whereas the less volatile agents like sulfur mustard and VX are persistent agents<sup>31</sup>.

### *Riot control agents*

Riot control agents (tear gas, pepper spray) are intended to temporarily incapacitate a person by irritating the eyes, mouth, and skin or constricting the airways. They are considered chemical weapons if used at war but not if used for domestic law enforcement purposes. They are dispersed as liquids or aerosols.

## **Biological weapons**

Biological weapons<sup>32</sup> disseminate disease-causing organisms or toxins to harm or kill humans, animals, or plants. **They** generally consist of two parts – a weaponized agent and a delivery mechanism. Biological weapons can be used for political assassinations, the infection of livestock or agricultural production to cause food shortages and economic loss, the creation of environmental catastrophes, and the introduction of widespread illness, fear, and mistrust among the public. Without implying a deliberate release of coronavirus SARS-CoV-2, the ongoing pandemic is a fine example of what bioterrorism might look like. Bacteria, viruses, fungi, prions, rickettsia, or toxins have been weaponized, and a variety of delivery mechanisms can be used such as munitions, spraying aircraft and drones, trucks, contamination of food and clothing, etc. Technological advances (i.e., CRISPR<sup>33</sup>) can be used by non-state actors (lone wolves, terrorists). The main advantage of biological warfare agents is that it is difficult to determine and classify a

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<sup>31</sup> K. Ganesan, S. K. Raza, and R. Vijayaraghavan. Chemical warfare agents. J Pharm Bioallied Sci. 2010 Jul-Sep; 2(3): 166–178. Available from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3148621/>

<sup>32</sup> What are Biological Weapons? UN Office of Disarmament Affairs. Available from <https://www.un.org/disarmament/biological-weapons/about/what-are-biological-weapons/>

<sup>33</sup> Nicholas Cropper (Apr 29, 2020). CRISPR is Making Bioweapons More Accessible. American Security Project. Available from <https://www.americansecurityproject.org/crispr-is-making-bioweapons-more-accessible/>



biological event since the incubation period provides enough time for perpetrators to escape. Biological agents are categorized as follows<sup>34</sup>:

**Category A:** Agents that pose a risk to national security because they can easily be transmitted from person to person, have high mortality rates, can cause public panic and social disruption, and require public health intervention. The following agents belong in this category: *Bacillus anthracis* causing anthrax, *Clostridium botulinum* toxin causing botulism, *Yersinia pestis* causing the plague, *variola major* causing smallpox, *Francisella tularensis* causing tularemia and viral hemorrhagic fevers (Ebola, Marburg, Lassa, Machupo).

In 1942, The island became a sacrifice zone, and was dangerous for all mammals after military experiments with the anthrax bacterium, until it was decontaminated in 1990.

*Francisella tularensis* can survive for weeks in cold, moist environments including water, soil, hay, straw, and decaying animal carcasses<sup>35</sup>. *Bacillus anthracis*' spores are very hardy and tolerant (years) to extremes of temperature, humidity, and ultraviolet light. They can survive for long periods of time (even decades) in the environment without nutrients or water<sup>36</sup>.



**Category B:** Agents that are easy to disseminate, have moderate morbidity and low mortality, and require enhanced disease surveillance. The following diseases are caused by agents belonging to this category: brucellosis (*Brucella* species), food poisoning (*Salmonella* species, *Escherichia coli* O157:H7, *Shigella*), Glanders (*Burkholderia mallei*), Melioidosis (*Burkholderia pseudomallei*), Psittacosis (*Chlamydia psittaci*), Q fever (*Coxiella burnetii*), malicious use of toxins (ricin from castor beans [*Ricinus communis*]; E-toxin of *Clostridium perfringens*), typhus (*Rickettsia prowazekii*), viral encephalitis (eastern equine encephalitis, Venezuelan equine encephalitis, and western equine encephalitis), or water safety threats (*Vibrio cholerae*, *Cryptosporidium parvum*).

**Category C:** Agents that could be engineered for mass dissemination in the future because of availability, ease of production and dissemination, and potential for high morbidity and mortality rates and major health impact due to lack of specific antibiotics/antivirals or vaccines – i.e., Nipah virus and hantavirus.

### Radiological threats<sup>37</sup>

While nuclear and other radiological materials have benefited society in areas of medicine, agriculture, industry, and energy they can be used maliciously as well. Radiation emergencies may be intentional (contamination of food/water, spreading material with an improvised explosive device, exposure of people to an unshielded radioactive source, deliberate spill while in transit), or unintentional (nuclear blast, nuclear reactor, and transportation accidents). The detonation of an improvised nuclear or dispersal or emitting device might cause no more victims than a conventional explosion but it will create panic and have serious consequences on economic and political stability<sup>38</sup>.

<sup>34</sup> Bioterrorism agents/diseases. CDC. Available from <https://emergency.cdc.gov/agent/agentlist-category.asp>

<sup>35</sup> Factsheet on tularaemia. European Center for Disease Prevention and Control (ECDC). Available from <https://www.ecdc.europa.eu/en/tularaemia/facts>

<sup>36</sup> Bacillus anthracis (Anthrax). Johns Hopkins Bloomberg School of Public Health, Center for Health Security. Available from <https://www.centerforhealthsecurity.org/our-work/publications/bacillus-anthraxis-anthrax-fact-sheet>

<sup>37</sup> Radiological and Nuclear terrorism. Interpol. Available from <https://www.interpol.int/en/Crimes/Terrorism/Radiological-and-Nuclear-terrorism> Radiological threat agents. CDC. Available from [https://www.cdc.gov/nceh/dls/radiologic\\_threat\\_agents.html](https://www.cdc.gov/nceh/dls/radiologic_threat_agents.html)

<sup>38</sup> Radiation Emergency Medical Management (REMM). US Department of Health & Human Services. Available from <https://remm.hhs.gov/>





## C<sup>2</sup>BRNe

The rapid development of information technologies (artificial intelligence, deep learning, machine learning, ChatGPD, etc.) generated new hacking methodologies many of which are directed against national assets and critical infrastructures<sup>39</sup>. In that respect, a second “C” can be added to the CBRN acronym indicating that “Cyber” threats can be combined with all CBRN threats in various forms and levels.

## The giga/mega projects

All the projects to be mentioned below aim to boost the tourism/economy of Saudi Arabia by attracting wealthy visitors from all over the world. Thus, any CBRN incident will automatically affect more than one country and attract global attention and criticism.

## NEOM Sindalah Island

Saudi Arabia is currently undertaking an ultra-luxurious tourism project dubbed Sindalah Island, slated for a 2024 opening. The resort will include a beach club, yacht club, spa, and wellness center plus 51 luxury retail outlets – in addition to luxury hotels and a large marina. Sindalah's 86-berth marina and 75 offshore buoys will become a new spot for the world's most spectacular vessels; ideally located in the Red Sea. Three breathtaking hotels (including one 6-star hotel; 50 rooms), offering 413 rooms – including 88 villas – as well as 333 serviced apartments. The new island will be



home to around 40 restaurants. The aim is to welcome 2,400 people per day to NEOM's Sindalah Island by 2028. Similar to The LINE, Sindalah Island hopes to allow residents to travel everywhere they need within a five-minute walk. The island will have no roads or cars. Moreover, the public realm strategy will focus on encouraging social interaction, inspiring views, and incredible experiences, all while being backed by cutting-edge technology. Interestingly, the island is shaped like a seahorse, which is a perfect metaphor because the island, like that creature, is superbly unique and different.

<sup>39</sup> Top 15 Hot Artificial Intelligence Technologies. Edureka! Feb 04, 2023. Available from <https://www.edureka.co/blog/top-15-hot-artificial-intelligence-technologies/>



### C<sup>2</sup>BRNE challenges

The biggest challenge is an attack with a bioterrorism pathogen that will affect the food chain of hotels and restaurants on the island similar to the 1984 Rajneeshee bioterror attack (751 people suffered food poisoning in The Dalles, Oregon, United States, due to the deliberate contamination of salad bars at ten local restaurants with Salmonella<sup>40</sup>). In 2013 a total of 67 guests succumb to vomiting and diarrhea due to norovirus after dining at Noma<sup>41</sup>, Denmark's most famous gourmet restaurant - three Michelin stars and voted five times as the best restaurant in the world<sup>42</sup>.

A radiological dispersal or emitting device incident will act as an area denial threat that will discourage tourists visit the resort for decades.

Surrounding by the sea makes the resort vulnerable to a Mumbai-style attack<sup>43</sup> or a bloody incident similar to those recorded in Ivory Coast<sup>44</sup> or Tunisia<sup>45</sup> beach resorts. Keep in mind that ISIS is quite active in the Sinai Peninsula<sup>46</sup>.

Cyber-attacks are always a considerable threat due to the electronic dependency of most of the resort's functions.

### NEOM Trojena

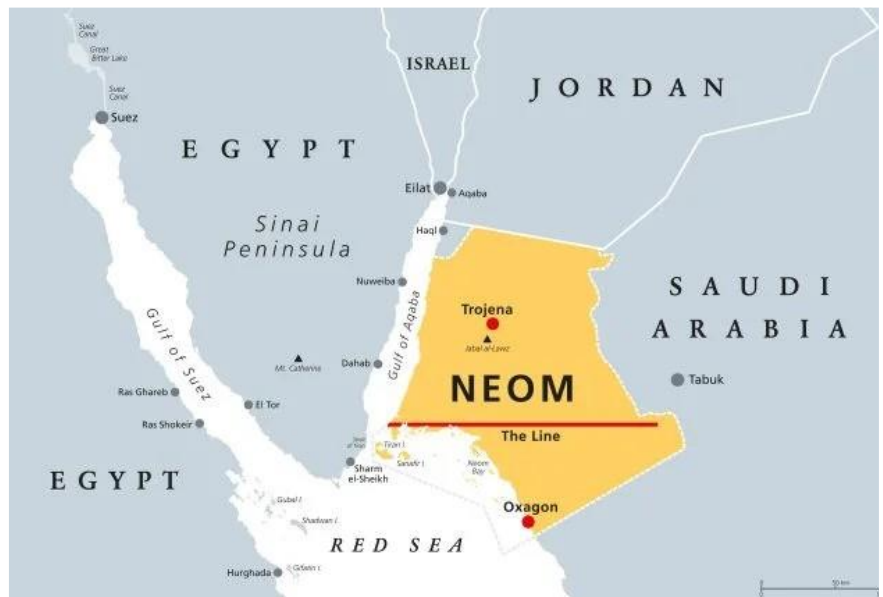
NEOM's TROJENA will be an outdoor ski resort in NEOM, Saudi Arabia. And the mega project will be the GCC's first outdoor ski resort with a man-made lake.

TROJENA is poised to be a new global destination for mountain tourism, and it will be a year-round tourist spot that offers unique wintery experiences that those in desert climates in the Gulf region would likely never have had before locally.

TROJENA will be in the center of NEOM where there are some of the highest peaks in Saudi Arabia at approximately 2,600 meters above sea level. The average temperature in the mountainous region is about 10 degrees Celsius cooler than other cities in Saudi Arabia, and it drops below 0 degrees Celsius in the winter, making it an ideal spot for winter sports and activities.

TROJENA will have luxury wellness and family-friendly resorts, including The Bow Hotel. Luxury properties dubbed "slope residences" will also be part of the new Saudi development. If you're looking for a pretty epic staycation in Saudi, 25hours, and Morgans Original hotels are two of the first lifestyle hotels to launch.

TROJENA has officially won the bid to host the [Asian Winter Games 2029](#). The multi-sport event takes place every four years, with the last edition held in 2017. The 9th edition of the games will be located in the highest mountain range in Saudi Arabia and will welcome participants from over 32 countries.



<sup>40</sup> 1984 Rajneeshee bioterror attack. DBpedia. Available from [https://dbpedia.org/page/1984\\_Rajneeshee\\_bioterror\\_attack](https://dbpedia.org/page/1984_Rajneeshee_bioterror_attack)

<sup>41</sup> Amy McKeever (Mar 08, 2013). Norovirus Outbreak at Noma Sickens 67 Diners; Hygiene Cited in Inspection. EATER. Available from <https://www.eater.com/2013/3/8/6470183/norovirus-outbreak-at-noma-sickens-67-diners-hygiene-cited-in>

<sup>42</sup> Marine Delcambre (Jan 12, 2023). Why is Noma, voted the world's best restaurant five times, closing? ENVOLDS. Available from <https://www.en-vols.com/en/taste/restaurants-en/noma-best-restaurant-world-closing/>

<sup>43</sup> Mumbai terrorist attacks (Nov 26-29, 2008). Federation of American Scientists. Available from <https://irp.fas.org/eprint/mumbai.pdf>

<sup>44</sup> Ivory Coast: 16 dead in Grand Bassam beach resort attack. BBC News (14 Mar 2016). Available from <https://www.bbc.com/news/world-africa-35798502>

<sup>45</sup> 17 on trial in Tunisia's beach resort attack. AfricaNews (Jan 30, 2019). Available from <https://www.africanews.com/2019/01/30/17-on-trial-in-tunisia-s-beach-resort-attack/>

<sup>46</sup> Khalil Al-Anani. Insurgency in Sinai: Challenges and Prospects. Arab Center Washington DC (Jun 10, 2022). Available from <https://arabcenterdc.org/resource/insurgency-in-sinai-challenges-and-prospects/>





### C<sup>2</sup>BRNE challenges

The cold mountainous environment favors bacteria like *Francisella tularensis*<sup>8</sup>. There are four ways of transmission: ingestion of contaminated food or water, handling of infected animals, insect bites, and inhaling contaminated dust. The incubation period of tularemia is usually 3–5 days but may range from 1-21 days depending on the mode of infection and the infective dose. Early signs of the disease are influenza-like (e.g., fever, fatigue, chills, headache) – thus it is difficult to raise suspicions since the bacterium is not often seen in the southern hemisphere<sup>7</sup>. Due to the ease of aerosolization and the very low infective dose of infection, the Asian Winter Games 2029 would be an ideal environment for a bioterrorism attack.

A CWA or RDD/RDE incident before the 2029 Games would be enough to cancel the mega event. Therefore camouflaged chemical and radiological sensors play an important pre-emptive role.

### NEOM Oxagon



Oxagon port and logistics hub would be the "world's largest floating structure". Set to be one of 10 regions within the Neom development in the northeast of Saudi Arabia, Oxagon will become a port city on the Red Sea, designed to take advantage of shipping traveling through the Suez Canal. Oxagon will have a distinctive octagonal shape with part of the development on land and a large section protruding into the Red Sea. The floating city will be arranged around water-filled squares connected by small canals. It will also contain a cruise terminal and oceanographic research center. Around 13 percent of global trade passes through the Suez Canal. Moreover, the city also expects to incorporate a population of 90,000 and offer around 70,000 jobs by the year 2030. High-speed rail to [THE LINE](#) and [NEOM](#) airport. 5 min walk to the beach and nature spots; 100% clean energy; port with 3.5m TEU (twenty-foot equivalent units) capacity. Being the world's first fully integrated port and supply chain, Oxagon has been instrumented on a single digital platform.

Enabling growth and promoting innovation, Oxagon will be a natural home to several advanced technology industries. Accelerating ideas from labs to market, the businesses in Oxagon city will be supported by an elegant and flexible infrastructure: Renewable energy (solar PV, green hydrogen, battery storage, and on-shore wind); autonomous and sustainable mobility (autonomous pods and shuttles, urban air mobility, green heavy-duty commercial vehicles, green watercraft); modern construction (modular construction, 3D printing, sustainable steel, zero-emission, heavy machinery); water innovation (seawater desalination, brine management, wastewater treatment, system management devices); sustainable food production (greenhouses, aquaculture, alternative meat, sustainable packaging); health and wellbeing (pharma, biotech, nutrition, medtech); technology and digital (industrial, service and general-purpose robots, communication infrastructure for 5G+, space systems, electronic components, and 3D printing equipment).



*C<sup>2</sup>BRNE challenges*

The nature of the project favors a sea attack both manned and unmanned (over and underwater). Therefore, security should be robust – overt and covert. As a port in strategic geography, thousands of cargo containers will be facilitated, and containers are ideal to hide explosives and/or radiological materials. The latter might incapacitate the port for decades. In addition, the two lines connecting Oxagon with the airport and The Line can be attacked with a dirt bomb (RDD) – in a way similar to that observed in the railway leading to Argun the capital of Chechenia<sup>47</sup>. It should be mentioned that until now no RDD has ever been detonated. Floating decontamination stations and vessels for the transportation of first responders should be considered. Since Oxagon will highly depend on information technology and artificial intelligence platforms, one or more cyber-attacks can halt operations or cause accidents with vessels' or cranes' navigation.

**AIUla**

**AIUla**, is an ancient Arabic oasis city located in Medina province of northwestern Saudi Arabia. Situated in the Hejaz, a region that features prominently in the history of Islam as well as several pre-Islamic Semitic civilizations, Al-'Ula was a market city on the historic incense route that linked India and the Gulf to the Levant and Europe. The cornerstone of the Kingdom's cultural and touristic ambitions, the AIUla project will develop an archaeological, cultural, and touristic complex - an open-air living museum - in a region as vast as Belgium. This major investment aims to make the AIUla region the Kingdom's cultural capital.

AIUla Heritage Village, also known as Ad-Deerah, is the traditional Arabian village to which people of the oasis moved some eight centuries ago and inhabited until the 20th century. It was built on a higher part of the valley to be clear of the floods that can occur during the rainy season. At its maximum expansion, the town contained more than 1000 houses, which were built adjacent to one another, thereby forming a wall around the town to defend the population. On the west of the town, at the bottom of the cliff, is the old souq, which has been renovated.

A resort is planned to be built as early as 2020 and completed in 2024 in Sharaan area. The resort will feature 40 suites, pavilions, and villas, and will be located in a valley deep inside the Sharaan Nature Reserve, especially chosen for its dramatic landscape of high cliffs, rocky plateaus, and spectacular sand dunes.

**Red Sea Project**

Saudi Arabia's Red Sea Project is a brand-new tourism hub that's being developed on the western coast of the country along the sea and between the cities of Umluj and Al Wajh. This location was chosen due to its proximity to the infamous Red Sea, which is home to the fourth-largest barrier reef in the world and more than 90 pristine islands that have never been disturbed by man.

Major Red Sea features coming to fruition in the coming months include Desert Rock, which is currently being developed as an in-mountain hotel with rooms and suites built directly into the rock and stone; Landscape Nursery, which will eventually grow more than 25 million plants in the desert sands; Sheybarah Island, which will feature white sand beaches and the ultimate spot for snorkeling and diving thanks to a 30 to 40-meter reef drop-off close to the beach; Shura Island, which will eventually be home to 11 luxury hotels and resorts, an 18-hole championship golf course, its own beach club and a marina; Southern Dunes, which is a planned resort complex with a hotel and 40 villas amid the desert; Ummahat Island, which will be home to the St. Regis Red Sea Resort and Nujuma, A Ritz-Carlton Reserve. These are just some of the amenities one will find at Red Sea, but plenty more are in development or currently in ideation. The property plans to have four developed islands, two inland sites, 16 hotels, and 3,000 rooms when they open in 2023. By 2030, Red Sea plans to offer 22 developed islands, six inland sites, 48 hotels, and 8,000 rooms for guests.



<sup>47</sup> Lexi Krock and Rebecca Deusser. Chronology of Events. NOVA. Available from <https://www.pbs.org/wgbh/nova/dirtybomb/chrono.html>







### Amaala

**Amaala** is a land and property megaproject currently in development in Saudi Arabia that is managed by Red Sea Global and forms part of the Saudi Vision 2030 program. Its name is derived from the Arabic word for "hope" and focuses on luxury tourism to attract visitors to the Red Sea coast. The project consists of three main developments: The Coastal Development (7 hotels; 400 Guest accommodations; 200 villas and condominiums), Amaala Island (200 villas and condominiums; 7 hotels), and Triple Bay (16 hotels; Rock Hotel; 200 villas and condominiums). In total, 2,500 hotel rooms; 200 retail shops, art exhibitions, and marinas; 700 villas, and a state-of-the-art Marine Life Institute will be constructed. The project is to be wholly accomplished by 2028.

### C<sup>2</sup>BRNE challenges

All three mega projects above are tourist destinations mostly for wealthy guests worldwide. Therefore, they face the same threats. A maritime incident<sup>16,17</sup> is very possible and security personnel should receive special training on how to deal with them (kind of urban warfare) and be equipped properly to match the assault weapons of the perpetrators. On the other hand, if one would like to neutralize these resorts then an RDD would be an effective alternative because radiological decontamination might take years, will cost a lot of money and in the end might lead to cancellation of the overall project. A radiological emitting device might have the same impact generating a rumor of a strange disease affecting tourists until proven to be exposed to a powerful radiation source placed in a crowded area. It is very important to introduce hospitality personnel to the "see something, say something" security mentality – they are in the front line of defense. In addition, all these luxury hotels and recreation areas should have additional inner barriers that will refuse access to various levels of the premises. Keep in mind that in the market various products can provide CBRN shelter-in-place protection in a very fast and effective way<sup>48</sup>.

### Qiddiya Entertainment City

Qiddiya is approximately 45 kilometers from the center of Riyadh. The new city will be an hour's drive from King Khaled International Airport. It is expected to be the world's largest entertainment city by 2030, with a total area of 334 square kilometers. Qiddiya will offer five cornerstones: Sports & Wellness; Nature & Environment; Parks & Attractions; Motion & Mobility; and Arts & Culture, making the Qiddiya project the heart of Entertainment (e.g., Six Flags), Sports and the Arts worldwide. By 2030, the area aims to draw 17 million visitors per year, contributing up to SR17 billion to the nation's gross domestic product and creating 25,000 jobs. It is expected that Qiddiya Project will be finished in 2023.



<sup>48</sup> Unhardened Infrastructure. Beth-El Industries. Available from <https://www.beind.com/unhardened-infrastructure/>

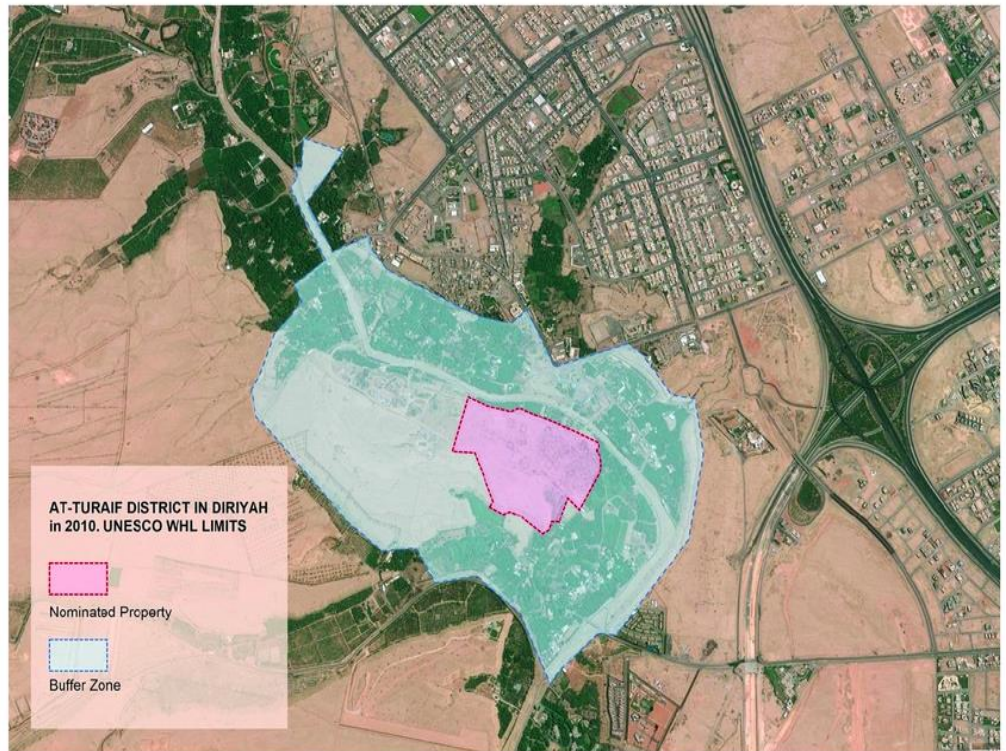


*C<sup>2</sup>BRNE challenges*

An entertainment city accepting millions of visitors annually is a very attractive target for a bloody attack or an effort to stop its function and cause immense financial loss. Analogous entertainment parks have been submitted to various threats – e.g., Disneyland Paris<sup>49</sup>. Due to the density of visiting people contagious bioterrorism pathogens can be easily spread and their incubation period will do the rest in many countries abroad. Until now, we do not have experienced a new breed of terrorists – bioterrorists; that is infected fanatics moving around crowded places contaminating surfaces and people. It is known that the Ebola virus can survive in semen for 565 days following recovery<sup>50</sup>.

**Ad Diriyah**

Located on the north-western outskirts of the Saudi capital, Riyadh (20 minutes), Diriyah was the original home of the Saudi royal family and served as the capital of the Emirate of Diriyah under the first Saudi dynasty from 1727 to 1818. The "Turaif District Development Plan" aims to turn the district into a major national, cultural, and touristic center targeting 27 million local and international visitors by 2030. Hospitality will be facilitated via 30 hotels (>3,000 rooms). Before turning the complete site into a modern open-air museum documentation and necessary investigations, including excavations, especially in places that may need to be remodeled, are planned in three major phases. These will include sites



such as Al-Imam Mohammad bin Saud Mosque and Salwa Palace; Ibraheem Ibn Saud Palace and Fahad Ibn Saud Palace; Farhan Ibn Saud Palace, Torki Ibn Saud Palace, and Qoo'a Al-Sharia'a (eastern court of Salwa Palace). Once finished, there will be a new visitors center as well as a documentation center. Eight new museums are planned for the district – among them a museum of war and defense (as this was the site of a major siege in Saudi Arabia); a museum of horses; a museum of social life; a museum of commerce and finance and the largest Islamic Museum in the world – the House of Al Saud. Additionally, a Turaif traditional market will add to the open-air museum experience.

*C<sup>2</sup>BRNE challenges*

This is a very important landmark and it might attract more evil attention than all the other giga/mega projects in the country. An RDD will isolate the area and will turn it into a ghost city for years. Ground and aerial surveillance for radiation levels are mandatory. Special interest for Museum of Horses – Venezuelan equine encephalitis (VEE) virus causing Venezuelan equine encephalitis

<sup>49</sup> Thwarted terror plot targeted Disneyland Paris, Champs-Élysées, police say. France24. Available from <https://www.france24.com/en/20161124-france-extends-detention-five-suspects-thwarted-terror-plot>

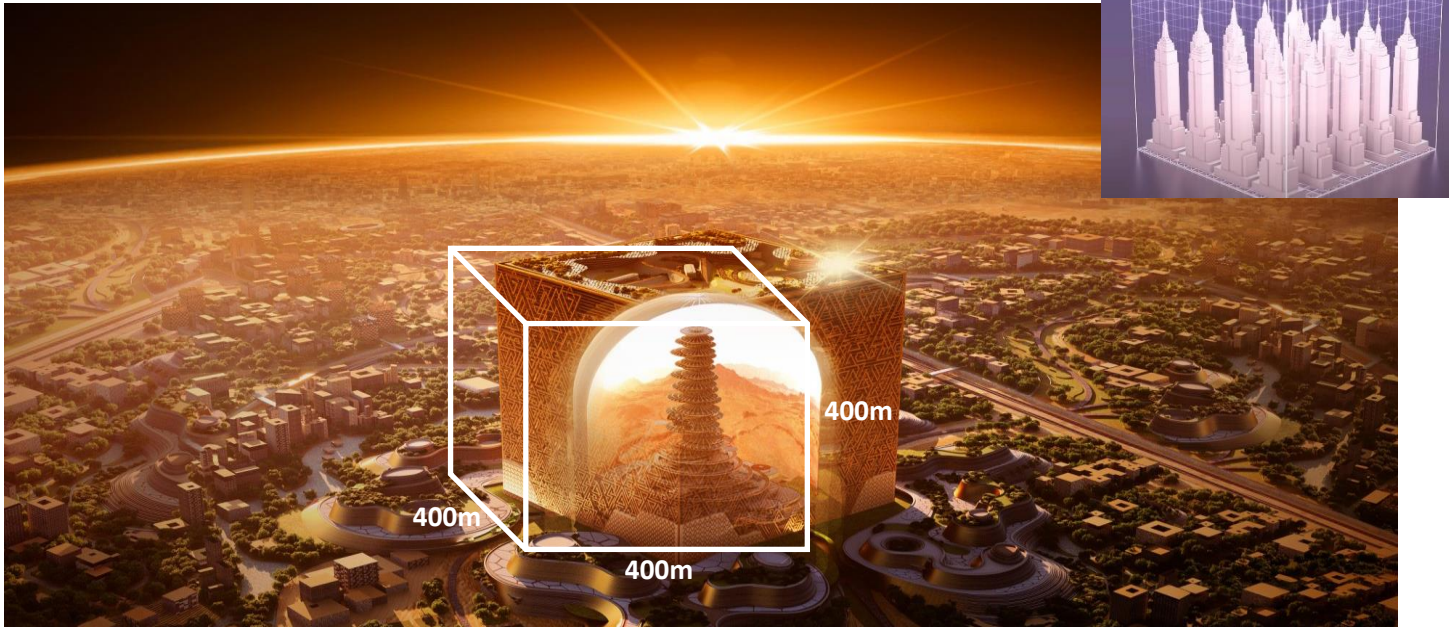
<sup>50</sup> Ariana Eunjung Cha. Ebola stayed in the semen of one man for 565 days, raising new public health concerns. The Washington Post. (August 31, 2016). Available from <https://www.washingtonpost.com/news/to-your-health/wp/2016/08/30/ebola-stayed-in-the-semen-of-one-man-for-565-days/>





although predominately in the Americas can found a prosperous ground in this area where most probably a collection of horses will be presented as well given the admiration Arabs feel about horses – the human infective dose for VEE is 10-100 organisms. Neither the population density of infected mosquitoes nor the aerosol concentration of virus particles must be great to allow significant transmission of VEE in a bio-weapon attack<sup>51</sup>. Since it is difficult to identify certain pathogens in the air, recognition of the clinical picture caused is very important for early diagnosis and management.

### Mukaab



The sprawling mega project in Riyadh (a 20-minute drive from the airport), is the size of 20 Empire State Buildings and comes complete with racetracks for flying cars and immersive experiences that mimic visits to other planets. The Mukaab will reach 1,312 feet in height, length, and width (~400 meters) and provide a mixture of residences, hotels, office space, and open-air parks and walkways. Indoor holographic projections, such as giant-sized people pictured above, will create immersive, futuristic experiences of the space. Set over 19 square kilometers, it plans to encompass 104,000 homes and 9,000 hotel rooms. Plus, there will be 980,000 square meters of retail space and 1.4 million square meters of office space. The interior of The Mukaab will include a tower atop a spiral base. This will be home to retail, cultural, and tourist attractions, which include hotels, residences, and recreational facilities. We're talking a whopping 1.8 million square meters of community facilities and 620,00 square meters of leisure facilities. There will also be a technology and design university, an innovation lab, and 80 cultural and entertainment venues. Entertainment venues span a Broadway district, cinema, concert hall, multi-purpose immersive theatre, and opera house. Plus, cultural venues range from a gallery to a museum. The New Murabba project, including The Mukaab, is slated to be finished in 2030.

### C<sup>2</sup>BRNE challenges

Mukaab is a vertical city within city facing CBRN challenges similar to that of NEOM The Line. The only important difference is that Mukaab is a "box" 400m long while "The Line" is 170 km long. This means attacking the box the consequences would be massive while in The Line might be sectional. Such a construction will have several entrances that might be targeted with an RDD-VBIED to deny use for many years. Could this be done simultaneously to trap the population inside the box? Sounds like a sci-fi hypothesis but nothing is impossible. Mukaab is also ideal for a 9/11-style attack. The good thing is that Saudi Arabia and Iran very recently

<sup>51</sup> USAMRIID's Medical Management of Biological Casualties Handbook. Fort Detrick, Frederick, Maryland (2001). Available from <https://biotech.law.lsu.edu/blaw/bluebook/Bluebook.htm.htm#VEESummary>

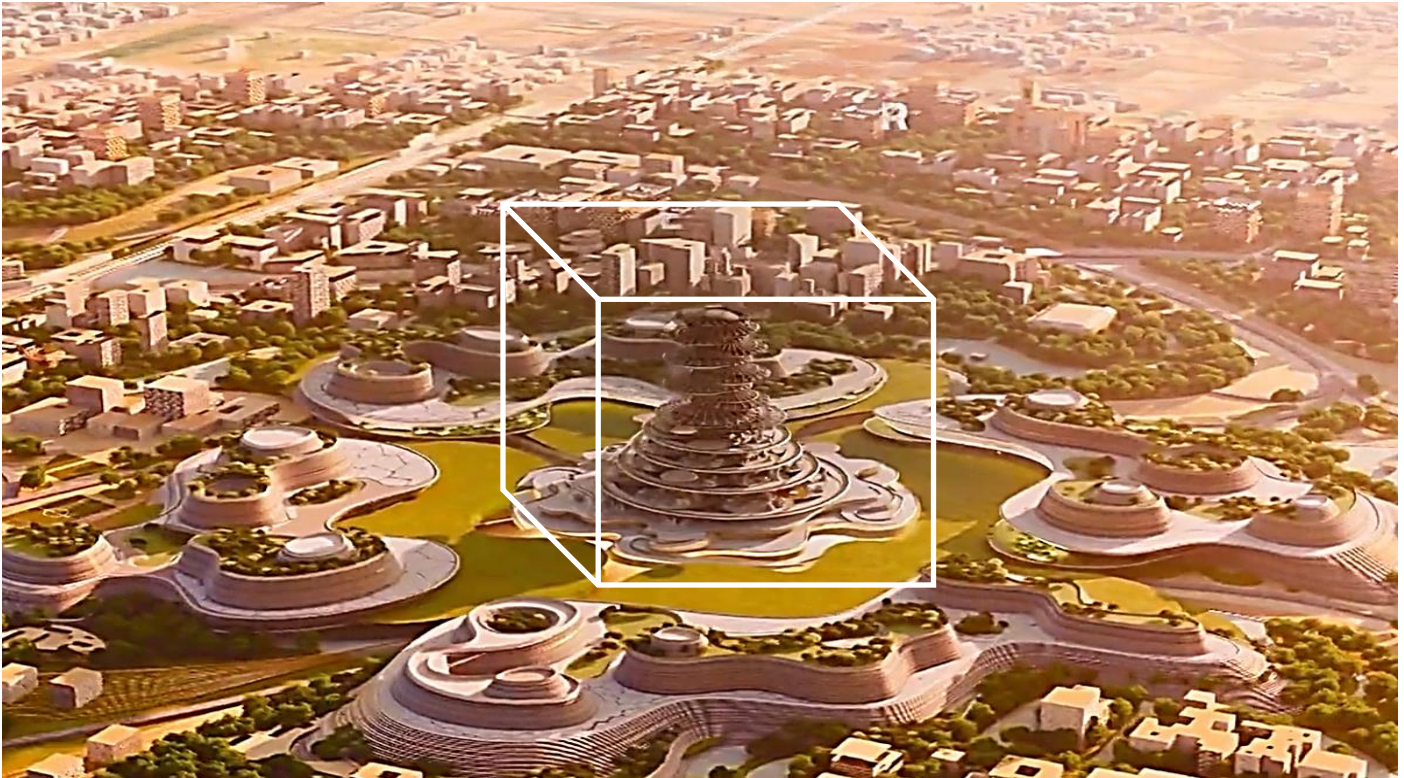




restored diplomatic ties<sup>52</sup> after seven years of tensions and this might have a positive impact<sup>53</sup> on the Houthi attacks against the Kingdom<sup>54</sup>.

Real drones with chemical and radiological (and biological) sensors can be disguised with flying holograms. Certain solutions proposed for NEOM The Line can be applied in the Mukaab with a special focus on mass decontamination and evacuation of contaminated victims. Since there are no roads/no cars it would be very interesting to have CBRN First Responders using jet suits to approach the hot zone very fast<sup>55</sup>. And of course, the population density is ideal for the spread of Category A bio-pathogens, and this is of huge concern since you can carry anything in your body without being detected until it is too late.

It would be very interesting to know if there will hospitals inside the Mukaab and their capabilities to receive contaminated patients/victims.



## Conclusion

Giga/mega projects will boost the economy the day after oil would not be the top source of national income. There is no doubt that all projects are very innovative and generate admiration for the human mind and its achievements! But these projects hide challenges that have never been addressed before requiring the collaboration of many specialties to find out-of-the-box but viable solutions. CBRN threats are real even though the world experienced only one mass incident (Tokyo, 1995<sup>2</sup>) and some focal cases

<sup>52</sup> Patrick Wintour. Iran and Saudi Arabia agree to restore ties after China-brokered talks. The Guardian (Mar 11, 2023). Available from <https://www.theguardian.com/world/2023/mar/10/iran-saudi-arabia-agree-restore-ties-china-talks>

<sup>53</sup> Dion Nissenbaum, Summer Said and Benoit Faucon. Iran Agrees to Stop Arming Houthis in Yemen as Part of Pact With Saudi Arabia. The Wall Street Journal (16 Mar 2023). Available from <https://www.wsj.com/articles/iran-agrees-to-stop-arming-houthis-in-yemen-as-part-of-pact-with-saudi-arabia-6413dbc1>

<sup>54</sup> Houthis launch multiple strikes on Saudi sites. Aljazeera (20 March, 2022). Available from <https://www.aljazeera.com/news/2022/3/20/houthis-launch-attacks-on-saudi-energy-desalination-facilities>

<sup>55</sup> Riya Teotia. Jet suits: Game changer in military modernisation, can do what tanks & helicopters did in 90s; what are they? WION (Febr 08, 2023). Available from <https://www.wionews.com/science-technology/jet-suits-game-changer-in-military-modernisation-can-do-what-tanks-helicopters-did-in-90s-what-are-they-559924>





(assassinations). Three years ago, almost nobody believed that the planet will face a pandemic but it did. The same world is very close to a Nuclear Winter as well<sup>56</sup>. The unexpected always happens and preparedness is the only antidote available.



<sup>56</sup> John Mecklin. A time of unprecedented danger: It is 90 seconds to midnight. 2023 Doomsday Clock Statement. Bulletin of Atomic Scientists (Jan 24, 2023). Available from <https://thebulletin.org/doomsday-clock/current-time/>





"I'm telling you I looked and our business plan doesn't say anything about this."

"If history repeats itself, and the unexpected always happens, how incapable must Man be of learning from experience!"

— *George Bernard Shaw*





## CBRN challenges in giga/mega projects – United Arab Emirates

By Brigadier General (ret.) Ioannis Galatas, MD, MSc (Terr), HAMC<sup>1</sup>

<sup>1</sup> Manager, CBRN Knowledge Center @ International CBRNE Institute, Belgium | Editor-in-Chief “C<sup>2</sup>BRNE Diary”, Athens, Greece

### Abstract

The United Arab Emirates is investing in giga/mega-projects and attractions aiming to diversify the economy and reduce reliance on oil. These projects and new entertainment experiences are designed to stimulate the economy. Despite the importance of these ambitious infrastructures, each giga/mega-project automatically becomes a landmark, and a landmark was always an attractive terrorist target – conventional and asymmetric/CBRNe. In addition, a number of these projects pose unique, never addressed CBRN challenges that require out-of-the-box solutions by joint architects-civil engineers-CBRN experts' teams. This paper will address the cases of certain giga/mega projects that are already finished or about to finish that combine urban building innovations and future living proposals.

### Keywords

Giga/mega project; CBRNe; CWA; RDD/RED, asymmetric; UAE; Burj Binghatti; Palm Jebel Ali; Agri Hub; Urban Tech District; Etihad Rail; One Za'abeel; World Islands; Mohammed bin Rashid Solar Park; Uptown Tower District; Ciel Dubai; Atlantis the Royal; museums; Abrahamic Family House; Midfield Terminal; Sea World Abu Dhabi; Hindu Temple; Hatta; Moon Resort.

### Abbreviations used

CBRNe - Chemical, Biological, Radiological, Nuclear, Explosives (threats)

IED – Improvised Explosive Device | VBIED – Vehicle-born IED

AI – Artificial Intelligence

RDD – Radiological Dispersal Device (dirty bomb) | RED – Radiological Emitting Device

CWA – Chemical Warfare Agents

EMP – Electro-Magnetic Pulse

CBRN threats are collectively categorized as weapons of mass destruction, but this is not accurate since only the use of nuclear weapons is truly destructive; all the rest are disruptive threats except for the release of a biological warfare agent that if not contained on time might turn to a pandemic. All the assumptions described herein are based on articles, papers, photos, and videos available on the Internet. There is no detailed description of proposals related to certain CBRN gaps or peculiarities due to security reasons.

### Chemical weapons

A chemical warfare agent<sup>57</sup> (chemical weapon) is a chemical used to cause intentional death or harm through its toxic properties affecting humans, animals, and plants. Chemical agents can be disseminated with or without the use of (improvised) explosives (i.e., the 1995 Tokyo subway sarin attack<sup>58</sup>). The median lethal dose (LD<sub>50</sub>) for VX (the deadliest CWA) is 10 mg, a droplet slightly larger than a pinhead. Death from doses of this size occurs in less than 30 minutes<sup>59</sup>. Munitions, devices, and other equipment specifically designed to weaponize toxic chemicals also fall under the definition of chemical weapons that are classified as follows.

#### Choking agents

They irritate the nose, throat, and especially the lungs. When inhaled, these agents cause alveoli (air sacs in the lungs) to secrete fluid, essentially drowning those affected. Chlorine, chloropicrin, diphosgene, and phosgene can be dispersed in gas form.

<sup>57</sup> What is a chemical weapon? Organization for the Prohibition of Chemical Weapons (OPCW). Available from <https://www.opcw.org/our-work/what-chemical-weapon>

<sup>58</sup> Tokyo subways are attacked with sarin gas. History (March 20, 1995). Available from <https://www.history.com/this-day-in-history/tokyo-subways-are-attacked-with-sarin-gas>

<sup>59</sup> Nerve agents. Science Direct. Available from <https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/nerve-agent>



*Blister agents*

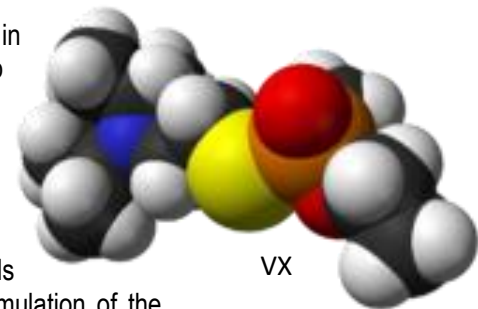
These oily substances act via inhalation and contact, affecting the eyes, respiratory tract, and skin, first as an irritant and then as a cell poison. Exposure causes large and often life-threatening skin blisters which resemble severe burns, and often result in blindness and permanent damage to the respiratory system. Morbidity is high but mortality is relatively small. Sulfur and nitrogen mustard, lewisite, and phosgene oxime represent the main chemicals in this category available for dispersal as liquid, aerosol, vapor, and dust.

*Blood agents*

Blood agents such as hydrogen cyanide, cyanogen chloride, and arsine, inhibit the ability of cells to use oxygen effectively causing the body to suffocate. Some blood agents may also affect the ability of blood cells to transfer oxygen. Blood agents are distributed via the blood (and skin) and cause the inhibition of the cytochrome-C oxidase enzyme damaging vital organs (central nervous system, cardiovascular system, and respiratory system).

*Nerve agents*

Nerve agents block an enzyme called acetylcholinesterase in the nervous system resulting in the accumulation of a neurotransmitter between nerve cells or across synapses leading to hyper-stimulation of muscles, glands, and other nerves. They act very fast primarily by absorption through the skin and lungs. Nerve agents are divided into two main groups: G-series agents and V-series agents, named for their military designations. Some G-agents (tabun and sarin), persist in the environment for only short periods while others (soman and cyclo-sarin) persist longer and present a greater threat to the skin. V-agents (VX) are extremely potent, with only milligrams (skin) needed to cause death and persist for long periods in the environment. They can be dispersed as liquids, aerosols, vapors, or dust. Overstimulation of the parasympathetic system affects the peripheral and central nervous systems, causing lacrimation, salivation, sweating, blurred vision, headache, difficulty in breathing, and vomiting. In higher doses, nerve agents cause seizures, loss of body control, muscle paralysis (including heart and diaphragm), and unconsciousness/ death. The more volatile agents like chlorine, phosgene and hydrogen cyanide are non-persistent agents whereas the less volatile agents like sulfur mustard and VX are persistent agents<sup>60</sup>.

*Riot control agents*

Riot control agents (tear gas, pepper spray) are intended to temporarily incapacitate a person by irritating the eyes, mouth, and skin or constricting the airways. They are considered chemical weapons if used at war but not if used for domestic law enforcement purposes. They are dispersed as liquids or aerosols.

**Biological weapons**

**Biological weapons<sup>61</sup> disseminate disease-causing organisms or toxins to harm or kill humans, animals, or plants.** They generally consist of two parts – a weaponized agent and a delivery mechanism. Biological weapons can be used for political assassinations, the infection of livestock or agricultural production to cause food shortages and economic loss, the creation of environmental catastrophes, and the introduction of widespread illness, fear, and mistrust among the public. Without implying a deliberate release of coronavirus SARS-CoV-2, the ongoing pandemic is a fine example of what bioterrorism might look like. Bacteria, viruses, fungi, prions, rickettsia, or toxins have been weaponized, and a variety of delivery mechanisms can be used such as munitions, spraying aircraft and drones, trucks, contamination of food and clothing, etc. Technological advances (i.e., CRISPR<sup>62</sup>) can be used by non-state actors (lone wolves, terrorists). The main advantage of biological warfare agents is that it is difficult to determine

<sup>60</sup> K. Ganesan, S. K. Raza, and R. Vijayaraghavan. Chemical warfare agents. J Pharm Bioallied Sci. 2010 Jul-Sep; 2(3): 166–178. Available from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3148621/>

<sup>61</sup> What are Biological Weapons? UN Office of Disarmament Affairs. Available from <https://www.un.org/disarmament/biological-weapons/about/what-are-biological-weapons/>

<sup>62</sup> Nicholas Cropper (Apr 29, 2020). CRISPR is Making Bioweapons More Accessible. American Security Project. Available from <https://www.americansecurityproject.org/crispr-is-making-bioweapons-more-accessible/>





and classify a biological event since the incubation period provides enough time for perpetrators to escape. Biological agents are categorized as follows<sup>63</sup>:

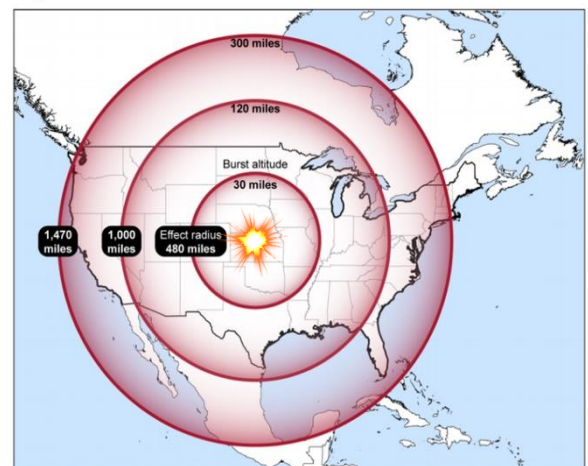
**Category A:** Agents that pose a risk to national security because they can easily be transmitted from person to person, have high mortality, can cause public panic and social disruption, and require public health intervention. The following agents belong in this category: *Bacillus anthracis* causing anthrax, *Clostridium botulinum* toxin causing botulism, *Yersinia pestis* causing the plague, *variola major* causing smallpox, *Francisella tularensis* causing tularemia and viral hemorrhagic fevers (Ebola, Marburg, Lassa, Machupo). *Francisella tularensis* can survive for weeks in cold, moist environments including water, soil, hay, straw, and decaying animal carcasses<sup>64</sup>. *Bacillus anthracis*' spores are very hardy and tolerant (years) to extremes of temperature, humidity, and ultraviolet light. They can survive for long periods of time (even decades) in the environment without nutrients or water<sup>65</sup>.

**Category B:** Agents that are easy to disseminate, have moderate morbidity and low mortality, and require enhanced disease surveillance. The following diseases are caused by agents belonging to this category: brucellosis (*Brucella* species), food poisoning (*Salmonella* species, *Escherichia coli* O157:H7, *Shigella*), Glanders (*Burkholderia mallei*), Melioidosis (*Burkholderia pseudomallei*), Psittacosis (*Chlamydia psittaci*), Q fever (*Coxiella burnetii*), malicious use of toxins (ricin from castor beans [*Ricinus communis*]; E-toxin of *Clostridium perfringens*), typhus (*Rickettsia prowazekii*), viral encephalitis (eastern equine encephalitis, Venezuelan equine encephalitis, and western equine encephalitis), or water safety threats (*Vibrio cholerae*, *Cryptosporidium parvum*). In 1984, 751 people suffered food poisoning in The Dalles, Oregon, United States, due to the deliberate contamination of salad bars at ten local restaurants with *Salmonella* by a group of prominent followers of Rajneesh (later known as Osho) who hoped to incapacitate the voting population of the city so that their candidates would win the 1984 Wasco County elections<sup>66</sup>.

**Category C:** Agents that could be engineered for mass dissemination in the future because of availability, ease of production and dissemination, and potential for high morbidity and mortality rates and major health impact due to lack of specific antibiotics/antivirals or vaccines – i.e., Nipah virus and hantavirus.

### Radiological threats<sup>67</sup>

While nuclear and other radiological materials have benefited society in areas of medicine, agriculture, industry, and energy they can be used maliciously as well. Radiation emergencies may be intentional (contamination of food/water, spreading material with an improvised explosive device, exposure of people to an unshielded radioactive source, deliberate spill while in transit), or unintentional (nuclear blast, nuclear reactor, and transportation accidents). The detonation of an improvised nuclear or dispersal or emitting device might cause no more victims than a conventional explosion but it will create panic and have serious consequences on economic and political stability<sup>68</sup>. Although it is a remote possibility, an attacker might detonate a few weapons at high altitudes in an effort to destroy or damage the communications and electric power systems. It can be expected that electromagnetic pulse (EMP) would



Source: Gary Smith, "Electromagnetic Pulse Threats," Testimony before the House Committee on National Security (July 16, 1997). MapInfo (map). | GAO-18-67

<sup>63</sup> Bioterrorism agents/diseases. CDC. Available from <https://emergency.cdc.gov/agent/agentlist-category.asp>

<sup>64</sup> Factsheet on tularaemia. European Center for Disease Prevention and Control (ECDC). Available from <https://www.ecdc.europa.eu/en/tularaemia/facts>

<sup>65</sup> *Bacillus anthracis* (Anthrax). Johns Hopkins Bloomberg School of Public Health, Center for Health Security. Available from <https://www.centerforhealthsecurity.org/our-work/publications/bacillus-anthraxis-anthrax-fact-sheet>

<sup>66</sup> 1984 Rajneesh bioterror attack. DBpedia. Available from [https://dbpedia.org/page/1984\\_Rajneesh\\_bioterror\\_attack](https://dbpedia.org/page/1984_Rajneesh_bioterror_attack)

<sup>67</sup> Radiological and Nuclear terrorism. Interpol. Available from <https://www.interpol.int/en/Crimes/Terrorism/Radiological-and-Nuclear-terrorism>  
Radiological threat agents. CDC. Available from [https://www.cdc.gov/nceh/dls/radiologic\\_threat\\_agents.html](https://www.cdc.gov/nceh/dls/radiologic_threat_agents.html)

<sup>68</sup> Radiation Emergency Medical Management (REMM). US Department of Health & Human Services. Available from <https://remm.hhs.gov/>



cause massive disruption for an indeterminable period and would cause huge economic damages. EMP – an electromagnetic wave similar to radio waves, which results from secondary reactions occurring when the nuclear gamma radiation is absorbed in the air or ground – is a single pulse of energy that disappears completely in a small fraction of a second<sup>69</sup>.

### C<sup>2</sup>BRNe

The rapid development of information technologies (artificial intelligence, deep learning, machine learning, ChatGPT, etc.) generated new hacking methodologies many of which are directed against national assets and critical infrastructures<sup>70</sup>. In that respect, a second “C” can be added to the CBRN acronym indicating that “Cyber” threats can be combined with all CBRN threats in various forms and levels.



### The giga/mega projects

All the projects to be mentioned below aim to boost the tourism/economy of the UAE by attracting wealthy visitors from all over the world. Thus, any CBRN incident will automatically affect more than one country and attract global attention and criticism.

#### Burj Binghatti, Dubai

There have been a few candidates for “world's tallest tower” since Burj Khalifa took the crown way back in 2010, and here's one aiming for the slightly different title of “world's tallest residential tower”. Burj Binghatti located in Business Bay will have “more than 112 stories” and will offer residents the chance to “live amidst the clouds”. To become the world's highest residential tower, Burj Binghatti has to exceed the 472-meter height of the current record-holder, New York's Central Park Tower.

#### C<sup>2</sup>BRNe challenges

Heating, ventilation, and air conditioning (HVAC) central systems are the key target for releasing CBR agents in a tall building. Then comes the evacuation process after a bombing destroys emergency stairs. Keep in mind that ladders in fire engines can reach – at maximum – the fourth floor. The detonation of an RDD-VBIED at the entrance of the skyscraper might lead to a ghost skyscraper for decades or forever – not to mention the overall consequences in Dubai.

#### Palm Jebel Ali

In terms of size, it doesn't get much bigger than this. The Palm Jebel Ali is an unpopulated artificial archipelago on the coast of Dubai adjacent to the Jebel Ali container port. The project, which is 50 percent larger than Palm Jumeirah, is proposed to include six marinas, a water theme park, 'Sea Village', and homes built on stilts above the water,



<sup>69</sup> Electromagnetic Pulse. AtomicArchive. Available from <https://www.atomicarchive.com/science/effects/emp.html>

<sup>70</sup> Top 15 Hot Artificial Intelligence Technologies. Edureka! Feb 04, 2023. Available from <https://www.edureka.co/blog/top-15-hot-artificial-intelligence-technologies/>





*C<sup>2</sup>BRNe challenges (when done)*

It is good that Palm Jebel Ali has only three corridors connecting the island with the shore. It is even better that there is water around that can be used for the decontamination process. A combination of artificial intelligence with robotics could lead to autonomous decontamination stations that would be ideal for the decontamination of the Muslim female population without the interference of male CBRN First Responders. On the other hand, the detonation of an RDD on the island might turn the island into a ghost community. Drone spraying is not out of the question, but big quantities will be required and optimum weather conditions to succeed. Stand-alone or drone CR sensors located especially in crowded areas could provide early alarms. Good to have floating CBRN vessels to carry specialized personnel in case of a real emergency overriding traffic jam.

**Agri Hub**

Dubai's tourist attractions come in all shapes and sizes, but this one is a little bit different. Agri Hub will become the biggest agritourism project of its kind in the world and create 10,000 jobs. It will provide food security, entertainment, and adventure. Local farmers will have space to sell their products directly from their farms while offering a new eco-friendly shopping, dining, and edutainment experience for visitors. Some of the project's environmental features include 100 percent renewable energy, 100 percent water recycling, bio-saline agriculture, green transit systems, and on-site zero waste management. A few locations

are being studied for feasibility, with the exact location yet to be confirmed. The UAE has been accelerating its support of AgriTech companies to reduce reliance on food imports, which are thought to make up about 90 percent of food consumed in the country.

*C<sup>2</sup>BRNe challenges (when done)*

Due to the snake-like design of the project, the most important defense would be a dense network of CCTVs and CBR sensors. Automated decontamination poles could help decontaminate visitors before getting out of the hum where specialized responders will do the rest. Contaminated waste via the existing sewage system can end up in a plasma system that will evaporate all harmful agents released.

**Dubai Urban Tech District**

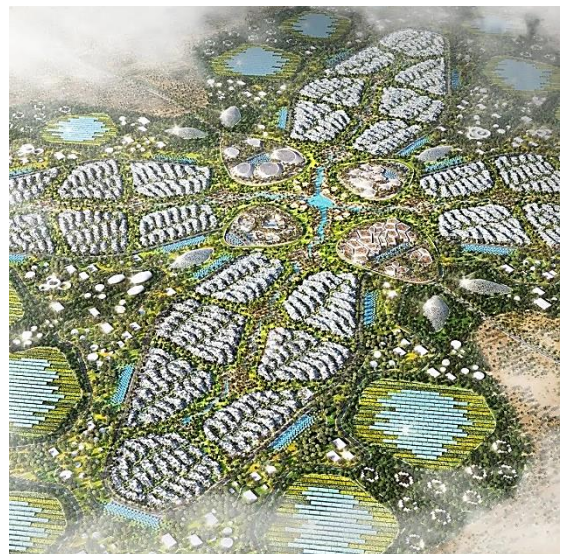
Another from developer URB, this urban technology district will be located on the Creekside of the Al Jaddaf district in Dubai. "The Urban Tech District will be a new global tech hub for urban innovation and with a total of 140,000 square meters of built-up area will be the world's largest urban tech district, thus making Dubai the center for urban innovation. The district will be able to host conferences, seminars, business incubation programs, training, and research sessions, and is set to create 4,000 jobs. The district will also be home to the urban tech institute, which will foster the next generation of urban tech leaders. The institute will provide opportunities to pilot new innovations based on applied research whilst driving public-private partnerships.

*C<sup>2</sup>BRNe challenges*

A very attractive target for hackers but also for a CR attack against international employees, guests, and visitors. HVAC systems need special attention and so does CR monitoring inside, out, and above the Urban Tech District. It would be ideal to teach people working there about CBRNe threats and countermeasures to be taken – e.g., the use of escape hoods in case of a real incident.

**Etihad Rail**

A regular inclusion in this annual list, the rail project has made great strides in the past 12 months, with construction gaining pace. Once complete, the rail network will connect the UAE with the rest of the Gulf. Stage one of the project is operational and is used to transport goods and materials across the Emirates.



The project as of December was 70 percent complete, with the railway line between Abu Dhabi and Dubai joined up in March and connected to Ras Al Khaimah and Sharjah in October. A launch date for the UAE passenger line and the exact route for this service has not yet been announced but plans to build the first passenger station in Fujairah have been unveiled.

#### *C<sup>2</sup>BRNe challenges*

When addressing rail it is obvious that Tokyo's subway sarin attack comes to mind<sup>71</sup>. Apart from the use of a chemical weapon without explosives (sarin gel), a RED device can cause even bigger disruption and will overload the healthcare system. It would be a good idea to equip stations and cars with CR sensors and train the railway personnel on how to use their personal protective equipment (PPE) and how to evacuate the stations.

#### **One Za'abeel**

There's no shortage of records broken in Dubai, and this tower holds one of the world's longest cantilevered buildings that connects the two towers. It was announced in December that the project was taking its final shape, with full cladding completed and an opening date later in 2023 expected. The project, standing 304 meters high, is located beside Dubai's Trade Centre and will be a mixed-use development. With its two slender towers connected by a 230-meter-long steel bridge structure called "The Link", which holds the record as the world's longest occupied cantilevered building, One Za'abeel is set to become the next iconic building in Dubai. With its central location and its world-first engineering, this mixed-use sustainable development will be a modern hub for a variety of residents and visitors to Dubai. The residential tower will be 58 floors high with simplex and duplex apartments. The second tower will be on 68 floors and will host an ultra-luxury hotel, serviced apartments, offices, branded residential units, and penthouses, as well as the Investment Corporation of Dubai's new headquarters. The two towers will have seven basement levels and a four-level podium above ground which will house retail, restaurants, social space, and conference halls. Above the podium, the towers will be connected by The Link with a 66 m-long cantilever link, which will be 100 meters above ground, and 87 meters above the elevated Al Mustaqbal highway running between Tower A and Tower B. On Completion, The Link will be the longest cantilever in the world to span from a tower. The Link will include restaurants, a 140-meter-long rooftop pool, and panoramic views of Za'abeel Park, Downtown Dubai, Dubai Creek, Burj Khalifa, and the dual carriageway below that passes between the two towers. Built on the One Za'abeel podium, The Link bridge and its cantilever were successfully lifted into its final position in 2020 by a complex strand jacking operation which took place in two stages over 12 days and three days respectively. The 9400+ tons link bridge required bespoke temporary steel gantry structures to be built and partially embedded into the permanent concrete walls.



<sup>71</sup> March 20, 1995 – Tokyo subways are attacked with sarin gas. History. Available from <https://www.history.com/this-day-in-history/tokyo-subways-are-attacked-with-sarin-gas>





*C<sup>2</sup>BRNe challenges*

Similar to those of the Burj Binghatti, with special emphasis on the underground part of the tower where HVAC systems, engine rooms, and parking (caution for VBIEDs) will be located. Despite the extra care given to The Link, it might be vulnerable to an armed drone attack and its consequences on the overall structure. What if a toxic chemical plume is directed towards the twin towers and there is no time to evacuate? In this case, shelter-in-place is the only solution. It is highly advised to integrate “safe rooms” in all apartments and “collective safe rooms” in areas where many people are gathered – i.e., restaurants<sup>72</sup>. If there is a Japanese restaurant in the complex “sushi terrorism” is not out of question<sup>73</sup>.

**Dubai Islands**

Formerly known as Deira Islands, rebranded as Dubai Islands. The development, comprising five islands spread over an area of 17 square kilometers, reinforces the emirate’s position as a global destination of choice for residents, visitors, and investors. Each island will have its own unique offerings, with cultural centers, recreational beaches, and beach clubs. The islands will be home to more than 80 resorts and hotels.

**The World Islands**

Activity on the megaproject off the Dubai coast has been ramping up, with the Anantara World Islands Dubai Resort the first hotel to open there in November. The Heart of Europe project – a six-island cluster in the middle of Dubai’s The World islands – is also close to opening and when completed it will be home to 4,000 units.

*C<sup>2</sup>BRNe challenges*

Two projects that are ideal for an RDD attack leading to area denial. CBRN response should be based on floating response vessels that will carry personnel and specialized equipment in a fast and effective way. The same applies to the evacuation of the people on the islands. There is a rumor (?) spreading around that some islands are sinking into the sea<sup>74</sup>.

**Mohammed bin Rashid Solar Park**

The Dubai Electricity and Water Authority (Dewa) is building the world’s largest solar energy park, the Mohammed bin Rashid Al Maktoum Solar Park, to reduce reliance on natural gas and diversify its power sources. The fourth phase will provide clean energy for about 320,000 houses and cut 1.6 million tons of carbon emissions yearly. The sixth phase of the park will become operational in stages, starting from Q3 2025.



<sup>72</sup> Shelter NBC- protection systems. Beth El Industries. Available from <https://beth-el-group.com/>

<sup>73</sup> Kathleen Benoza. Japan's sushi chains roll out defenses against 'sushi terrorism'. The Japan Times (Mar 13, 2023). Available from <https://www.japantimes.co.jp/news/2023/03/13/business/corporate-business/sushi-pranks-chains-action/>

<sup>74</sup> Alexander Haro. Dubai’s Man-Made Islands for the Super Rich are Reportedly Sinking Back into the Sea. The Inertia (May 22, 2016). Available from <https://www.theinertia.com/environment/dubais-man-made-islands-for-the-super-rich-are-reportedly-sinking-back-into-the-sea/> | Are The World islands in Dubai finished? Baiadellaconoscenza. Available from <https://baiadellaconoscenza.com/dati/argomento/read/328432-are-the-world-islands-in-dubai-finished>



*C<sup>2</sup>BRNe challenges*

CR sensors on the ground (inside the perimeter and at a distance of 4-5km) and in the air (surveillance drones) could ensure that the control building will continue to be safe.

**Uptown Tower district**

The new Uptown Tower development in Dubai's Jumeirah Lakes Towers is a highly visible feature of the skyline as you enter the city from Abu Dhabi. Not only has the 340-meter tower (79 floors | Grade A office space across 22 floors) been fully leased, according to Dubai Multi Commodities Centre — the free zone behind the project — work on the next two commercial towers in the project is set to commence “soon”, it said in the latter part of 2022. The building will also have about 2,000 residential units and a SO Sofitel five-star hotel. Uptown Tower is the 14th tallest structure in Dubai.

*C<sup>2</sup>BRNe challenges*

Similar to those mentioned for other skyscrapers above.

**Ciel Dubai**

Dubai already has the record for the world's tallest hotel, with the 356-meter-high Gevora Hotel.

So, where better to break that record than in Dubai? The First Group's Ciel Tower in Dubai Marina is set to stand 365 meters tall. The most recent scheduled completion date is the fourth quarter of this year. It will have more than 1,000 guestrooms and suites, as well as premium amenities, such as the Ciel Observatory & Lounge on the 81st floor and a signature rooftop Sky Terrace with an infinity pool and bar.

*C<sup>2</sup>BRNe challenges*

The world's tallest hotel is automatically a national landmark requiring special defense attention. It would be a good idea to have a provision for air-to-ground missile attacks – drones included. Fast evacuation is impossible and safe rooms are mandatory and should be structured in a way to withstand bombing or external drone attacks. Escape hoods would be an asset (hood racks in the rooms). Special attention to the underground facilities. Open space facilities on the rooftop might attract drones.

**Atlantis the Royal**

This ultra-luxury waterfront hotel and residence on Dubai's Palm Jumeirah is set to have music megastar Beyonce perform at its opening on January 21. Spanning 63 hectares and housing 795 rooms and suites, countless hospitality venues, and no less than 90 swimming pools, the resort's opening has been anticipated for some time. The hotel has begun taking reservations for March 2023.





*C<sup>2</sup>BRNe challenges*

Same as above. Plus, the possibility of maritime attacks similar to those in certain parts of Africa<sup>75</sup>.

**Natural History Museum**

Construction is underway on Saadiyat Island and was 25 percent completed in October 2022. The project will cover 35,000 square meters and will aim to bring visitors on a 14-billion-year journey through time and space, from the origins of our universe to the Earth's future. Tourism chiefs said the museum is due to be completed at the end of 2025.

**Zayed National Museum**

Its soaring cluster of towers which evoke the wings of a falcon can be seen from afar and show the level of progress at the site on Saadiyat Island. Designed by acclaimed UK architects Foster + Partners, the museum will narrate the story of the UAE Founding Father, the late Sheikh Zayed bin Sultan Al Nahyan, and highlight the history of the region and its cultural connections to countries around the world. Two galleries on the ground floor will represent the heart of the museum. Among the exhibits will be the oldest pearl in the world, found on Marawah Island last year.

**Guggenheim Abu Dhabi**

Another project located in the Saadiyat Cultural District; this one

is set to open in 2025. The museum will cover 30,000 square meters, with its gallery spaces spread across four levels linked by glass bridges and a central atrium at its core. The building, which will stand 88 meters tall, will feature nine cone-shaped structures, which will be a space for both commissions and acquisitions. It was designed by renowned architect Frank Gehry, who is also behind the Guggenheim Museum in Bilbao, Spain.

*C<sup>2</sup>BRNe challenges*

Museums always attract tourists, and the above three museums are no exception. Area denial might be tried with a dirty bomb. Neutralization of specific exhibits with a radioactive spray might be attempted but this demands close contact of the intruder with the hazardous material. If there is a restaurant or fast food on the premises, a bioterrorism attack cannot be excluded<sup>9</sup>.

**Abrahamic Family House**

Currently being built on Saadiyat Island, it aims to represent and preserve the three Abrahamic religions — Islam, Christianity, and Judaism. The houses of worship are designed as three clear geometric cubes that sit on a plinth, connected by pathways and gardens. The structures share equal external dimensions — height, width, and a unifying roof — emphasizing through design that no faith is more dominant than the other. Each building is a perfect 30-meter cube, with austere interiors, and can accommodate between 200 and 320 worshippers, depending on whether they are seated or standing shoulder to shoulder.

<sup>75</sup> Attacks on Hotels in Africa. Aljazeera Center for Studies (16 Mar 2016). Available from <https://studies.aljazeera.net/en/reports/2016/03/hotels-africa-terrorist-targets-160316133226875.html>





#### *C<sup>2</sup>BRNe challenges*

Worship areas are known to attract many people and this unique building combines three of the most famous religions worldwide. A powerful VBIED will cause many casualties with or without the addition of a radiologic material. A Category A pathogen can be easily air-transmitted in confined spaces. It is highly advisable to install CBR sensors inside and around the Abrahamic Family House in combination with external shields of “human screeners<sup>76</sup>” observing abnormal human behavior – artificial intelligence combined with predictive biometrics<sup>77</sup> software might spot possible perpetrators.

#### **Midfield Terminal**

The new Dh10.8 billion (\$2.94 billion) Midfield Terminal Building at Abu Dhabi International Airport is taking shape. On completion and launch, Abu Dhabi's Midfield Terminal Building can accommodate up to 11,000 passengers per hour or about 45 million passengers annually.

#### *C<sup>2</sup>BRNe challenges*

An airport terminal is a major target either to kill international passengers or neutralize its operation causing huge financial losses. A VBIED-RDD combination would be most effective especially if a radioisotope with a 1 or half-life is used. A focal CWA attack



is a second option directed against specific persons<sup>78</sup>. CR sensors at entrances and exits of the airport might help to alert security personnel in advance. Armed drones can be used as well against premises or aircraft during take-off or landing. Food terrorism is a possibility indicating that catering services should undergo a detailed investigation.

#### **SeaWorld Abu Dhabi**

The first SeaWorld location outside of North America is set to open in 2023 on Yas Island (90 percent completed). Built over five floors and spanning about 183,000 square meters, it will include habitats, rides, interactive exhibits, and immersive guest experiences. It's set to be home to the

<sup>76</sup> Behavior detection: the human side of physical security? DEFSEC New Zealand. Available from <https://defsec.net.nz/2018/10/01/behaviour-detection-human-side-physical-security/>

<sup>77</sup> Krisztina Huszti-Orbán and Fionnuala Ní Aoláin. Use of biometric data to identify terrorists: Best practices or risky business? Human Rights Center, University of Minnesota (2020). Available from <https://www.ohchr.org/sites/default/files/Documents/Issues/Terrorism/biometricsreport.pdf>

<sup>78</sup> Oliver Holmes and Tom Phillips. Kim Jong-Nam killed by VX nerve agent, say Malaysian police. The Guardian (24 Feb 2017). Available from <https://www.theguardian.com/world/2017/feb/24/kim-jong-nam-north-korea-killed-chemical-weapon-nerve-agent-mass-destruction-malaysian-police>





region's largest multi-species aquarium, with more than 58 million liters of water and 150 species, including sharks, manta rays, sea turtles, reptiles, amphibians, and invertebrates. The marine-life theme park complex will also include the UAE's first dedicated marine research, rescue, rehabilitation, and return center, supporting regional conservation projects, and with a focus on indigenous ecosystems in the Arabian Gulf.

#### *C<sup>2</sup>BRNe challenges*

The explosion of the Berlin aquarium<sup>79</sup> rang a bell to similar structures – a similar incident might cause serious injuries or deaths. Next time might be due to an IED or multiple IEDs within the park. The SeaWord is ranked as a low-probability target regarding CBRN challenges, but hacking is a considerable threat.

#### **Abu Dhabi Hindu temple**

The capital's Abu Mureikha district is home to the pink sandstone temple which is gradually rising and will retell ancient stories from Indian scriptures. With seven spires to represent each of the UAE's emirates, the place of worship will be 32 meters tall when it opens in 2024. One hundred and seventy artisans and bricklayers will use more than 30,000 pieces of stone and millions of handmade clay bricks in the construction.

#### *C<sup>2</sup>BRNe challenges*

This is a landmark with a peculiar interest since the ISIS-India<sup>80</sup> and India-Pakistan-Afghanistan<sup>81</sup> rivalry and tensions might be brought to Abu Dhabi. Indian expatriate community is the largest ethnic community in UAE constituting roughly 30 percent of the country's population. The number of resident Indian Nationals is estimated to be 3.5 million in 2021 as per UAE records<sup>82</sup> and the temple will become a very popular mass gathering place attracting all CBRN threats. A network of inside-outdoor CR sensors may help prevent future attacks. Highly suggested is a human screening shield around the temple.



#### **Hatta**

A lot is going on at Hatta up in the Hajar Mountains. Firstly, there's the construction of a hydroelectric power plant, which Dewa said in December was 58.48 percent complete. It will be the first of its kind in the GCC, built with an investment of Dh1.42 billion (\$387 million). The project is planned for completion in the fourth quarter of 2024. Then there's the Dh46 million waterfall attraction, which is part of a tourism drive. The area will include recreational spaces and restaurants and construction is underway.

<sup>79</sup> Berlin's giant AquaDom hotel aquarium containing 1,500 fish explodes. BBC News (16 Dec 2022). Available from <https://www.bbc.com/news/world-europe-63996982>

<sup>80</sup> ISIS threatens India, Hindus with bloodshed. YouTube (7 Mar 2023). Available from <https://www.youtube.com/watch?v=2O7O-q5YaEU>

<sup>81</sup> India: Extremism and Terrorism. Counter Extremism Project. Available from <https://www.counterextremism.com/countries/india-extremism-and-terrorism>

<sup>82</sup> Indian community in UAE. Embassy of India in Abu Dhabi. Available from <https://indembassyuae.gov.in/indian-com-in-uae.php>



*C<sup>2</sup>BRNe challenges*

All energy power plants are targets and so is the one in Hajar Mountain. Drone and RDD attacks could be major threats – delay production or area denial respectively. Inside sabotage should also be considered. Anti-drone systems are mandatory in combination with stand-alone radiation detectors in various locations around the infrastructure. The waterfall attraction does not pose a target but recreational spaces and (especially) restaurants are. The latter might face a food terrorism attack; so special surveillance is required in buffet-style tables (salad bars<sup>10</sup>).

**Moon Resort**

After speculations around the \$5 billion Moon Resort coming to Abu Dhabi, inside information suggested that constructors are considering the Dubai Pearl (demolished in January 2023) as the ideal location to set up the resort. The resort is designed to be built in 48 months and will have an overall height of 735 feet (224 meters) with a 2,042-foot circumference (~622 meters). Moon World Resort will be a very luxurious and contemporary, fully integrated destination resort, with a lot of components inside that one would already know – for example, a convention center, restaurants, spa, retail spaces, and a nightclub each with a lunar twist. Developers project the futuristic destination will attract up to 10 million visitors annually, aimed at travelers looking to explore space at a fraction of the cost and without leaving planet Earth. The resort will have 4,000 hotel suites (plus 300 luxury residences called Sky Villas available to buy), none of which will have glass windows – instead there will be full-wall electronic windows that will deliver anything the guest would like to view. The Moon will also accommodate a training platform for space agencies and their respective astronauts.

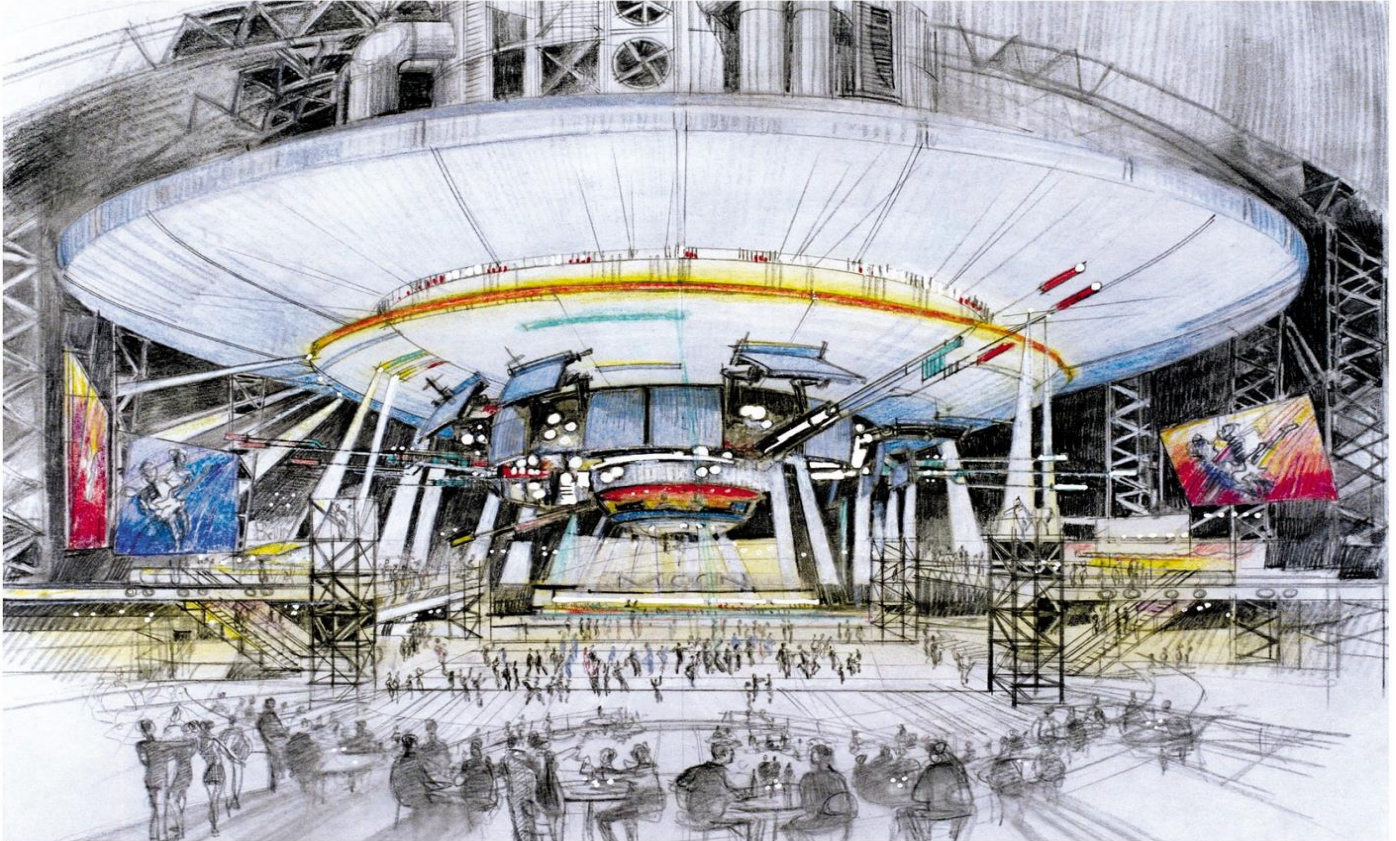
*C<sup>2</sup>BRNe challenges*

Moon Resort will surpass the current national landmark Burj Khalifa in Dubai. And as such, it might attract all kinds of security threats including C<sup>2</sup>BRNe. The Moon most probably will have a small number of entrances (ideal locations for a denial VBIED/RDD attack) and a big underground parking lot. Since it is a huge futuristic project, information technology from artificial intelligence to deep learning will be used to manage several projects within the resort. Blackmail hacking would be attractive but also a way to cause damage or even destruction. HVAC systems are vulnerable and able to transfer malicious agents (CBR) almost anywhere. A RED attack could happen anywhere indoors, and the density of visitors will do the rest. Food poisoning poses an additional threat<sup>10</sup>. A dense network of CBR sensors, CCTVs, face recognition, and behavioral technologies is required to early identify possible threats and intruders. In case of a CR incident, decontamination of casualties would be a huge problem and so would the timely arrival of CBRN first responders into the hot zone. Hidden or camouflaged decontamination poles could create “water curtains” and central sewage could lead the





contaminated waste to plasma systems for elimination. Artificial intelligence-robotics-driven autonomous stations positioned in strategic areas will be useful, especially for female Muslim visitors that cannot be asked to remove their clothing in public. It would be wise to have CBRN escape hoods available to everyone inside the moon – visitors and employees. One or more ground-to-air missile systems would be a good idea against aerial attacks and so are anti-drone systems. Keep in mind the recent Houthi drone attacks against the UAE<sup>83</sup>. It would be interesting to know if there will be a healthcare facility and its size. And of course, its CBRN preparedness level. In addition, all control rooms should have EMP protection – if not possible for the entire Moon.



### Conclusions

It is almost certain that none of these giga/mega projects have a CBRNe preparedness plan mainly because they depend on the emergency response of the Civil Defense authority thinking that superhero first responders will do miracles and save lives operating in innovative environments out of standard operating environments. It is wise to form a “national joint construction experts (architects and civil engineers), CBRNe experts, and Emergency Medicine experts’ team” that will examine all the parameters of such projects, reveal CBRN challenges and vulnerabilities, and propose measures and solutions. Better prepared than sorry they say, and they are so right. When the real thing happens out of nowhere it is too late to act and make plans.

Since most of the mentioned projects will be AI-driven imagine what the impact might be on countermeasures scheduled to manage CBRN threats in an urban environment. Imagine ChatGPT-driven [slaughterbots](#) armed with CBR material flying inside and outside the vertical cities! **Be prepared for the unexpected!**

<sup>83</sup> Timeline: UAE under drone, missile attacks. Aljazeera (3 Feb 2022). Available from <https://www.aljazeera.com/news/2022/2/3/timeline-uae-drone-missile-attacks-houthis-yemen>



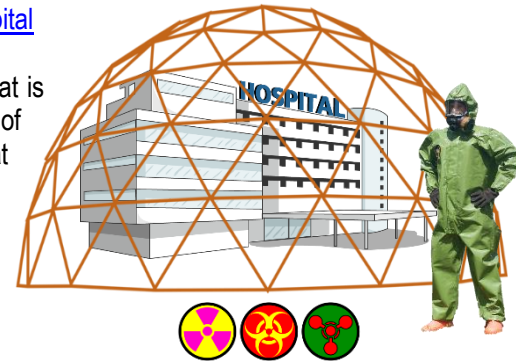
## How to CBRN-proof Your Hospital

**Citation:** [Galatas I](#) - How to CBRN-proof Your Hospital - Biomedicine & Prevention issues (2017) – Vol. 4 - CBRNe safety. Special issue (PART 2) - (132) - DOI:10.19252/000000084

**Source:** <https://www.biomedicineandprevention.com/manuscript/how-cbrn-proof-your-hospital>

All medical people involved in hospitals' preparedness must realize that the CBRNe threat is real and following the recent and ongoing shrinking of the Islamic State and the influx of foreign fighters back to their homelands (mainly in Europe) many of which have combat experience and certain dexterities in explosives and chemicals, the possibility of a chemical or radiological terrorist incident is not futuristic anymore and should be adequately prepared to avoid being sorry for themselves and their patients.

Certain things need to be addressed and certain solutions or proposals to be taken care of that will fortify hospitals and minimize the consequences.



### Architecture and geography

As a principle, in modern hospitals, the outdoor environment is usually composed of vast gardens and green fields that soothe the sick and support their fast recovery. But how can the hospital control the incoming contaminated flow of victims rushing to the nearest hospital without a solid hard fence and a strong gate? The Ground floor has tens of doors and windows that can provide entry to the hospital if unguarded, unlocked, or easy to brake by frustrated incomers in need. Their uncontrolled entry will lead to overall hospital secondary contamination and make things worse. In that respect, a hard perimeter fence; main gate; secure/locked ground doors and windows are mandatory precautions to preserve the hospital's integrity and working personnel's safety. Addition of a fence is costly and the hardening of doors and windows with special films might be expensive as well. In contrast, most military hospitals are considered military camps and do have a high perimeter fence and a main gate with a post.

The distance of a hospital from potential targets is of significant importance because it defines the response time of the involved entities. For example, a hospital located near a major subway station might have zero or near-zero response time; a hospital located far from targets might have more time to organize its response but due to distance only a few victims will go there even if it is a CBRN specialized hospital. The Tokyo sarin incident (1995) dictates that all hospitals and clinics in an (at least) major city should be prepared to accept contaminated casualties – 169 Tokyo medical facilities were involved in the management of casualties and worried-well citizens.<sup>1</sup>

### Security personnel

All hospitals have them and they are very important for the daily function of the hospital (incoming vehicles and visitors, wards' security, implementing the visiting hours program, etc.). But can the hospital count on them for controlling the incoming flow of contaminated victims without specialized training, specialized equipment, and hands-on experience? Surely not! Most probably they will either lock themselves inside the hospital or leave the premises. The situation might be better in the military hospitals but even there training and equipment need to be available and know how to use them. Specialized equipment and training cost money as well.

### Planning

The plan is nothing; planning is everything! In that respect, a hospital needs to have a small, flexible, realistic, updated, and anthropocentric plan readily available to all those involved. Planners worldwide need to answer a very simple question: "What would be my reaction if I was involved in a real CBRN incident?" Planners should plan based on what people will actually do; not on ideal responses and academic expectations that usually have no place in actual mass emergencies. Thus the anthropocentric (from Greek: *anthropos* [man] + *kentro* [center]) element should be prominent and the most important pylon in the planning process. Plans do not cost a lot but require a lot of brain work and hands-on operational experience! A plan also reveals the background of a planner. It is very obvious that a planner has never donned a personal protective equipment (PPE) ever in his/her life when reading that first responders donned in Level-A PPE will do everything inside the Hot Zone – from sampling and detection to carrying stretchers with victims!





### Exercises and drills

The best way to test plans and preparedness is by conducting exercises and drills. Although all know that this is true usually either they do not do it or do it wrong! One big CBRN drill every two years equals nothing! One pre-scheduled drill is best for policy/publicity reasons but operationally equals nothing as well! Because in real life an incident will happen right here, right now! Usually, bad things happen during off-working hours, vacations and holidays, or weekends or during the night. In that respect exercises and drills within the hospital or with neighboring hospitals both at local and national levels should take these elements into account to generate drills that will stimulate personnel and simulate reality as close as possible. Exercises and drills do not stop at the entrance of the hospital or when casualties are safe inside ambulances. Ask your ambulance crews to proceed to the nearest hospital and deliver their casualties to the Emergency Department (ED) without notice. This might change your preparedness mindset completely. Continuous acclimatization to PPE is mandatory and should be incorporated into each department's routine activities. Wearing PPE once or twice a year, it would be like the first time! Medical interventions while in PPE requires a lot of training to overcome the reduced dexterity of thick rubber gloves.

#### Holistic Training Model

- Meeting with organization's officials to define their mission and explore peculiarities and needs
- **Basic CBRN Course** (theoretical – 5 days)  
Exams
- Consultation on CBRN equipment purchase
- Purchase of specialized equipment (for Advanced Training)
- **Advanced CBRN Training I** (theoretical – operation oriented 4 days)  
Exams
- **Advanced CBRN Training II** (familiarization with equipment – 4 days)  
Exams
- **Advanced CBRN Training III** (hands-on field training based on simple scenarios – 4 days)  
Exams
- **Advanced CBRN Training IV** (hands-on field training based on complex scenarios /night training – 4 days)  
Exams
- Scenario-based tabletop exercise (2 days) and full field drill (1 day) leading to **"CBRN Expert Certificate"**  
Exams
- Live Agent Training (Europe [Emiratis only] 1-2 weeks) leading to **"CBRN Instructor Certificate"**  
Exams
- Two (2) half-day field drills per year (one: surprise drill)
- Recertification course (3 days) **every 2 years**  
Exams

For GCC countries

Female classes available

Example of CBRN training curriculum

### Hospital's personnel

This is the key player in all response plans worldwide. Without them, no plan is effective or applicable. All should be involved at various levels of engagement. All should be educated and trained depending on their specialty and duties assigned with special emphasis to ED personnel but also to certain medical specialties closely related to CBRN agents (i.e. chest physicians; ophthalmologists; pediatricians; dermatologists, etc.). If they are not very enthusiastic about their involvement, speak with them to dig out why and improvise ways to motivate them. CBRN medicine is kind of a medical specialty requiring a lot of studying, training in difficult environments, and performing duties while wearing uncomfortable PPE compromising senses and dexterities – and all that for what? Just for an incident once in a life time; if ever? At the same time, they have to face their daily emergencies, take care of their patients, improvise based on their deep medical knowledge, and lots more. On top of these, we ask them to add another specialty as described above. These are only a few of the questions and doubts posed to and by medical personnel. Think of intelligent approaches for intelligent people, fight their fears generated by ignorance, and infuse interest through modern educational methodologies – you might be surprised by their reactions and change of overall attitude. If we ever manage to introduce "CBRN Medicine" into the curricula of the medical and nursing university schools this would be the first step towards better-educated future front-line health professionals that one day might be confronted with the real enemy. And this does not cost a lot!



### Infrastructure

a. *Decontamination facilities* look expensive but are they? Depending on the hospital's budget and strategic mission there are many commercial solutions available in two forms: deployable and fixed. The first choice is usually a trailer containing deflated tents and related decontamination equipment. The latter is a separate/adjacent infrastructure (usually four rooms) that serves the purpose. The ideal setting is to have an ED with two separate entrances: one leading to the "regular" ED for daily emergencies and the other (CBRN/HAZMAT [HAZardousMATerials]), leading to a decontamination station connected to the regular ED. In case of an emergency – especially if the incident's scene is close to the hospital and response time is almost zero – the hospital seals the main entrance, opens the CBRN/HAZMAT entrance, and is ready for accepting contaminated casualties. All of the above raises an important issue that usually is not taken into account. It is cheaper if we incorporate decontamination facilities and capabilities during the hospital's design phase instead of hardening premises later on under the pressure of change of threat estimate. A good solution for this is to put the civil engineers/architects' community into contact with the medical/health community and CBRN experts. The collaboration will surely provide clever and affordable solutions. On the other hand, what is the difference between a fixed or deployable decontamination system with the showers we have at home? Improvisation will save money and will come up with custom-made solutions that fit specific needs. Imagine placing a big number of showers on the perimeter ground walls of a hospital; then connect them with the main water supply system, install a waste water collection tank underneath, add several privacy panels and you are set to go with a fraction of money. Use pipes, nuzzles, and hoses and you can construct your own decontamination systems for your first responders as well! Fixed decontamination stations might look very expensive but the overall cost-to-benefit ratio is quite attractive in the long run.

If the above are still expensive for you then close collaboration with your local fire station is a one-way solution. Firemen are very good at creating "water curtains" (high volume/low pressure [50-60psi]) at no time. But you have to test this solution and solve the small problems that come with it by working together with them and letting them know what you want them to do.

Other issues of concern are the isolation rooms (with positive/negative pressure) and radiation rooms (for inner contaminated casualties especially following an RDD detonation).

b. *Existing laboratories* pose a second problem. Are they at least of bio-safety Level -2 (BSL-2) quality? Do they have any bio-safety lab Level-3 (BSL-3) capabilities, or do you have to transfer samples to an authorized BSL-3 or BSL-4 lab? Is the reference lab within the country or need to send samples abroad? Does the hospital lab have proper protocols and means for transferring highly contagious samples? Does it have the equipment for fast verification of exposure to chemical warfare agents (i.e. biomarkers for exposure to organophosphates)?

c. *Field hospitals*: Hospitals can easily handle big numbers of "clean" chemical casualties. But can they equally perform when confronting biological or radiological casualties? Are there any quarantine hospitals included in response plans? A field hospital (tents or containers) is a good solution and can be transported near the infected area fulfilling the basic rule indicating that in biological attacks casualties are not transferred to hospitals; instead, hospitals are transferred to casualties. Armed Forces worldwide do have field hospitals for their own operational purposes – are these hospitals suitable to operate in a contaminated environment as well?

### Equipment

Most of the equipment that hospital personnel will need is already available and used on a routine basis (e.g., IV fluids, intubation sets, suction pumps, hemostatic tourniquets, consumables, etc.). In addition to these, specialized items need to be purchased.

a. *PPEs*: Best choice for ED personnel is the powered air-purifying respirator (PAPR) ensemble that is comfortable and provides a wide-view helmet without restrictions on facial hair, glasses, etc. In combination with a splash-proof (water-resistant) suit, makes an ideal set serving all purposes including decontamination procedures.

Biological threats (e.g., Ebola virus) need different PPEs for the protection of personnel involved. So far the related technical document produced by the European Center for Disease Control (ECDC) is highly recommended<sup>2</sup> and so is the new PPE prototype MKVI proposed by John Hopkins University.<sup>3</sup> Same applies to another ECDC technical report addressing the issue of aerial medical transportation of bio-contaminated patients.<sup>4</sup> There are many related solutions in the market – choose one that can be folded (to save space) and can provide both positive and negative pressure inside the transportation capsule (it can be used for both biological and chemical/radiological agents' exposures).

Radiological casualties represent another category we should also focus on mainly because our medical knowledge on management issues is rather limited. Even specialists in nuclear medicine and medical physics are not very familiar with triage and management protocols in case of mass casualties following an RDD's detonation in an urban environment. An excellent source of related information is the Radiation Emergency Medical Management (REMM) website<sup>5</sup> which is highly recommended for further exploitation and study.





b. *AMBU and ventilators*: Since the area outside the ED is considered a “warm zone” (contaminated) it is best to use equipment connected with gas filters (like those used in gas masks – i.e. *AMBU Military Mark III* resuscitator or *Pneupac/ParaPAC* ventilator).

c. *Field consumables*: There are only three medical interventions that can be performed under PPE in a contaminated environment: provide auto-injectable antidotes (for nerve gases and cyanide); support respiration (chest seals would be beneficial in case of an explosion) and control hemorrhage (with modern hemostatic sponges or gauges). Remember: it is important to keep contaminated casualties alive until they are “clean” (decontaminated) and ready to undergo a proper triage at the ED where all means would be available to support their survival.

### Interoperability and compatibility

These are two terms that the military loves the most but civilian counterparts usually forget their importance. Imagine two hospitals having two different decontamination systems – one has it in deflated tents and the other in a container: what will actually happen when one hospital will be asked to support the other? Upon arrival, personnel of the first hospital will find themselves in an unfamiliar working environment, and in the middle of havoc, you do not ask questions or read the operational manual! Imagine now that these two hospitals had the same field equipment: upon arrival, the new crews will immediately start providing services by using their “own” systems. Sounds simple and logic but these are two qualities often forgotten or neglected during planning phases! Unfortunately, quite often, military hospitals ignore these terms as well not to mention that the civilian-military hospital collaboration is not always ideal.

### Morgues and contaminated corps’ management

Hospitals are not equipped to handle big numbers of corps or contaminated corps. In that respect, hospitals need to have solutions ready and applicable that will provide the time required for the adequate management of this problem. Cemeteries might have big, refrigerated rooms that can be used; commercial refrigerated trucks can be deployed provided that you remove all identification markings from outside surfaces; ice-skating halls might provide more space for storing the dead as well. The huge morgue facility deployed within 72 hours after the 7/7 London bombings (2005) represents a fine example of a holistic solution with an excellent working environment and consideration of many ethical issues derived from the multiculturalism of the victims.<sup>6</sup> Take also into consideration the burial processes to be used for the various types of CBRN contamination. This is one of the major problems communities were affected by the ongoing Ebola outbreak in certain African countries: superficial burial led to secondary infection of stray carnivores digging into the shallow graves looking for food.<sup>7,8</sup>

### In conclusion

The topic is complex and multi-dimensional and this article addresses only the headlines of hospitals’ CBRN defense and preparedness. Deeper study and thorough evaluation is needed for a successful outcome. But even the summarized information provided herein should be enough to alert hospitals’ civilian and military officials on their potential to deal with asymmetric threats producing mass casualties in an urban environment while providing two alternatives: to pray nothing that horrible ever happens in their city or to do something to protect both their hospital and people working therein. It is their choice and so are the consequences of their decisions! Open-source intelligence reveals that the Islamic State has chemical and radiological terrorist ambitions, and their immoral barbaric behavioral *modus operandi* reveals that they are capable of releasing CBRN agents against Western infidels.

In conclusion, some key points need to be taken into serious consideration in case authorized personnel decides to step up and take action:

1. Anthropocentric planning is mandatory;
2. Save the savers/first receivers to save the hospital;
3. Continuous exercising and acclimatization to PPE is the antidote against fear and ignorance;
4. HAZMAT/CBRN treatment is mostly empirical and requires a lot of studying and field improvisation;
5. All medical specialties will be involved;
6. Medical decisions might contradict ordinary medical ethics and regulations;
7. Interoperability of *modus operandi* and compatibility of equipment are important elements in CBRN planning;
8. Introduce “HAZMAT/CBRN Medicine” to medical schools’ curricula – invest in the future!

●► References are available at the source’s URL.





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# BIO NEWS





## OK, but where will the next pandemic come from?

By Angela Kane and Jaime Yassif

Source: <https://thehill.com/opinion/healthcare/3905161-ok-but-where-will-the-next-pandemic-come-from/>

Mar 17 – As questions about the source of the COVID-19 pandemic [grabbed headlines](#) once again, a critical question is being ignored: **How do we figure out the origins of the next pandemic? And there will be a next one. Can we put systems in place now to tackle this challenge and support a more rapid, effective response?**

Assessing the origins of a pandemic is a difficult but critically important task. Done correctly, such an assessment can provide information to inform the public health response and curtail the pathogen's spread. In the event of a deliberate outbreak or accident, it can help us understand what happened so we can close dangerous biosecurity and biosafety gaps. Having a credible capability to discern pandemic origins is also essential for preventing future human-caused high-consequence biological events by signaling to malicious actors that they are likely to get caught if they attempt to carry out a bioweapons attack.

While the politics surrounding an outbreak cannot be ignored, the international community needs to get better at conducting evidence-based assessments of pandemic origins, in order to minimize and deflect the most polarizing voices in favor of objective scientific analysis. [Nearly 7 million](#) deaths from COVID-19 worldwide prove the stakes are high.

To address this need, the Nuclear Threat Initiative is working with international partners to establish a new [Joint Assessment Mechanism](#) (JAM) which would fill a significant gap in the international community's ability to discern the source of high-consequence biological events of unknown origin. Its mandate would be to establish the facts — specifically, whether the event emerged naturally or was accidentally or deliberately released from an academic, commercial or government laboratory.

The challenges of discerning COVID-19 origins have highlighted the need for this capacity. National intelligence will always have limits, and U.S. intelligence assessments may be viewed by other countries as biased by parochial national interests and geopolitical competition. Determining the origins of a disease outbreak in a forum that is scientifically based, internationally trusted, and as insulated as possible from geopolitics will increase confidence in the eventual answer.

The international community has some mechanisms in place to help figure out the source of biological events, but there are significant gaps in these tools. On one end of the spectrum, the World Health Organization is well positioned to assess outbreaks of natural origin — so-called “spillovers” from animals to humans — and it has both a comparative advantage and clear support from its member states in these situations. However, WHO is still deciding how far it wants to go in assessing an outbreak's origins once signs begin to emerge that it may have resulted from a lab accident or a deliberate bioweapons attack. This is an important decision because WHO needs to maintain the trust and openness of its member states to carry out its public health mission, and engaging in security-related issues could make this difficult.

On the other end of the spectrum, the [United Nations secretary-general's Mechanism](#) (UNSGM) has the authority to investigate allegations of deliberate bioweapons use and is not subject to veto by members of the U.N. Security Council — a group that includes the U.S., China and Russia. However, the UNSGM's mandate is limited. It can only investigate allegations of biological weapons use when countries bring them forward — and that has never happened, likely due to the very high bar for making a serious allegation which requires a lot of hard-to-collect evidence.

So, how could a new Joint Assessment Mechanism work, if the origin of the next large-scale biological event is unclear?

The JAM would be a standing entity with an internationally diverse roster of scientific experts responsible for conducting ongoing data analysis; this would provide a baseline awareness of current biological risks. The JAM would also be ready to rapidly launch an assessment of a biological event when triggered. To support its analytical work, the JAM would use modern tools and technologies, including bioinformatics, data science, and artificial intelligence.

We believe the JAM should be based in the Office of the U.N. secretary-general to provide the authority and flexibility to activate and deactivate the mechanism, as needed. This also would enable the JAM to serve as an honest broker, trusted by member states to conduct an unbiased assessment, and it would allow the secretary-general to draw upon existing capabilities under the UNSGM and the WHO.

In most cases, an early assessment would begin with a public health investigation conducted by WHO. It will be critical to establish clearly defined, evidence-based criteria for determining when and how to transition from a WHO-led public health investigation to the use of the JAM.

COVID-19 will not be the last pandemic many of us will face in our lifetimes. Knowing how a pandemic or other major biological event arose is too important a task to leave to national governments. Without independent attribution capability, we may learn the hard way that we're not prepared for the next pandemic. Or the one after that.



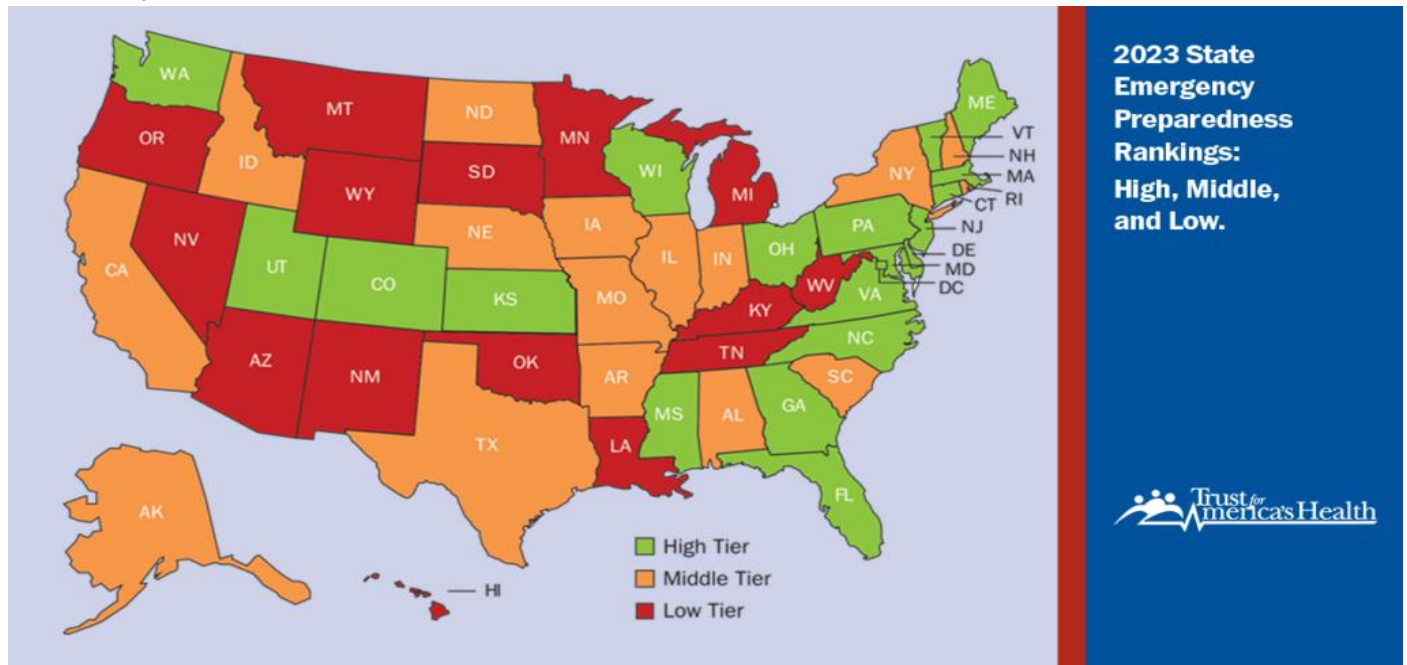
Angela Kane is the former United Nations high representative for Disarmament Affairs and a senior advisor at the Nuclear Threat Initiative (NTI).

Jaime Yassif, Ph.D. is vice president for Global Biological Policy and Programs at NTI.

## Ready or Not 2023: Protecting the Public's Health from Diseases, Disasters, and Bioterrorism

Source: <https://www.tfah.org/report-details/ready-or-not-2023/>

Mar 23 – [Ready or Not 2023: Protecting the Public's Health from Diseases, Disasters, and Bioterrorism](#) measures states' readiness to respond to a spectrum of health emergencies and to provide ongoing public health services. The report gives federal and state health officials and policymakers actionable data and recommends policies to improve the nation's emergency preparedness at a time when health emergencies are increasing. During 2022, the U.S. surpassed 1 million deaths due to COVID-19 and saw decreasing rates of routine vaccinations and increasing prevalence of health misinformation. In addition, the past year was the eighth consecutive year the U.S. experienced 10 or more billion-dollar weather-related disasters.



The report tiers states and the District of Columbia into three performance levels for health emergency preparedness: high, middle, and low. This year's report placed **19 states and DC in the high-performance tier**, **16 states in the middle performance tier**, and **15 states in the low performance tier**.

### States' Performance by Tiers

Performance Tier	States	Number of States
High Tier	CO, CT, DC, DE, FL, GA, KS, ME, MD, MA, MS, NJ, NC, OH, PA, UT, VT, VA, WA, WI	19 states
Middle Tier	AK, AL, AR, CA, IA, ID, IL, IN, MO, ND, NE, NH, NY, RI, SC, TX	16 states
Low Tier	AZ, HI, KY, LA, MI, MN, MT, NM, NV, OK, OR, SD, TN, WV, WY	15 states

The report's findings showed both areas of strength within the nation's public health system and areas that need attention





**Areas of strong performance include:**

- A majority of states have made preparations to expand healthcare and public health laboratory capacity in an emergency.
- Most states are accredited in the areas of public health or emergency management. Some states are accredited in both.
- Most U.S. residents who received their household water through a community water system had access to safe water. However recent water system failures in Jackson, Mississippi and Newark, New Jersey demonstrate the importance of continued attention to the integrity of municipal water systems.

**Areas that need attention include:**

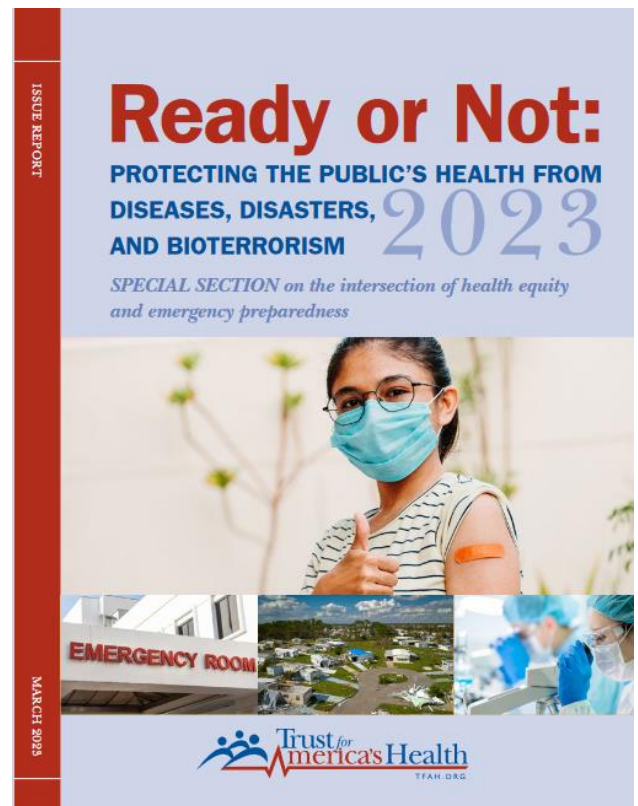
- Too few people were vaccinated against seasonal flu last year despite significant improvement in flu vaccination rates in recent years. During the 2021-2022 flu season, 51 percent of Americans ages 6 months or older received a flu vaccine, well short of the 70 percent goal established by [Healthy People 2030](#).
- Only about half the U.S. population is served by a comprehensive public health system. Comprehensive public health systems ensure that necessary health services are available to all residents.
- Only 26 percent of hospitals in states, on average, earned a top-quality patient safety grade in 2022. Hospital safety scores measure performance on such issues as healthcare-associated infection rates, intensive-care capacity, and an overall culture of error prevention.

“Increased and sustained investment in public health infrastructure, emergency preparedness, and health equity will save lives,” said J. Nadine Gracia, M.D., MSCE, President and CEO of Trust for America’s Health. “Federal, state, and local officials as well as leaders in the

healthcare and business sectors should use our findings to identify and address gaps in public health preparedness. Neglecting to do so will mean that the country will not be as prepared as it needs to be for the next public health emergency.”

**The report contains recommendations for policy actions that would create a stronger public health system at all levels, including:**

- The Administration, Congress, and state lawmakers should modernize public health infrastructure, including by investing \$4.5 billion annually to support foundational public health capabilities. In addition, Congress should continue to increase funding for the Public Health Emergency Preparedness cooperative agreement and public health data modernization to allow for earlier and more accurate detection of emerging health threats.
- Policymakers at all levels should act to protect and strengthen public health authorities and should prioritize rebuilding trust in public health agencies and leaders.
- Congress and state legislatures should invest in effective public health communications, including countering misinformation.
- Congress and states should ensure first-dollar coverage for all recommended vaccines under commercial insurance and for uninsured people. States should minimize vaccine exemptions for school children, and healthcare facilities should increase rates of vaccination for healthcare workers.
- Congress and states should provide job-protected paid leave for employees due to illness or family caregiving demands.
- Congress and states should invest in policies and capacity to address the social determinants of health such as secure housing, access to transportation, and access to healthy food.
- Congress should fund the entire medical countermeasures (MCM) enterprise, including the distribution and dispensing of MCMs. Congress should also create incentives for new products to prevent and fight antibiotic-resistant infections.
- Congress and states should strengthen readiness for climate change, extreme weather, and environmental health threats.



## Bioterrorism video – in [Arabic](#)

### There's a 'ChatGPT' for biology. What could go wrong?

By Sean Ekins, Filippa Lentzos, Max Brackmann, and Cédric Invernizzi

Source: <https://thebulletin.org/2023/03/chat-gpt-for-biology/>



Mar 24 – In recent months ChatGPT and other AI chatbots with uncanny abilities to respond to prompts with fluid, human-like writing has unleashed torrents of angst flowing from different quarters of society; the chatbots could help students cheat, encroach on jobs, or mass produce disinformation. Outside of the spotlight shining on the chatbots, researchers in the life sciences have also been rolling out similar artificial intelligence-driven technology, but to much less fanfare. That's concerning, because new algorithms for protein design, while potentially advancing the ability to fight disease, may also create significant opportunities for misuse.

As biotech production processes are evolving to make it easier for creators to make the synthetic DNA and other products they've designed, new AI models like ProtGPT2 and ProGen will allow researchers to conceive of a far greater range of molecules and proteins than ever. Nature took millions of years to design proteins. AI can [generate meaningful protein sequences](#) in seconds. While there are good reasons to develop AI technology for biological design, there are also risks to such efforts that scientists in the field don't appear to have weighed. AI could be used to design new bioweapons or toxins that can't be detected. As these systems develop alongside new easier, cheaper, and faster production capabilities, scientists should talk to and learn from peers who focus on biosecurity risks.

#### What's the concern with engineered proteins?

While many applications of protein engineering are beneficial, protein toxin-based weapons have long been a concern. These are poisons created by organisms, like plants or fungi. Ricin, for example, a toxin made from castor beans, was likely used by Bulgarian agents in London in 1978 in the [well-documented](#) umbrella-assassination of Georgi Markov, a Bulgarian dissident. Another example is the botulinum neurotoxin; it's 100,000 times more toxic than the nerve agent sarin and has been a staple of state [bioweapons arsenals](#). If the technology for developing and producing protein toxins improved, say by making it easier to design novel toxins or improving on existing ones, that could pose a high risk. The authors of an [early paper](#) on the risks of protein engineering, the field involved with designing and making proteins, noted in 2006 that manufacturing toxins in larger amounts was becoming more feasible. Instead of having to extract toxins from their sources, new technologies meant they could be produced in bacteria or other cells. Biosecurity experts Jonathan Tucker and Craig Hooper were particularly concerned with the growing medical interest in so-called "fusion toxins," which could combine elements of a toxin like ricin with antibodies that could zero in on cancer cells. Along with cancer cells, such a technology could potentially be turned to disrupt other healthy cells. While protein engineering was making strides, the authors saw it as an area of dual-use risk "often overlooked" by the biosecurity community.

One thing limiting those risks, Tucker and Hooper said, was a lack of computing power to design new proteins. Some 17 years later, with the advent of AI-based protein design and much more computing power, this limitation seems to have eroded.

#### Why generate new proteins?

AI-assisted protein design is a potentially revolutionary area in the life sciences. Proteins are the molecular machines of life. Humans and other species produce thousands of these complex molecules, which perform a wide array of critical functions. These include enabling your muscles to move, letting molecules in and out of cells, and breaking down the nutrients in food and drink. Where evolution has taken hundreds of millions of years or longer to perfect proteins, scientists can now "train" an AI, using hundreds of millions of protein sequences as examples, to do that much more rapidly.

But why would anyone want to make new proteins? Imagine a natural protein enzyme that catalyzes a chemical reaction useful for making a drug. An AI could conjure up an enzyme that makes the valuable product faster. Or it could come up with a slightly modified protein-based drug, one with improved qualities. Perhaps one day, AI could be useful in developing proteins with completely new reactions. Researchers could [design proteins](#) that specifically bind to and inhibit human proteins in order to correct a genetic disease. Or proteins that neutralize bacteria or viruses when they bind to them. Or proteins that break down pollutants. The commercial applications of generative protein design are potentially infinite.

#### What are the risks of AI-designed proteins?

AI language models for protein design are being developed rapidly. [ProtGPT2](#), for example, has been trained on 45 million protein sequences, [ProGen](#) on 280 million sequences. Both were described in recent





articles published since 2022. The scientists involved in the models used their software to design new proteins which were then made and tested to verify that they were indeed functionally competent. The models are generating direct comparisons to the groundbreaking nature of the ChatGPT and its recent predecessors. In late January, Ali Madani, part of the team that developed ProGen, [tweeted](#), “ChatGPT for biology? Excited to share our work on [AI models] for protein design out today.” Inspired in part by AI text generators, the researchers behind ProtGPT2 wrote, “we wondered whether we could train a generative model to...effectively learn the protein language...”

Life scientists are not naïve to the security dimensions of their trade. Although few would want their science to be used to deliberately cause harm, many, it seems, don't fully appreciate how such risks could apply to their own areas of research. Protein designers are no different. At least there is no evidence in the papers or preprints on ProtGPT2 and ProGen that any such consideration is taking place. Protein designers also make software tools readily available, depositing them in widely accessible repositories, seemingly without considering potential security concerns. That's a problem. New proteins may circumvent biodefenses and other controls.

Take for example the active site of ricin, the plant protein toxin. Ricin can inactivate ribosomes, the cellular structures that assemble proteins. In other words, it's a dangerous poison. A protein engineering AI could, say, re-design the protein structure around ricin's active site, potentially removing any sequence similarity to ricin. Anyone working on toxin detection technologies—biodefense or food security labs, for example—might find it difficult to identify new, unseen toxins. Established systems to detect and prevent the illegal export of toxins would not recognize them. While, fortunately, the activity of ricin depends on a combination of factors, and changing the surrounding protein structure will not necessarily on its own hamper detection and control, advances in gene synthesis, protein expression and purification techniques are adding speed and ease to developing computer-designed proteins. These will likely increase the risk of misuse.

### Making AI-designed proteins

Designing a molecule or protein that performs a certain task may seem innocuous, but couple that capability with technology to actually make the product, and we enter a different realm. Could that actually happen? Well, there already have been advances in the field of robotic chemistry that create an [integrated pipeline](#) that designs and makes small molecules. While expanding this concept to the automated design and synthesis of larger molecules like proteins would be a big technological leap, recent [developments](#) in protein synthesis are enabling the small-scale, high-throughput production of some AI-created proteins. And biofoundries—cutting-edge facilities for the design and production of molecular biological products—are enabling the creation of other proteins. All that is needed is for the new protein design algorithms to be integrated with those production processes.

For us, this is a déjà vu moment. Previously, we stumbled upon the power of using [generative AI to develop small molecule analogs](#) of VX nerve agent, a powerful chemical weapon. Switch the settings on a drug-discovery AI, and instead of nontoxic molecules, the software will deliver the most toxic “drugs.” The generative protein design field offers immediate parallels, yet there is little recognition in the field for the need to address the potential dual-use risk of the technology. Proteins can come with much more 3D-complexity than the chemical compounds that make up many drugs, and it might be harder to “see” the nefarious purpose of newly designed proteins/enzymes. Indeed, they may not be comparable to anything known. But responsible science still demands consideration of the alternate uses the science can be put to, other than those intended.

One way to address potential misuse is to follow a simple code: stop, look, and listen. If you are developing a new generative AI technology or application, stop and consider the potential for dual-use. Look at what other scientists have done to address this in their software. And listen when other scientists warn you of the potential for your technology to be misused. Failure to take such precautions could lead to the continuous repetition of [teachable moments](#) in the misuse of artificial intelligence—or far worse consequences.

Beyond even the substantial risks of protein generation, there is unprecedented potential to use generative AI to develop new and intrusive forms of [surveillance, fueled by biological and genomic data](#); [extremely toxic molecules](#); and even [ultra-targeted biological weapons](#). The transformative power of the combination of AI and life science could lead humanity down an irreversible path, with unrivalled possibilities for coercive and lethal interference in life's most intimate processes. Space must be opened up for conversations in both the international security community and in the life science community, as well as between these communities, on what [safe, secure and responsible](#) life science research involving AI might be.

**Sean Ekins** is founder and CEO of Collaborations Pharmaceuticals, Inc. which is focused on using machine learning approaches for rare and neglected disease drug discovery. Sean graduated from the University of Aberdeen; receiving his M.Sc., Ph.D. in Clinical Pharmacology and D.Sc. in Science. He was a postdoctoral fellow at Lilly Research Laboratories, before working as a senior scientist at Pfizer and then Eli Lilly. He then went on to join several startup companies at increasingly senior levels. He has a passion for advancing new



technologies for drug discovery and has authored or co-authored >350 peer reviewed papers, book chapters, edited 5 books on different aspects of drug discovery research and use (and misuse) of AI. Coverage of this research has also appeared in the Economist, Financial Times and Washington Post.

**Filippa Lentzos** is a Reader (Associate Professor) in Science & International Security at King's College London, where she is jointly appointed in the Department of War Studies and the Department of Global Health & Social Medicine. A biologist and social scientist by training, Lentzos' research critically examines biological threats, health security, biorisk management and biological arms control, and she has written widely on these issues. Lentzos serves as the Director of the King's MA in Science & International Security. She is also an Associate Senior Researcher at the Stockholm International Peace Research Institute (SIPRI), a Non-Resident Scholar at the James Martin Center for Nonproliferation Studies (CNS), and she serves as the NGO Coordinator for the Biological Weapons Convention.

**Max Brackmann** works in the NBC arms control at Spiez Laboratory of the Swiss Federal Office for Civil Protection, where he is concerned with biological threats. He is actively engaged in numerous international networks to strengthen countries' abilities to detect and characterize pathogens, especially in case of their alleged use as biological weapons. His laboratory work focusses on toxins and pathogens, where he develops and implements methods for their detection and characterization. His additional research interests are bacterial pathogenesis mechanisms, toxins and their mode of action as well as mass spectrometric method development. Max holds a Bachelor's and Master's degree in Biochemistry from the Technical University of Munich and a PhD from the University of Basel.

**Cédric Invernizzi** is a senior expert in biological arms control at Spiez Laboratory, the Swiss Federal Institute for protection from nuclear, biological, and chemical threats, within the Swiss Federal Office for Civil Protection. He is concerned with developments in science and technology and their relevance to arms control.



**Ryan Fedasiuk** is an Adjunct Fellow with the Technology and National Security Program at CNAS and a research analyst at Georgetown University's Center for Security and Emerging Technology. His work explores U.S. national competitiveness, military applications of artificial intelligence, and China's influence operations and efforts to acquire foreign technology. Fedasiuk previously worked at the Center for Strategic and International Studies, the Arms Control Association, the Missile Defense Advocacy Alliance, and the Council on Foreign Relations, where he primarily covered aerospace and nuclear issues. He holds a BA in international studies and a minor in Russian from American University (cum laude, Phi Beta Kappa). He is enrolled as an MA candidate in the security studies program at Georgetown University, where he also studies Chinese.

## DoD Releases Biomanufacturing Strategy

Source: <https://www.defense.gov/News/Releases/Release/Article/3337235/dod-releases-biomanufacturing-strategy/>

Mar 22 – The Department of Defense today released its [Biomanufacturing Strategy](#), a document that will guide research efforts, industry partnerships, and relationships with allies in a rapidly developing technology field with significant implications for national security and economic competitiveness.

"The National Defense Strategy directs us to seed opportunities in biotechnology as part of our broader responsibility to ensure our enduring technological advantage, and the Department of Defense Biomanufacturing Strategy will help guide our efforts in this critical technology field," said Heidi Shyu, Under Secretary of Defense for Research & Engineering. "The strategy's principles will define the path we must take to not just develop advanced technologies, but turn them into advanced capabilities that meet national security needs."





Biomanufacturing is the use of biological mechanisms in the manufacturing process. Work is rapidly advancing that would introduce biomanufacturing processes for production of fuels, chemicals, and even construction materials. The field also has the potential to enable creation of biologically-based environmental sensors, wearable technology, and materials with wholly novel properties.

The DoD Biomanufacturing Strategy is based on three principles that will guide efforts:

- Establishing transition partners for early-stage innovations. The strategy directs that "establishing DoD customers for biomanufactured capabilities will guide DoD technology investments," using processes such as the formal requirements development process to ensure that early-stage science is aimed at advancing capabilities that help operational commanders achieve their missions.
- Developing biomanufacturing through innovations in practice and application. This principle directs the Department to "develop biomanufacturing at home and with allies and partners to create a self-sustaining domestic biomanufacturing ecosystem," not only meeting defense needs but ensuring continued U.S. competitiveness in the field.
- Mapping the biomanufacturing ecosystem and tracking metrics that support future DoD biomanufacturing efforts. Because the biomanufacturing ecosystem is relatively new, it is essential to assess the current ecosystem and track changes as it develops, which will provide knowledge that will help prioritize future investments and mitigate implementation risk.

The strategy is informed by past DoD efforts, as well as language in the National Defense Authorization Act for Fiscal Year 2023, and the [Executive Order on Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Bioeconomy](#) issued by President Biden last year. As part of implementing the president's order, the Department last year [announced \\$1.2 billion in new biomanufacturing investments](#), funding efforts to develop mission-critical materials domestically without relying on fragile supply chains; develop materials with novel properties to enhance systems ranging from hypersonics to submarines; and greatly reduce logistical and resupply timelines.

In support of the strategy, the Department's Defense Production Act Investments (DPAI) Office, through the Executive Agent's office at the Air Force Research Lab, has published an open Request for Information. The RFI seeks input from industry on biomanufactured products and process capabilities that could help address defense needs. Specifically, DPAI seeks input on capabilities whose maturation may be addressed by investment under Title III authorities of the Defense Production Act. The RFI is available through sam.gov at <https://sam.gov/opp/8fec24f77b6046c9ae28dc99b2417e42/view>.

### About USD(R&E)

The Under Secretary of Defense for Research and Engineering (USD(R&E)) is the Chief Technology Officer of the Department of Defense. The USD(R&E) champions research, science, technology, engineering, and innovation to maintain the United States military's technological advantage. Learn more at [www.cto.mil](http://www.cto.mil), follow us on Twitter @DoDCTO, or visit us on LinkedIn at <https://www.linkedin.com/company/ousdre>.

## Biotechnology and Today's Warfighter

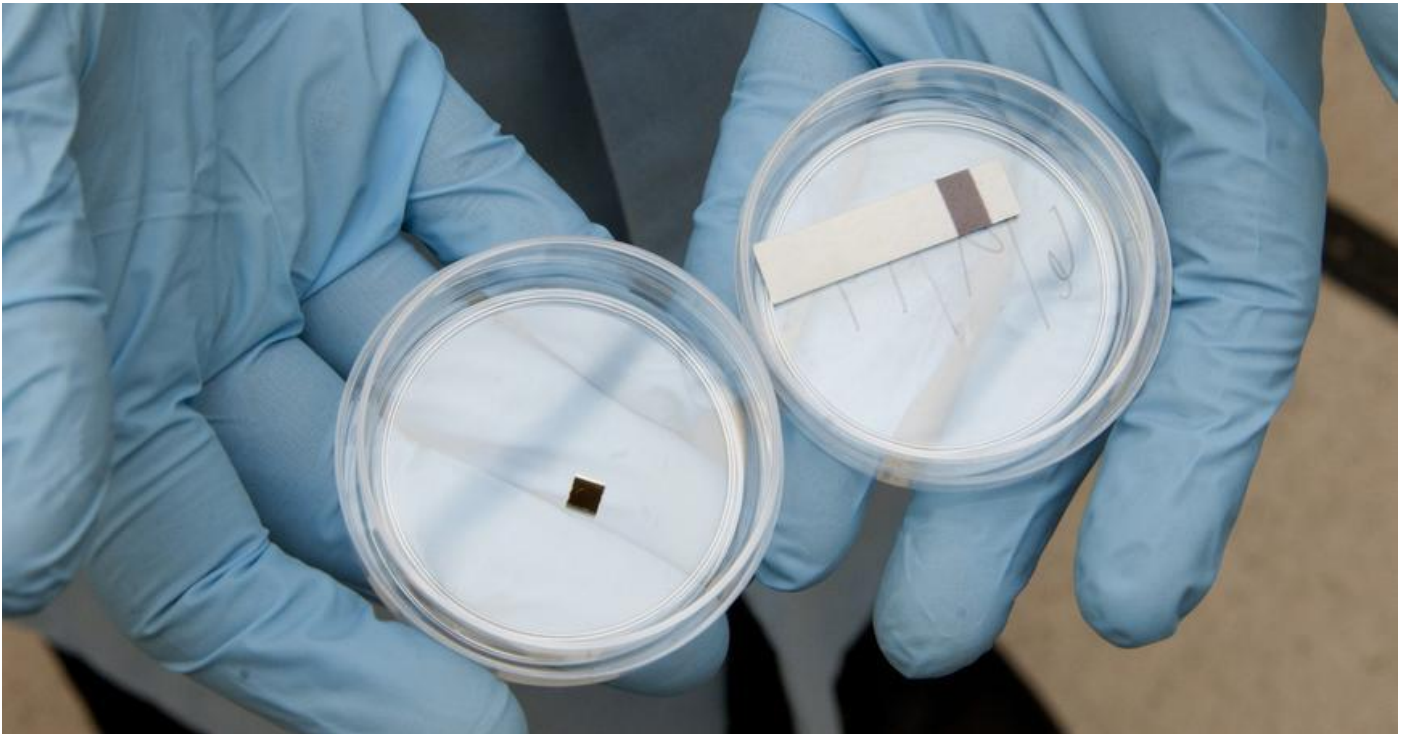
By Timothy Marler and Daniel M. Gerstein

Source: <https://www.rand.org/blog/2022/10/biotechnology-and-todays-warfighter.html>

October 2022 – Biotechnology has a broad and often misunderstood scope, one with significant implications for today's warfighter. In many respects, biotechnology—and the bioeconomy more broadly—is still an emerging field, and this can exacerbate the already limited understanding of their scope. Despite a 2020 National Academies of Sciences, Engineering, and Medicine study that characterized the [bioeconomy \(PDF\)](#) as more than five percent of the U.S. gross domestic product (or \$959.2 billion) in 2016, it is relatively young and often ill defined. It may have far greater potential than even these impressive totals would suggest. Furthermore, just as the technology is emerging, so too are the definitions that govern these areas. Fundamentally, however, [biotechnology](#) involves the manipulation of living organisms or their components to produce useful products. Meanwhile, the broader term, bioeconomy, is based on products, services, and [processes derived from biological resources \(PDF\)](#).

In addition to an unclear definition, [public awareness \(PDF\)](#), [understanding](#), and [acceptance \(PDF\)](#) of biotechnology may sometimes be insufficient, and this presents yet another confounding factor. It makes gaining attention for these issues and developing proactive policies challenging. Policymakers may also underestimate what biotechnology entails or how important it can be. Yet, the field can provide a wide range of opportunities to the United States while also presenting challenges and risks. Mitigating these risks and capitalizing on the opportunities could provide substantial competitive advantages for the United States—but only if we better understand what biotechnology is.





A scientist holds biosensing materials being studied at the U.S. Army Research Laboratory in Adelphi, Maryland, January 15, 2015 – Photo by U.S. Army

### Relevant to National Security

Biotechnology involves the manipulation of living organisms or their components to produce useful products.

The broad implications of and use cases for biotechnology have emerged over many decades and ultimately impact national security and the individual warfighter. With the beginning of the genomic era and the discovery of the structure of DNA, humankind has increased its understanding of, experimentation with, and employment of biotechnology in a widening range of applications. This includes opportunities for improving the human experience and developing personalized medicine. In addition, biotechnology can help improve agricultural yields and develop novel ways to feed populations. It can offer opportunities in environmental remediation and industry, using modified organisms to mitigate polluted waterways and providing substitutes for industrial materials such as concrete. Benefits also include safer and healthier foods, cleaner manufacturing, disease treatment and perhaps even obsolescence, reduction of environmental pollutants, and harnessing of scarce natural resources. Furthermore, the broader bioeconomy also covers numerous commercial sectors, including pharmaceuticals, crop production, plastics and rubbers, as well as manufacturing and more. The same applications that can support the rapidly emerging bioeconomy can have significant benefits for national security. Using engineered biomaterials can provide capabilities for rapidly preparing cantonment areas, building structures, and monitoring the environment. Defensive capabilities and the ability to sense attacks could be a priority in addressing these concerns. Of course, the potential for [weaponization of biological material](#), either by states or non-state actors, remains an important concern that must factor into operational planning, as such attacks could negatively impact force health protection and mission readiness.

In addition, the warfighter will undoubtedly be impacted directly by biotechnology innovations, including capabilities specifically related to improving force health protection and mission readiness. Important examples of applications for improving performance encompass a variety of products that will ensure peak physical and cognitive abilities of the warfighter. Efforts to balance the human microbiome, which is important to both digestive and mental health, will be part of these enhancements. Optimizing warfighter performance will also include enhanced abilities to sense the environment. Furthermore, advanced neural interfaces are being developed that will improve cognition and decisionmaking skills.

While the human performance aspects of biotechnology offer great opportunities, the possibilities for industrial applications are perhaps equally as important. Biomaterials could be used to develop new reagents for next-generation explosives, harvest rare earth materials, enhance armor protection (including protection for the individual soldier), biobased construction for airfields, and develop specialized bio resins and polymers that offer increased performance in [various](#)





[applications](#). As the field of biotechnology continues to expand, still more useful applications are likely to surface.

Biotechnology is inherently dual use, meaning it could be used both for legitimate and nefarious purposes.

Biotechnology is inherently dual use, however, meaning it could be used both for legitimate and nefarious purposes. While the opportunities for combatting disease, cleaning up environmental pollutants, and harnessing scarce natural resources are positive outcomes, we should also be aware of the [challenges and risks](#) such as a rogue actor developing offensive biological warfare capabilities or the weaponization of pathogens to harm fragile biological ecosystems (perhaps through the inadvertent release of a modified species into the wild).

Making matters more complicated, today there is a growing number of organizations that directly consider biotechnology capabilities and the issues that can affect warfighters. These include the White House Office of Science and Technology Policy, the Department of Homeland Security, the Department of Defense (DoD), the Federal Bureau of Investigation, and an assortment of national labs, just to name a few. In addition, some organizations are increasingly active in the field of biotechnology, and their work can affect the warfighter indirectly—among them, the Department of Commerce, the Department of Energy, the National Institute of Health, the Department of Health and Human Services, and the Center for Disease Control. Though not comprehensive, this list demonstrates the depth and breadth of stakeholders that exist just within the federal government, and it highlights the potential risk of disparate and uncoordinated policies.

### A Confluence of Factors

Given the breadth of applications and the history of relevance to the warfighter, the question arises as to why there should now be increased focus on biotechnology and why might policy considerations be especially important. Simply put, a confluence of conditions imposes a new sense of urgency and momentum in harnessing the field's relevance and benefits to the warfighter.

First, there is increasing [competition \(PDF\)](#) in this arena from “near peers” like China. China has spurred a significant increase in biotechnology research and development (R&D), with an anticipated increase of [seven percent per year](#) between 2021 and 2025. More specifically, China has made [efforts to acquire international data](#) that can facilitate assessment and control of health care for different countries, not to mention potential efforts to [weaponize \(PDF\)](#) various aspects of biological data. China's strategic investments in the United States are relevant as well. While the U.S. Government's Committee on Foreign Investment in the United States (CFIUS) provides a mechanism for monitoring investments that may threaten national security, its purview is incomplete. In particular, international companies that build facilities in the United States from the ground up are not subject to scrutiny. And [WuXi Biologics](#) is [doing just that](#). Although the construction, associated tax base, and potential job creation can be appealing locally, the risk to national security could well go unnoticed and unregulated. Consequently, near peer competitors could gather data about U.S. technologies and citizens without being noticed. Second, the DoD must maintain a strong biodefense program to address the risks of deliberate use of biological weapons. As biotechnology advances and proliferates, the DoD will need to keep track of how various capabilities could be used for nefarious purposes, including deliberate attacks against populations and deployed forces. For instance, despite existing international prohibitions on biowarfare, like the 1975 Biological and Toxin Weapons Convention, the United States still has questions about the intentions of actors such as China, Russia, North Korea, and Iran, each of which has active biotechnology programs. Engaging with the international community, including international partners and allies as well as those nations with questionable programs, could help protect the United States against threats.

Third, the COVID-19 pandemic has demonstrated that the United States is not prepared for a significant biological incident. To be sure, the problem is not new. But outbreaks and pandemics over the last decade, including Ebola (2014), Zika (2016), COVID-19 (2019–present), and now monkeypox, have demonstrated the degree to which we need to reevaluate our preparedness and response capability. This need extends to the DoD as well. The [March 2020 outbreak](#) on the aircraft carrier Theodore Roosevelt highlighted the challenges of maintaining force health protection and mission readiness in the face of a large-scale biological incident. Finally, information and capabilities related to biotechnology have proliferated and are more readily available. This availability of data, technology, and capabilities (to governments and the public) has increased substantially over recent decades, and data availability in general is an [increasingly prevalent factor](#) concerning the warfighter. For example, an individual's DNA, can be mapped, stored, and used to assess a variety of personal information including susceptibility to various diseases and physical endurance and strength. New tools like CRISPR have become available [in some high schools](#), which has democratized and deskilled biotechnology, making it more available to a wider array of people at less cost.

### Getting Ahead

Given this confluence of issues, now could be the time for the U.S. government to plan ahead. To begin with, a greater degree of visibility into the various biotechnology applications being developed across government departments and agencies could be helpful. A broad and common understanding of the scope



of biotechnology as it relates to the warfighter could facilitate more-coordinated discussions in this regard. Greater transparency and collaboration between government, industry, academic, and international partners may also be beneficial. The recent [executive order](#) and accompanying implementation [strategy \(PDF\)](#) go a long way in addressing these issues and help provide a common baseline for discussion.

Each organization that works with biotechnology faces unique challenges and needs, and thus may require unique management. Hierarchy and deconfliction may be necessary. Today there are overlapping and perhaps even underlapping biotechnology areas that could be addressed to ensure proper cooperation and collaboration. There may be a need to balance centralized coordination with decentralized needs within the government. Each organization that works with biotechnology faces unique challenges and needs, and thus may require unique management. However, increasing higher-level coordination could net real benefits to the agencies themselves, as well as to the warfighter.

Finally, a greater synergy with the private sector may be necessary. Industry and academia will undoubtedly drive biotechnology R&D advancements of tomorrow. Promoting and supporting these leadership efforts, including the pace of development and innovation, will provide the DoD with the “inside track” on emerging technologies and their potential applications for national security purposes. One only need consider how government support of R&D was vital to the Human Genome Project. More recently, the government and DoD played a pivotal role in the success of Operation Warp Speed for COVID-19 vaccine development and procurement, employing such authorities as the Defense Production Act and providing funding to several of the vaccine developers. Biotechnology may be reaching a critical junction. As it continues to mature, proactive policy becomes necessary for the federal government to leverage emerging capabilities effectively and remain competitive. Consistent communication, coordination, and collaboration may help retain this competitiveness and support today's warfighter most effectively.

**Tim Marler** is a senior research engineer at the nonprofit, nonpartisan RAND Corporation and a professor at the Pardee RAND Graduate School.

**Daniel M. Gerstein** is a senior policy researcher at RAND and an adjunct professor at American University. He formerly served as the undersecretary (acting) and deputy undersecretary in the Science and Technology Directorate of the Department of Homeland Security 2011–2014.

## Immunosensors for Assay of Toxic Biological Warfare Agents

By Miroslav Pohanka

Faculty of Military Health Sciences, University of Defense, Hradec Kralove, Czech Republic

*Biosensors* 2023, 13(3), 402

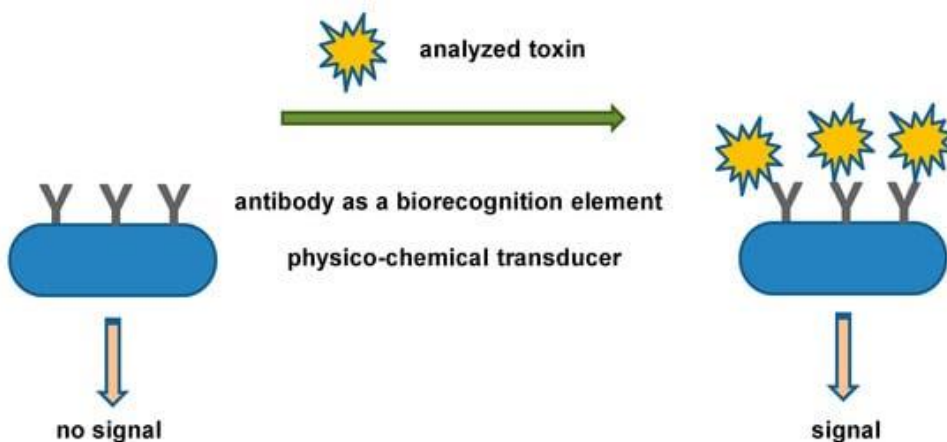
Source [full text]: <https://www.mdpi.com/2079-6374/13/3/402>



### Abstract

An immunosensor for the assay of toxic biological warfare agents is a biosensor suitable for detecting hazardous substances such as aflatoxin, botulinum toxin, ricin, Shiga toxin, and others. The application of immunosensors is used in outdoor assays, point-of-care tests, as a spare method for more expensive devices, and even in the laboratory as a standard analytical method. Some immunosensors, such as automated flow-through analyzers or lateral flow tests, have been successfully commercialized as tools for toxins assay, but the research is ongoing. New devices are being developed, and the use

of advanced materials and assay techniques make immunosensors highly competitive analytical devices in the field of toxic biological warfare agents assay. This review summarizes facts about current applications and new trends of immunosensors regarding recent papers in this area.





## Commercially available immunosensors for assay of toxic biological warfare agents.

Name of Device	Manufacturer	Type of Immunosensor or Assay	Analytical Specifications	References
Raptor	Research International (Monroe, WA, USA)	automatic flow through fluorescence immunoassay	limits of detection up to 0.1 ng/mL for staphylococcal enterotoxin B, 5 ng/mL for ricin, and up to 1 ng/mL for botulinum toxin, assay time 15 min	[74,75,76,77,78,79,80]
Biosensor 220R	MSA (Pittsburgh, PA, USA)	fluorescence immunoassay based on magnetic separation	sensitivity for ricin and staphylococcal enterotoxin B < 1 ng, assay time 5 min	[81]
BADD and Pro Strips-Rapid Screening System	Advent Biotechnologies	lateral flow test	limit of detection for ricin and staphylococcal enterotoxin B is 10 ng/mL, botulinum toxin variant A 33 ng/mL, botulinum toxin variant B 500 ng/mL, sample sized 0.2 mL, assay time 3 min, contemporary analyzed biological warfare agents: 1 or 5	[89,90]
BioDetec, RAID 5, RAID 8, RAID 10	Alexeter Technologies	lateral flow test	assay time 15 min, contemporary analyzed biological warfare agents: 1, 5, 8 or 10	[89]

## New immunosensors for toxic biological warfare agents assay.

Type of Assay	Toxins	Analytical Specifications	References
Raman scattering-lateral flow immunoassay	ricin, botulinum toxin, and staphylococcal enterotoxin B	limit of detection 0.1 ng/mL for ricin and botulinum toxin A, and 0.05 ng/mL for staphylococcal enterotoxin B, assay time 15 min	[91]
voltametric immunoassay	vacuolating cytotoxin A from <i>Helicobacter pylori</i>	limit of detection 0.1 ng/mL, linear range of calibration between 0.1 and 12.8 ng/mL, assay time 10–15 min	[92]
electrochemiluminescence immunosensor with magnetic separation of immunocomplex on magnetic beads	ricin	limit of detection 5.5 pg/mL, linear assay range 0.01–100 ng/ml	[93]
magnetic nanoparticle-based fluorescent immunoassay	aflatoxin M1	limit of detection 2.9 pg/mL, linear calibration range 3.0–100 pg/ml	[94]
non-competitive immunoassay, primary anti-aflatoxin antibody bound via streptavidin on magnetic beads, an immunocomplex is formed in the presence of aflatoxin B1 with a secondary Eu-labelled antibody	aflatoxin B1	limit of detection 70 pg/mL, assay time 15 min	[95]
diffusivity measurement of sandwich immunocomplexes comprised of gold nanoparticles with antibodies, analyte, and antibodies on fluorescent probe particles	botulinum toxin	limit of detection 10 pg/mL, calibration range 0.01–500 ng/mL, assay time 2 min	[96]



Type of Assay	Toxins	Analytical Specifications	References
voltametric immunosensor containing magnetic particles with antibodies forming a sandwich with analyte and other antibodies labeled with Ag or Cd nanoparticles	botulinum toxin A and E	dynamic range 0.1–1000 pg/mL and limit of detection 0.04 pg/mL (botulinum toxin A); dynamic range 0.5–1000 pg/mL and limit of detection 0.16 pg/mL (botulinum toxin E)	[97]
Fabry-Perot interferometric competitive immunoassay using primary and peroxidase-labeled secondary antibody, precipitation of 4-chloro-1-naphthol by peroxidase was responsible for the detected signal	toxoid form of botulinum toxin type C and D	linear response 10 pg/mL to 10 ng/mL, limit of detection 4.8 pg/mL, assay going in nearly real time	[98]
surface plasmon resonance imaging, antibody bound on gold film, signal improved by adding of gold nanoparticles with immobilized antibodies	Shiga toxin—tested on toxoid	limit of detection 50 ng/mL for label-free assay, 1 pg/mL when gold-immuno-nanoparticles are applied, assay time 20 min	[99]
surface plasmon resonance combined with magnetic separation	ricin and abrin	limit of detection 0.6 ng/ml	[100]
surface plasmon resonance with antibodies immobilized on chip and secondary antibody used for specific ricin assay and signal improvement	ricin, agglutinin	3 ng/mL for ricin, 6 ng/mL for agglutinin, assay time including sample processing 30 min	[101]

## Treating Long-COVID Brain Fog With ME/CFS Guidelines

By Jennifer R. Cope, MD, MPH; Ireland Ingram, MA; Brittney Romanson, MPH

Source: <https://www.medscape.com/viewarticle/989887>

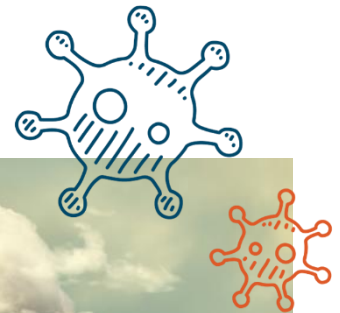
Mar 27 – Cognitive symptoms, commonly referred to as brain fog, are among the most common persistent or new symptoms after COVID-19 in both people who have been hospitalized and those who have not. Brain fog may include deficits in spatial planning, working memory and executive functioning, difficulty with word retrieval and fluency, and poor attention. These symptoms, along with others that begin, persist, or recur after the initial illness with COVID-19, are called post-COVID conditions (or long COVID).

Cognitive symptoms are also often reported by patients with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). Successful management tools used to treat ME/CFS can also be effective in treating long COVID. Any prescribed pharmaceutical or nonpharmaceutical intervention to treat long COVID should be done on a case-by-case basis while considering all individual patient factors, such as other comorbid conditions, current pharmaceutical regimens, and sociodemographic factors.

Here are five things to know about using ME/CFS symptom management tools to help with brain fog in long COVID:

### 1. Cognitive symptoms, commonly referred to as brain fog, occur in people who had COVID-19, no matter how severe their infection was.

In a systematic review of 81 studies, about one fifth of the individuals exhibited cognitive impairment for 12 or more weeks after their COVID-19 diagnosis. This result was similar for both hospitalized and nonhospitalized populations. [1] This study also noted that for some susceptible individuals, fatigue and cognitive impairment appeared to persist or become even worsen over time compared with their other persistent symptoms after COVID-





19.<sup>[1]</sup> In one prospective multicenter longitudinal cohort study of 81 COVID-19 survivors, 25% reported cognitive symptoms after being followed for 1 year.<sup>[2]</sup> Using a standardized battery of tests that showed objective cognitive deficits, this study found that 18% of participants had exhibited cognitive deficits at 1 year. The findings of these studies demonstrate that cognitive symptoms are common, persistent, and a real issue for many individuals experiencing long COVID.

## 2. Use validated tools and instruments to appropriately screen all patients who report cognitive symptoms after COVID-19.

The American Academy of Physical Medicine and Rehabilitation (AAPM&R) consensus guidance statement on the assessment and treatment of cognitive symptoms with post-acute sequelae of SARS-CoV-2 infection (PASC) was recently published and serves as a resource for clinicians who are managing patients with long COVID.<sup>[3]</sup> The guide focuses on the most prominent symptoms after COVID-19. Clinicians can use this resource for practical guidance when assessing and treating patients presenting with long COVID. Standardized general cognitive assessments form the foundation for the initial cognitive assessment; however, clinicians should recognize that tests might not always detect abnormalities, and normal cognitive screening does not necessarily mean the patient is not experiencing impairment.<sup>[3]</sup> It is also important to evaluate for and treat other medical conditions that might be contributing to cognitive symptoms. Examples of validated tools and instruments include the following, some of which are accessible through the internet:

- Montreal Cognitive Assessment (MoCA)
- Mini-Mental State Examination (MMSE)
- Mini-Cog
- Short Test of Mental Status

## 3. Current practices to treat ME/CFS can help guide treatment recommendations for long COVID–related cognitive symptoms.

Patients with long COVID may have the same symptoms as patients with ME/CFS, including cognitive impairment.<sup>[4]</sup> Clinicians can draw from the symptom management approaches used in ME/CFS to help inform their prescribed treatment plan for patients experiencing cognitive symptoms with long COVID. Clinicians may consider using a symptom-management approach called activity management, which has been shown to be helpful for people with ME/CFS. Also known as pacing, this activity management approach enables a patient to find their individual limits for physical and mental activity to mitigate symptom flare-ups.<sup>[5]</sup> Other methods to assist with cognitive symptoms may include using memory aids, like organizers and calendars, to help individuals experiencing memory problems.<sup>[5]</sup>

## 4. Using an individualized patient-centered approach when choosing the appropriate treatment will help meet the patient's needs.

It is important to remember that each patient experiencing long COVID is unique, and their prescribed treatment plan should reflect this. Clinicians should recognize that individual patients' symptom timelines will vary widely, and the duration of long COVID–related cognitive symptoms should not necessarily dictate the management approach. A patient's individual symptom and clinical presentation, preexisting and COVID-19–exacerbated comorbidities, as well as changes in function and quality of life should guide an identification and intervention approach.<sup>[3]</sup> Clinicians are encouraged to practice transparency and work closely with patients to set achievable goals for disease management in individuals with long COVID. Treatment plans should focus on improving the patient's quality of life.<sup>[4]</sup> Consider the barriers to healthcare when prescribing a treatment plan. This could include a patient's economic stability, literacy, social stressors, and access to quality care and supportive resources. Ensure that treatment resources are equitable and tailored to fit the individual, especially for those from marginalized communities.<sup>[3]</sup>

## 5. Carefully consider the risks and benefits when prescribing or recommending pharmaceutical interventions to treat long COVID–related cognitive symptoms.

Though some US Food and Drug Administration–approved supplements or vitamins have been used to alleviate long-COVID symptoms by supporting the immune system and reducing inflammation, there is limited evidence to support their effectiveness.<sup>[3,4]</sup> Any pharmaceutical recommendation should only be made after careful consideration of individual factors affecting the patient. For individuals with ME/CFS experiencing concentration problems, some clinicians have prescribed stimulant medications, like those typically used to treat attention-deficit/hyperactivity disorder.<sup>[4]</sup> However, use caution when prescribing stimulants for cognitive symptoms. In people with ME/CFS, stimulants might help improve concentration but may also lead to the push-and-crash cycle and worsen symptoms. Push-and-crash cycles are characterized as a patient experiencing a reduction of symptoms and then pushing to do more than they



typically do, which then leads to a crash (do too much, crash, rest, start to feel a little better, do too much once again).<sup>[5]</sup> Because this experience is also commonly reported by people with long COVID, it is recommended to guide your patient to set and understand their limits in order to prevent falling into this cycle.

## The Vaccine Damage Project - Human Cost

### Phinance Technologies - Humanity Projects

Update Date: March - 2023

Source: <http://www.phinancetechnologies.com/HumanityProjects/The%20VDamage%20Project%20-%20Human%20%20Cost.htm>



#### V-Damage project - Estimating the human cost.

The first part of the V-damage project is an attempt to estimate the direct impact from the mass Covid-19 inoculations on individuals at a population level. In order to do so, we split the impact of the inoculations into 4 broad groups differentiated by the severity of outcome. We suppose that of the inoculated individuals, a large group will likely experience no adverse effects, another large group will experience mild or moderate adverse effects, which could be temporary in nature or have long-term manifestations or even be permanent.

Furthermore, a group of individuals could experience severe outcomes which lead to a disability and the most extreme outcome would be death. Summarising, the different possible outcomes for individuals who took the inoculations are:

- 1 - No effect or asymptomatic.
- 2 - Mild to moderate outcome that could be a temporary short-term or long-term, or even permanent injury.
- 3 - Severe outcome that leads to disability.
- 4 - Extreme outcome leading to death.

The figure below illustrates the different groups of outcomes from the mass vaccinations. We need to remember that not only are these groupings an attempt to characterise different levels of damage from the inoculations, they are not static and could interact with each other. For instance, there might be individuals who had no visible effects after vaccination but nonetheless could still be impacted from the inoculations and could therefore be represented in the sub-group of injured individuals. In a similar way, individuals with mild injuries from the inoculations could, over time, develop severe injuries to the extent of being disabled, or an extreme outcome such as death. The likely path of outcomes would be from injury to disability to death, however we need to consider that to a lesser extent there could be individuals who suffer extreme outcomes when they had only experienced mild injuries until then. We can relate this with the anecdotes of otherwise healthy athletes suffering heart attacks during sports competitions at an alarming rate since the 2021 inoculations.





### 1 - No effect or asymptomatic.

This group of individuals comprises those individuals who did not experience adverse events following the Covid-19 inoculations. It is likely that this group of individuals is the largest, however, we cannot know for certain. We don't want to speculate as to the proportion of the whole population that this group of individuals represents. For the purpose of our project, we're going to assume that these individuals are all those that are not included into the other 3 groups. We estimate that the number of individuals are likely in group 2 (injured) represent about 18% of the population (see below) and therefore, group 1 would amount to about 80% of the population.

### 2 - Injuries - Mild to moderate outcomes.

Individuals in this group are those who experienced mild to moderate adverse effects after vaccination. These events could be temporary in nature, or long-term or even permanent. We'll assume that individuals in this category are likely to have experienced mild or moderate adverse events after vaccination. These adverse events could be the early sign of an injury that could be temporary or permanent in nature. Under this definition we investigated the excess rate of related adverse events in vaccinated individuals (23.90%) versus the placebo baseline (5.98%) in the Pfizer clinical trial ([Reviewed here](#)), which is a first-order approximation for the affected population. As for the different relative to the placebo rate, we obtain  $(23.90\% - 5.98\% = 17.92\%)$ . The rate of adverse events in the clinical trial is corroborated by the analysis of the V-Safe database where the rate of individuals who were not able to work (but were not hospitalised) after vaccination was about 29.47%. This rates includes the placebo baseline, which is unknown for the population sample of V-Safe users. They are similar to the rate of vaccine-related adverse events from the Pfizer trial. Taking all this evidence into consideration, we make the assumption that the pool of possibly injured individuals due to the vaccine is about 18% of the population, that is, the rate (per dose) of related adverse events reported in the Pfizer clinical trial (minus the baseline rate). These injuries will likely manifest as loss of productivity, as these individuals are likely to have higher absence rates, and higher lost worktime rates, than the pre-2019 baseline. In fact, we performed an [analysis of absence rates](#) and lost worktime rates in full time workers (using data provided by the BLS) and we observed that there has been a large increase in absence rates starting in 2020, but accelerating in 2022. Absence rates in 2022 were about 28.6% higher than in 2019, representing a 11 standard deviation variation.

### 3 - Disabilities - Severe outcome.

These individuals are easier to characterise accurately as they are associated with severe effects after vaccination, such as being disabled. Using this definition, we investigated the rise in disabilities that has occurred since the start of the vaccine rollout program, in [parts 1 to 4 of our US disabilities project](#). We also investigated the excess rate of Serious and Severe Adverse Events in vaccinated individuals versus the placebo baseline in the Pfizer and Moderna clinical trials ([here](#)), and the Severe Adverse Events in the Pfizer trial, which we then compared with the rise in disabilities at the population level ([part 5](#) and [part 6](#)). Furthermore, the rate of hospitalisation with 5 or more days of lost work derived from the V-Safe database, corroborates at a population level our [computations of time-series of Serious and Severe adverse events](#).

### 4 - Death - Extreme outcome.

This group of individuals died as a consequence of vaccination. We compute excess mortality estimates using our method 2C, as described in our methodology report ([here](#)), which gives us an estimate the extent of the damage of the Covid-19 pandemic. At the population level, it is not easy to distinguish between Covid-19 deaths, those due to the vaccination, or other causes of death. For instance, in older individuals, excess mortality could be driven substantially by Covid-19, and in younger individuals the increase in fentanyl overdoses or other causes could play a role. However, from the summer of 2021, with the introduction of mass vaccination, with the rise in natural immunity by exposure to the virus, and the emergence of milder and more contagious virus strains (such as Omicron), it is difficult to argue that Covid-19 had a significant role in excess mortality. We can therefore use the total excess mortality in 2021 and 2022 as an estimate for vaccine-related deaths, or at least an estimated upper limit for the vaccine damage. We compute excess mortality estimates using our method 2C, as described in our methodology report ([here](#)). The analysis of excess mortality for 2020, 2021 and 2022 can be visualised in the interactive charts ([here](#)).

### Conclusions

We summarised the human cost of the Covid-19 inoculations by identifying three broad groups of people who suffered varying levels of damage. We obtained estimates for the pool of individuals within the population who belong to each of these vaccine-damaged groups, using the US population as an example. We investigated the human cost in relatively young and healthy age groups as these are the most







sponsored efforts to weaponize pathogens and even [send](#) infected animals like bats and insects into Russia.

This devastating combination of disease, conflict, and blatant misinformation makes biodefense—global efforts to counter biological threats, reduce biological risks, and prepare and respond to natural or artificial biological incidents—more vital than ever. Without effective policies, the United States and others stand exposed to numerous catastrophic threats, including everything from the next COVID-19 variant to biological weapons developed by violent non-state actors. Articulating a cohesive strategy is only half the battle. Because militaries may fund and be involved in biodefense efforts—which can require work on dangerous pathogens with partners in the far-flung locales—such programs are uniquely vulnerable to being misconstrued as bioweapons research, as recent Russian behavior demonstrates. Because of an exponential growth in disinformation efforts worldwide and increasing geopolitical tensions, it is more important than ever for governments to be crystal clear about what defensive biological programs look like, in contrast to offensive actions banned under international law. In this regard, the Biden administration's inclusion of counter-disinformation measures within its updated [biodefense strategy](#) is encouraging. Still, continuing to make the distinction between offense and defense is a vital step toward a comprehensive approach to biodefense. By drawing such a line, governments can effectively build trust, prepare for future threats, and call out rogue actors. Without such distinctions, however, Washington and others risk drowning in a sea of misinformation, which undermines global public health efforts and places them at grave risk.

### What's biodefense?

Despite its sometimes-shadowy reputation, biodefense is integral to any comprehensive national security strategy. Most biodefense programs have a similar portfolio of activities meant to deter, detect, and respond to emerging threats.

Any successful biodefense program, for instance, will rely heavily on information gathering to detect emerging biological threats. Identifying such patterns is critical at all levels of government. Doing so can alert physicians to new diseases, inform decision-making on strategic national stockpiles, and even catalyze global health aid. In the United States, these activities span multiple programs, including the Pentagon's [Global Emerging Infections Surveillance](#) and the Department of Health's [Center for Forecasting and Outbreak Analytics](#), which provide information on emerging pathogens, identify potential outbreaks, and model the likely spread of diseases. Governments must also invest in biomedical equipment to prevent and contain infectious disease outbreaks. National defense and public health laboratories research improved personal protective equipment, advanced area decontamination, and other topics. Although information on most of these projects is publicly available, some may be classified to prevent malign actors from reverse engineering or circumventing valuable defensive measures.

Developing early warning systems to detect novel or reemerging pathogens is another critical part of biodefense programs. These may involve actively testing at-risk human, animal, and plant populations and taking regular environmental samples for infectious diseases. Governments also use electronic databases such as syndromic surveillance networks that monitor clinical data, including emergency room logs, mobile health apps, and social media—to look for indicators of outbreaks. Within the United States, clinicians, public health departments, state health departments, and the CDC all work together to monitor and detect potentially dangerous pathogens. Finally, strong national biodefense programs rely on logistics and infrastructure to quickly deploy medical countermeasures in case of an outbreak. In the United States, the Biomedical Advanced Research and Development Authority (BARDA) plays a central role in these efforts—supporting the development and acquisition of medical countermeasures such as therapeutics and vaccines. The Department of Defense also plays a leading role in developing similar tools. The Pentagon was a key leader in Washington's medical response to the 2014–2016 Ebola outbreak in West Africa and was instrumental in administering the US COVID-19 vaccination strategy. Crucially, none of these biodefense activities—intelligence, equipment development, early warning, and logistics—are necessarily constrained by national borders. As far back as the 1940s, for instance, the United States partnered with countries across the former Soviet bloc, Southeast Asia, the Middle East, and Africa to bolster international biodefense capacities. With assistance from the US [Biological Threat Reduction Program](#), partner countries receive training on field epidemiology and safe handling of infectious pathogens and funding to bolster their laboratories for pathogen diagnostic capabilities.

### Defense versus offense

The United States' contemporary biodefense posture differs observably from past examples of offensive biological programs designed to develop weapons. Although such large-scale bioweapons programs are comparatively rare, analysts and historians have documented multiple instances of states developing or using such weapons. The Soviet Union, for instance, spent decades during the Cold War [weaponizing](#) a slate of deadly pathogens, even though it signed the Biological Weapons Convention, the global bioweapons ban, in 1975. Even after the treaty entered into force, the Soviets carried out extensive work to transform a variety of pathogens, including smallpox, plague, Marburg hemorrhagic fever, and a host of novel biological agents into weapons. Crucially, the Soviet government worked to produce these deadly agents on an industrial scale, constructing extensive secret facilities for making and amassing biological



weapons. Separately, in one of the few examples of a state actually [using bioweapons](#) in conflict, Japan deployed several different weaponized biological agents against Chinese and Soviet soldiers and civilians during World War II. On several occasions, Japanese aircraft deliberately dropped packages of rice and wheat contaminated with plague-carrying fleas, causing hundreds (if not thousands) of casualties across parts of China. In other instances, Japanese soldiers contaminated water supplies with cholera and spread anthrax in rice fields, among other biological attacks. Although biological weapons are easier to identify when deployed in a comparatively obvious fashion, offensive programs are often difficult to verify or distinguish from defensive efforts. In contrast to the treaty governing chemical weapons, the Biological Weapons Convention does not have a formal [verification regime](#) designed to catch violators. Official verification efforts notwithstanding, determining whether a particular state's biological research program is offensive or defensive is a complex undertaking. Given rapid advances in biotechnology, many cutting-edge developments have dual-use potential—valuable for both peaceful research and theoretical weaponization, with little apparent difference to an outside observer. That doesn't mean it is impossible to tell the difference, but it does mean that any serious attempt to separate offensive from defensive biological programs must rely on "probabilistic verification," or the aggregation of many low- to medium-confidence strands of information. Outside analysts might, for instance, note a state's sudden increase in secrecy around its biological research output, an unexpected shift in a government's biodefense posture, an increase in particular acquisitions from the private sector, or a ramp-up in disinformation campaigns targeting rival states' biological research activities. Together, these might provide grounds for serious suspicion.

### Time to prepare

The need for a comprehensive global biodefense effort has never been clearer. COVID-19, mpox, and Ebola have taken their tolls on national economies and human health, serving as painful reminders of what can happen when states are left unprepared to handle complex emerging threats. But biodefense is far from a geopolitically neutral issue. Russia's ongoing global disinformation campaign targeting US biodefense-support efforts in Ukraine and elsewhere illustrate the practical difficulties facing policymakers as they address biological threats. Given the often blurry and complex line between offensive and defensive programs, Washington risks getting bogged down in endless and self-defeating diplomatic spats if it is not crystal clear about both its intentions and the fundamentally defensive nature of its efforts. Perhaps more dangerously, if the United States fails to provide clear explanations for shifts in its biodefense policies or posture, other nations may misinterpret the intent of such programs while competitors may leverage the ambiguity for disinformation campaigns. Because defensive research and testing may, at first pass, look similar to weaponization, foreign governments might mistakenly view such programs as signs of a Soviet Union-esque offensive effort—thereby prompting potentially catastrophic geopolitical miscalculation. Worse still, bad actors might exploit this ambiguity to justify using dangerous weapons themselves. Transparency and diplomacy will be key to avoiding such hazardous outcomes.

Threats in the biological realm aren't going away anytime soon. Novel pathogens such as COVID-19 will continue to emerge, while older diseases such as dengue, mpox, and Ebola may reappear and spread further afield due to climate change. The US State Department has also [assessed](#) that Russia and North Korea have ongoing offensive biological weapons programs and that China and Iran engage in activities that raise concerns around compliance with the BWC. As geopolitical competition ramps up, these programs will only become more and more dangerous. Given this shift in the biological threat landscape, Washington has good reason to focus on biodefense. But if policymakers want to bolster norms against biological weapons and avoid spiraling distrust and potential conflict, they must simultaneously take care to broadcast their intentions with as much clarity as possible. Although divining intent in geopolitics is a fraught exercise, offensive and defensive biological programs still look different—even from the outside. The Biden administration and those that come after must be careful to explain the distinction. If executed successfully, transparent US leadership might constitute a small step toward a world where biological weapons are obsolete.

[Dan Regan](#) is a fellow at the Janne E. Nolan Center on Strategic Weapons at the Council on Strategic Risks. He was previously a National Research Council Postdoctoral Associate at the U.S. Naval Research Lab.

[Rhys Dubin](#) is a visiting fellow at the Janne E. Nolan Center on Strategic Weapons at the Council on Strategic Risks.

## Who Is Most Likely to Get Long COVID? Patient Data May Tell

Source: <https://www.medscape.com/viewarticle/990160>

Mar 27 – Good news and bad news on the long COVID front: Certain groups of people – like women, smokers, and those who had severe COVID-19 infections – are at a higher risk of long COVID, a review





of more than 800,000 patients has found. That's the bad news. Yet, researchers also found that patients who had at least two doses of the COVID vaccine had a significantly lower risk of getting long COVID down the line.

"Not only is it important to recognize which individuals may be at high risk of developing PCC [post-COVID-19 condition] and to offer follow-up care; it is imperative to plan population-level public health measures," wrote lead author Vassilios Vassiliou, PhD, a professor of cardiac medicine at the University of East Anglia in Norwich, England, and his team.

The research, published in the journal [JAMA Internal Medicine](#), combined **41 previously published articles** that included information from **860,783 patients**. The review uncovered a slew of demographic traits that were significantly linked to long COVID, including female sex, being over 40 years old, smoking, having a high body mass index (BMI), and hospitalization due to a COVID-19 infection.

**Long COVID**, as defined by the World Health Organization, is the continuation of COVID symptoms or the start of new symptoms at least 3 months after initial infection. Having other conditions – like anxiety, depression, asthma, diabetes, and being immunocompromised – were also connected to a higher likelihood of getting long COVID, researchers reported.

**That cisgender women<sup>84</sup> are at a higher risk of long COVID falls in line with previous analyses, suggesting that hormones might play a role "in perpetuating the hyperinflammatory status of the acute phase of COVID-19 even after recovery."**

The same goes for previous studies on vaccination status and long COVID risk – like much of the previous research on the subject, vaccinations were found to have a protective effect on long COVID.

But long COVID – all the ways it presents itself, how widespread it is, and what we can do about it – still remains somewhat of a **mystery**, even 3 years into the pandemic. "While this and other data on vaccines suggest that there are factors that can reduce the risk of long COVID, nothing as of yet can completely eliminate the risk of long COVID. The only guarantee against long COVID is not to get COVID," said Stanford University primary care professor Linda Geng, MD, PhD.

"Furthermore, we still do not have any effective therapy established for the millions who already have long COVID, and we urgently need randomized controlled trials to help provide those answers," she said.

► Source: [JAMA Internal Medicine](#): "Risk Factors Associated With Post-COVID-19 Condition: A Systematic Review and Meta-analysis."

## Three die from mystery nosebleed disease within 24 hours as town quarantined

Source: <https://www.irishmirror.ie/news/world-news/three-die-mystery-nosebleed-disease-29586056>

Mar 30 – Health officials in [West Africa](#) are raising the alarm after three people died from a mystery [virus](#) that caused them nosebleeds in Burundi.

The cause and origin of this bug are unknown at this point, however, [symptoms](#) of the illness reportedly include fever, headaches, dizziness and vomiting.

Authorities across the country are working to contain the virus and are placing some areas under strict instruction to quarantine.

So far, the area of Baziro has been quarantined, according to local media reports, as it was the location where two of the infected cases were moved for treatment.



<sup>84</sup> Cisgender is a term that is used to describe people whose gender identity matches the sex they were assigned at birth. For example, someone who was assigned female at birth (AFAB) and identifies as a woman is a cisgender woman.



A nurse from the Migwa health centre has warned that the disease "kills quickly", with all three deaths coming within 24 hours of the patient showing symptoms. The Burundian Ministry of Health has already ruled out existing viruses like Ebola and Marburg and is looking closely into this new infection, which appears to be a contagious haemorrhagic bug. It comes after neighbouring Tanzania announced a Marburg outbreak earlier this month, with the World Health Organisation (WHO) declaring it a "very high" risk to surrounding countries.

## Holobiont Urbanism: sampling urban beehives reveals cities' metagenomes

By Elizabeth Hénaff, Devora Najjar, Miguel Perez, et al.

Environmental Microbiome volume 18, Article number: 23 (2023)

Source: <https://environmentalmicrobiome.biomedcentral.com/articles/10.1186/s40793-023-00467-z>

### Abstract

Over half of the world's population lives in urban areas with, according to the United Nations, nearly **70% expected to live in cities by 2050**. Our cities are built by and for humans, but are also complex, adaptive biological systems involving a diversity of other living species. The majority of these species are invisible and constitute the city's microbiome. Our design decisions for the built environment shape these invisible populations, and as inhabitants we interact with them on a constant basis. A growing body of evidence shows us that human health and well-being are dependent on these interactions. Indeed, multicellular organisms owe meaningful aspects of their development and phenotype to interactions with the microorganisms—bacteria or fungi—with which they live in continual exchange and symbiosis. Therefore, it is meaningful to establish microbial maps of the cities we inhabit. While the processing and sequencing of environmental microbiome samples can be high throughput, gathering samples is still labor and time intensive, and can require mobilizing large numbers of volunteers to get a snapshot of the microbial landscape of a city.



### Results

Here we postulate that honeybees may be effective collaborators in gathering samples of urban microbiota, as they forage daily within a 2-mile radius of their hive. We describe the results of a pilot study conducted with three rooftop beehives in Brooklyn, NY, where we evaluated the potential of various hive materials (honey, debris, hive swabs, bee bodies) to reveal information as to the surrounding metagenomic landscape, and where we conclude that the bee debris are the richest substrate. Based on these results, we profiled 4 additional cities through collected hive debris: Sydney, Melbourne, Venice and Tokyo. We show that each city displays a unique metagenomic profile as seen by honeybees. These profiles yield information relevant to hive health such as known bee symbionts and pathogens. Additionally, we show that this method can be used for human pathogen surveillance, with a proof-of-concept example in which we recover the majority of virulence factor genes for *Rickettsia felis*, a pathogen known to be responsible for "cat scratch fever".

### Conclusions

We show that this method yields information relevant to hive health and human health, providing a strategy to monitor environmental microbiomes on a city scale. Here we present the results of this study, and discuss them in terms of architectural implications, as well as the potential of this method for epidemic surveillance.

## What Makes a Global Killer

By Alvin Powell (Harvard staff writer)

Source: <https://www.homelandsecuritynewswire.com/dr20230330-what-makes-a-global-killer>

Mar 30 – In 1970s India, the physician and epidemiologist **Larry Brilliant played an important role in efforts that eradicated smallpox** caused by the deadliest form of the virus, variola major. Since then, he has continued his public health career, founding a nonprofit to fight blindness, working as a faculty member at the University of Michigan, heading Google's nonprofit arm, and promoting public health and social justice at every stop.





Brilliant was on the Harvard University campus this week to deliver the Weatherhead Center's [Samuel L. and Elizabeth Jodidi Lecture](#) at Memorial Church. He sat down with the [Harvard Gazette](#)' Alvin Powell to talk about smallpox and the COVID-19 pandemic. The interview has been edited for clarity and length.

**Alvin Powell: Were there lessons from smallpox that we didn't learn with COVID?**

*Larry Brilliant:* Yes. The first lesson is that we live in a cause-and-effect world. Truth matters and communicating that truth in as transparent and honest a way as you possibly can matters. And involving the community of people who are affected and listening to them — as [Paul Farmer](#) talks about in all of his books — matters. You had a president of the United States who [lied about hydroxychloroquine](#) and putting light inside the body and wanted to not disclose the number of cases. You had a premier in China — or a local administration; we don't know — who hid the origin of the disease, who very quickly sanitized the fish market without letting anyone look and find any cases, who forbade Chinese scholars from publishing anything about the origins of COVID and penalized those who did.

You also had a great thing. [Operation Warp Speed](#) — with all of its flaws — was phenomenal. The first vaccine worked really well, but the virus has gone through hundreds of thousands of mutations and the vaccine hasn't. We can't keep up because you've got to get the variant before you can make the vaccine against it, so the variant is always going to be a step ahead of the vaccine. It's inevitable that the virus will continue. But that doesn't mean forever messing up the whole world, it just means the virus is still here, like tuberculosis is still here.

**Powell: There are some coronaviruses that cause the common cold. Is it possible that those original viruses looked like this when they first appeared?**

*Brilliant:* It's very likely that there were four pandemics of coronaviruses in history, and that they did to the then-current civilizations what COVID has done to ours. Then, after four or five years, the virus can't find sufficient people to infect in the way that it did before, attenuating its disease course. It doesn't provoke the same public response — masking and social distancing and vaccinating — so it's able to propagate itself at a much lower rate. We call that “the way the coronavirus retires,” and it retires into the coronavirus retirement home, which is, it becomes a cold. Of the nine or 10 viruses that give you seasonal colds, four are coronaviruses.

*Powell: You've prominently supported increased early detection and response. How would you rate us on that with this pandemic?*

*Brilliant:* The science has been fantastic. We have learned a lot about at home testing. I'm not a big fan of antigen tests, but Lucira, which looks like an antigen test, costs 25 bucks and with scale, it will cost \$5. That's a molecular test as good as a PCR. Being able to do those at home means we now have a path laid out for us to have home testing for norovirus, for SARS, for AIDS, for pregnancy — and that's going to make us a healthier world.

*Powell: What are the chances of another pandemic?*

*Brilliant:* What Farmer quoted me as saying — which I hope I did say — is that “outbreaks are inevitable, pandemics are optional.” If we find every case after it jumps from an animal to a human and we respond with containment, isolation, and quarantine, then there's not going to be a pandemic. So, if we can have early detection systems all over the world, and sequencing so we know what the virus is, then the risk of a virus jumping and becoming a pandemic is low, almost zero.

*Powell: So, you can quash an outbreak if you respond properly?*

*Brilliant:* If you know which ones can become a global pandemic. Ebola cannot create a pandemic that'll bring the world to its knees.

*Powell: Because it's too deadly?*

*Brilliant:* Because it's too deadly, because it's blood-borne, therefore it's hard to get. Also because of its incubation period, which is two to three weeks. HIV/AIDS has created a pandemic that killed a quarter of a million people. It's a horrible disease and we've been horrible in our response — political hatred of gays and misunderstanding what contributed to it — but it can't create a pandemic that brings the world to its knees because it's got a six-month incubation period and because it's blood-borne. Same thing with Lassa fever and Marburg. Same thing with cholera and tuberculosis — so long as we continue to have either vaccines or antibiotics. If we lose our antibiotics because of antibiotic resistance and if the vaccines no longer work, then plague and tuberculosis and cholera can come back and really hit us. But, as it is right now, with current vaccine and medical technology, they can't create a pandemic that brings the world to its knees. So what can? It has to have a short incubation period. It has to spread respiratorily. It has to have asymptomatic spread.

*Powell: And that asymptomatic spread was a key with COVID?*

*Brilliant:* Coronaviruses and influenza viruses are the only ones that we are currently worried about. There is another one called an arenavirus that starts off as a blood-borne disease. It enters the lung, and then acts just like a respiratory disease. So far, that's never affected more than one family. But H5N1, if it ever gets airborne ...

*Powell: That's bird flu, right?*

*Brilliant:* Yes. It's got a 60 percent death rate. I would say we should put our attention on those diseases. Not that we should forget about HIV/AIDS, Ebola — we have to intensively work on those — but the part



of our consciousness looking for pandemics that could bring the world to its knees should rationally be focused on those which have in the past and can in the future. That's why I would give us such a poor grade on COVID-19. Because China and the United States, both for political reasons, responded poorly and late and disingenuously.

*Powell: What do you do if you have a good early detection system, all the policies in place for a good public health response, but the political side doesn't pay any attention or pays perhaps the wrong kind of attention?*

*Brilliant:* You have to build back trust. There was a time in the 1930s and 1940s when the only person in government who could arrest a governor and put them in jail was the commissioner of health. I don't know if it was in every state, but I know it was in Michigan. Governors have gotten crazy, become alcoholics, had infectious diseases, but you can't arrest the governor while they're serving. The exception was that the secretary of health could arrest the governor if they were a clear and present danger to the state's health. You have to ask yourself what kind of trust did we have in public health to allow us to do that? People who were alive in 1950-55, 1960, remember all these children getting polio, a waterborne disease, in August when it was hot and people congregated in swimming pools. I know my mother wouldn't let me go swimming in August. I know that mothers were terrified during that period of the year because they'd seen pictures of kids in iron lungs. When first Salk and then Sabin, and Tommy Francis at the University of Michigan, proved that the polio vaccine worked, it was on the front page in every newspaper in the United States. In that moment, the whole country trusted public health.

## CDC warns of **Marburg virus** after deadly Africa outbreak

Source: <https://www.fox10phoenix.com/news/marburg-virus-cdc-deadly-africa-outbreak>



Apr 02 – The [U.S. Centers for Disease Control and Prevention](#) (CDC) is urging travelers to Guinea and Tanzania to be mindful of contracting the deadly Marburg virus. The CDC is also sending personnel to Africa to assist stopping the outbreak of the disease.

[The Marburg virus](#) is an infectious disease that has high fatality rates and, according to the World Health Organization (WHO), has epidemic potential.

This week, the CDC announced that it is sending its National Center for Emerging and Zoonotic Infectious Diseases to respond to the outbreaks in Guinea and Tanzania.

This week, the CDC [urged travelers](#) in Guinea and Tanzania to avoid contact with sick people, health care facilities in the outbreak areas and to watch for symptoms for three weeks after leaving the area.

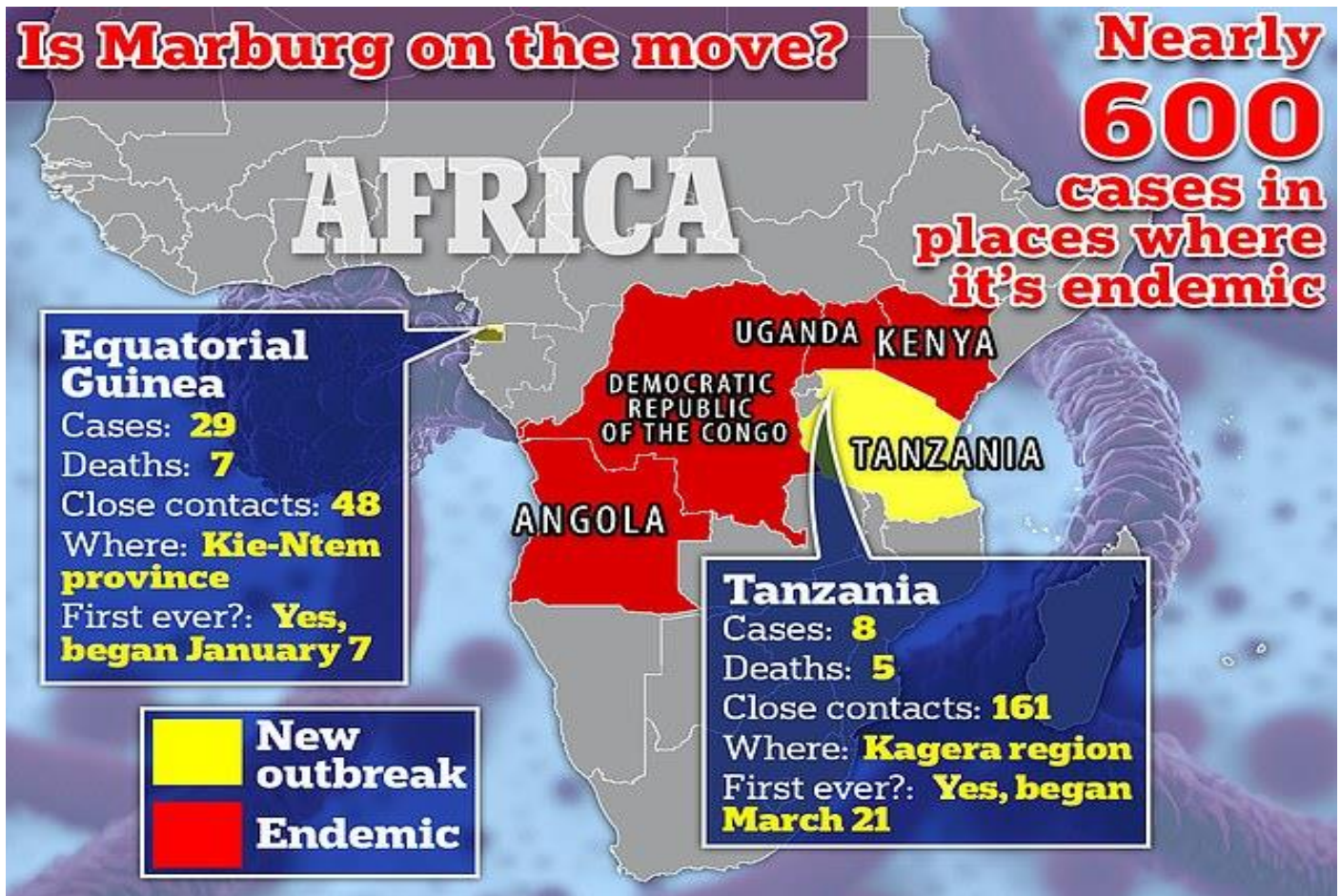
In February, Equatorial Guinea announced the first outbreak of the virus and the country has since counted officially nine cases with an additional 20 probable cases, all of whom have died, [according to WHO](#).

About 1,800 miles away, across the continent, Tanzania is also reporting a Marburg outbreak and has confirmed eight cases, including five deaths, according to WHO.

The virus is a rare and deadly disease which causes fever, chills, [muscle pain](#), rash, sore throat, diarrhea, weakness or unexplained bleeding or bruising. The Marburg virus can be spread through "blood or body fluids of a person infected with or who has died from Marburg," according to the CDC.







## What does Marburg virus do to the body?

- 1** Symptoms appear in two to 21 days

HEADACHE, SORE THROAT, FEVER, RASHES, MUSCLE PAIN, BLEEDING
- 2** Virus attacks kidney and spleen - causes deadly clotting and organ inflammation
- 3** Symptoms appear suddenly - from a simple cold to hemorrhaging blood within days
- 4** **50% AVERAGE DEATH RATE**  
KILLS UP TO **88% OF INFECTED**

The virus is also spread by contact with contaminated objects (such as clothing, bedding, needles, and medical equipment) or by contact with animals, such as [as bats](#). In 2018, at the Queen Elizabeth National







© The Washington Post via Getty Im

Park in the Python Cave, CDC scientists spearheaded a project after tourists and nearby village experienced outbreaks of the virus. Health experts investigated where the bats go at night to better understand how the virus is transmitted to humans by putting GPS units on the backs of bats to track their movements, according to the CDC.

## The Waiting-For-Pandemic Cult of Biodefense

By Sasha Latypova

Source: <https://brownstone.org/articles/waiting-for-pandemic-cult-of-biodefense/>

Mar 31 – Yuval Noah Harari is a leading ideologue of the wannabe one-world government criminal cartel and the WEF's favorite mouthpiece. His main message seems to be that humans can be technologically captured, controlled, and "hacked" or manipulated and thus enslaved to serve the WEF/WHO controlling uber-class.

I was alerted to this video by a reader. In this TED talk from 2015 Harari [postulates](#) that humans, as opposed to animals, are unique in their capacity to believe fictional stories, and thus can be controlled via the narrative, via fiction, as long as everyone believes the same story. According to him, the idea of humans having a soul and free will is "over." Therefore, via this method you can make people cooperate with their own demise (even in lining up to be injected with poison) via mass brainwashing and narrative control. Humans do fall for nonsense, and in fact, we seem to crave it. We love good stories, imaginative, aspirational ones, hero journeys, romances, whodunit (the genre of this Substack), or the sci-fi stories of technological advances. The sci-fi fantasies are highly popular. They are indeed so popular that for the most part, the general public and most of the professionals cannot distinguish legitimate science from the imaginary sci-fi narratives anymore, and this became plainly obvious during the current fake "global pandemic" years.

We also love scary stories! Looming prospects of fake invisible catastrophes seem to be perennially in vogue. Here is a great [book](#) I recommend on this topic by Patrick Moore, one of the founders of Greenpeace. To quote: "A while back it dawned on me that the great majority of scare stories about the present and future state of the planet, and humanity as a whole, are based on subjects that are either invisible, extremely remote, or both. Thus, the





vast majority of people have no way of observing and verifying for themselves the truth of these claims predicting these alleged catastrophes and devastating threats. Instead, they must rely on the activists, the media, the politicians, and the scientists – all of whom have a very large financial and/or political stake in the subject – to tell them the truth. This welcomes the opportunity to simply invent narratives such as the claim that “CO<sub>2</sub> emissions from burning fossil fuels are causing a climate emergency.”

No one can actually see, or in any way sense, what CO<sub>2</sub> might actually be doing because it is invisible, odorless, tasteless, silent and cannot be felt by the sense of touch. Therefore, it is difficult to refute such claims because there is nothing to point to and tangibly expose the falsity of these claims.”

There is a bit of a problem with overused narratives. Climate change narrative is becoming harder to maintain as Greta Thunberg is now past the expiration date for a child actor, polar bears refuse to cooperate and keep multiplying, and the glaciers are not melting away like Al Gore promised. UFOs and aliens can only get us so far.

New fear narratives must be established: the narrative of “emerging” novel viruses has been in the works for years. Scary invisible viruses that can pounce out of a jungle any minute and are just a plane ride away from infecting half the planet with a lethal new pathogen! Even more exciting is the prospect of evil scientists making new deadly and super-spreading viruses in labs that can “leak.”

The Government mafia (HHS, NIH, DOD, DARPA, BARDA, DTRA, etc, etc,) and their vassals in academia, the biopharma industry, and media have all been feeding at the “biodefense” money trough for decades. What can be better than an invisible threat to justify printing and spending truckloads of money for mega-defense/research contracts, while flying to the global champagne-caviar events and giving each other diverse-inclusive-sustainable science awards?

Debbie Lerman, a journalist, in [her recent article for Brownstone](#), points out the time and money spent by the military-industrial cartel’s scam of “biodefense and pandemic preparedness.” There are some eye-watering dollar amounts described [in a Lancet](#) paper she referenced “Biodefense Research Two Decades Later: Worth the Investment?”

“Prior to 2001, annual US biodefense funding totaled an estimated \$700,000,000. Following the incidents of 2001, the worldwide surge in biodefense-related funding was largely spurred by the realization that many countries were not prepared for bioterrorism attacks. The 2001 US Amerithrax attack revealed shortcomings in medical countermeasure availability through the Strategic National Stockpile (SNS), the laboratory response network system, public health infrastructure, and communication.”

Many of the funding programs were associated with the US federal government. A \$1,000,000,000 program was implemented in the US in 2002 in the form of bioterrorism preparedness grants, biodefense research funding, and medical countermeasure stockpiling within the Department of Health and Human Services. Additional notable post-2001 US biodefense funding efforts include the Department of Homeland Security’s (DHS) Biowatch Program (2001), The Centers for Disease Control and Prevention’s (CDC) preparedness program, the DHS’s Project Bioshield (2004), the Biomedical Advanced Research and Development Authority (BARDA; 2006), and the National Bio and Agro Defense Facility (2014).

These programs typically address matters outside of biodefense, such as public health, national and international security, and healthcare issues, adding to their broader impact. Total US biodefense funding dramatically increased from ~\$700,000,000 in 2001 to ~\$4,000,000,000 spent in 2002; the peak of funding in 2005 was worth nearly \$8,000,000,000 and continued with steady average spending around \$5,000,000,000.

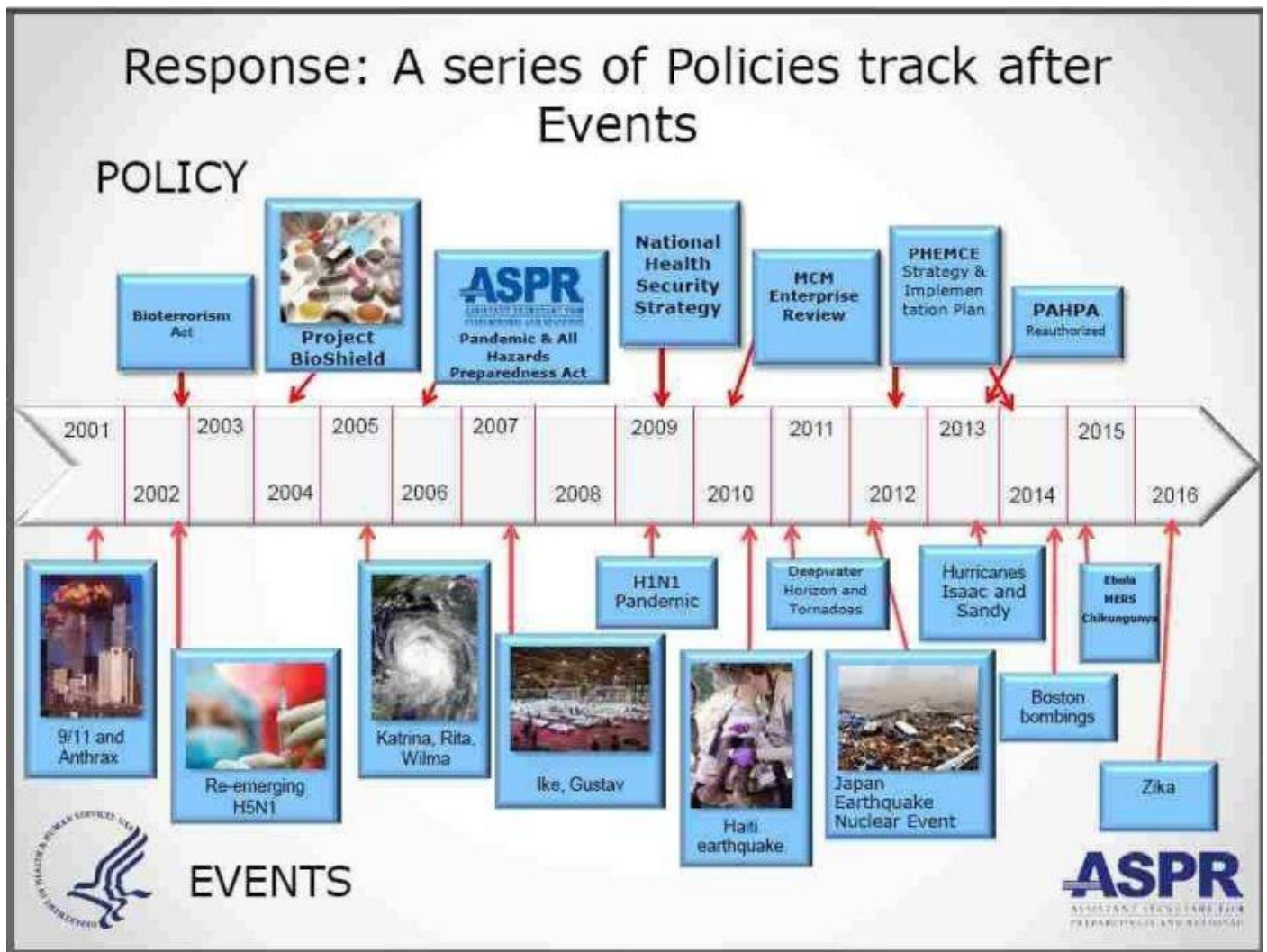
In 2019, the global biodefense market was valued at \$12,200,000,000 and is expected to grow at a compound annual growth rate of 5.8% from 2020–2027, resulting in a projected market value of \$19,800,000,000 in 2027. Factors such as sustained government and private funding resources driven by the looming threat of bioterrorism and the recent occurrence of natural outbreaks of bioterror-related pathogens including *Coxiella burnetii*, Ebola virus (EBOV), SARS-CoV-1, SARS-CoV-2, influenza, and Lassa virus are likely major contributors to the ever-expanding global biodefense market.

And what were those billions devoted to? In a 2003 abstract entitled [“Expanded Biodefense Role for the National Institutes of Health”](#) Dr. Anthony Fauci articulates his biodefense vision: “the goal within the next 20 years is to have ‘bug to drug’ within 24 hours. This would meet the challenge of genetically engineered bioagents.”

Many events have been capitalized on by the growing behemoth of the government-industry cartel over time. Policymaking in the past 20 years increasingly aimed to set up regulations to maximize the ruling powers of authorities by simultaneously eradicating existing laws and constitutional checks to set them free of any responsibilities and install de-facto martial law. Each policy was installed after so-called “events” which were used to introduce new “Acts.”

It is legitimate to have the possibility in mind that it may have been also the other way around – they installed the events to justify new “Acts” – after each “attack” a new more authoritarian legislation was shaped and put in place to fit the totalitarian agenda.





The narrative of biodefense/biosecurity articulated by Fauci is totally bogus of course. Viral pandemics do not happen in reality, despite decades of very busy and crowded international traffic (have you experienced Ryan Air?).

Ok, maybe scary viruses won't jump naturally from the jungle, but surely they will one day "emerge" from a Dr. Evil's laboratory? Here is [Ralph Baric "predicting" in 2016 that Wuhan Virus 1 SARS-Co-V was prepped and ready to "emerge" from his lab](#) at UNC Chapel Hill. Our Congress is still searching for a "leak" in Wuhan. Hello! Congress!

Giant amounts of money, investors, resources, projects, studies, research grants, conferences, round tables, TED talks, policy committees, Congressional acts, lots of lawyering and lobbying, tabletop simulations – an entire \$19 billion/year industry is awaiting THE BIG ONE someday. Thousands of adults participating in this make-believe play eventually must start to fully believe it in order to cope with a massive soul-destroying cognitive dissonance.

The ones that can't stomach this due to a functioning moral compass, quit and go to work elsewhere. What starts as a B-movie script (Dustin Hoffman chasing an escaped monkey with tanks and helicopters), through the alignment of individual economic incentives and narratives, grows into an ideology and subsequently into a full-fledged religion. Thus, a dangerous cult is born – The Cult of Waiting for Pandemic of the Church of Biodefense.

The numerous state, military and private investors who backed the biodefense narrative, including the Bill & Melinda Gates Foundation among hundreds of private, sovereign, and non-profit funds that plowed all that cash into the "biodefense" are waiting for the returns!

From the same Lancet paper: "Fifteen years later, with no such fantastical platform in sight, DARPA (Defense Advanced Research Projects Agency) published an updated medical countermeasure plan in 2017 entitled "[Removing the Viral Threat: Two Months to Stop Pandemic X from Taking Hold.](#)" Instead of Fauci's 24 hours from bug to drug, this plan tells us "DARPA aims to develop an integrated end-to-end platform that uses nucleic acid sequences to halt the spread of viral infections in sixty days or less."





If the Big One doesn't show up, the cult is going to try to "assist" it.

Many attempts were made at starting pandemics from local "outbreaks:" SARS1, MERS, zika, ebola – but nothing spread. Characters like Michael Callahan, a swashbuckling Indiana Jones-type epidemiologist and reported CIA agent, always "first on the scene" of exotic "outbreaks," chasing Ebola patients through the jungle with "vaccines" seems to be not enough to produce a pandemic. Even fear porn propaganda in the media fizzles out. They play with soups of "chimeric viruses" in petri dishes funded by billions in NIH grants, fund many contract biolabs in China, Ukraine, and the Middle East, but nothing simultaneously dangerous and highly transmissible results. Why?

You may believe in billions of years of evolution, but my preferred explanation is that God's cannot be improved upon. All life forms, from humans to microorganisms, are in the state of perfect dynamic equilibrium for this moment in time, as dictated by physical laws. Biological pathogens are already fully optimized for this state, too, by billions of years of work or by God's genius design, whatever you want to believe.

They are either contagious (a fuzzy term as there are vague and conflicting explanations of contagion mechanisms in science), or they are deadly, in which case they don't spread much. Artificially making a biological pathogen more deadly and more transmissible is impossible, because, if it were possible, it would have happened already in nature, and then we would not be around to discuss this on the internet.

If it were possible with lab techniques, it would have already been successfully deployed by a state or non-state actor since 1969 when biological pathogen research really took off.

There are 1,000+ "biodefense" labs in the world today, many in third-world countries with lax or nonexistent safety standards, or even war-torn places like Ukraine – yet nothing of note "leaks" anywhere. Certainly nothing leaked and went global until the WHO decided that covid should.

Lab-"emerging pathogens" seem to need a lot of help to emerge, i.e. get synthesized, manufactured at scale and deployed, and even then they are not particularly dangerous (except with very large exposure), and are treatable. Biological toxins are known to be unstable, denature quickly, are somewhat more persistent indoors but they do not pose mass lethal danger.

Just like any chemical toxin, they pose individual/localized danger. These substances are not "alive and replicating particles" any more than the poison oak is – yes you can get it from your dog and give it to your family members, and the bugger will stay on your clothes and is hard to get rid of! But poison of poison oak is not an infectious virus that "jumps" from dogs to humans; it's a biological toxin in plant oils.

In my opinion, the Ohio train explosion is much more dangerous to a lot more people over a larger area and longer period of time than any "bioweapon lab leak."

All natural biological pathogens are already perfectly optimized and balanced and cannot be "modified," despite the sci-fi narratives of hackable "software of life" and gene splicing. No complex life form can be "genetically modified" and continue as a viable life form, because that modification will interfere with its living balance, and deviate it from the perfect current state of equilibrium. In multicellular organisms, you have to modify all cells (not possible with single injection), and keep modifying all of them in perpetuity. Once injected with "gene-modifying" juice, the body frantically tries to figure out WTF just happened (FDA calls it "immunogenicity"), tries to undo the assault by eliminating the damaged cells (FDA calls it "reactogenicity"), and if the assault was large enough or with multiple injections – the body will destroy itself (CDC calls it "misinformation").

These "gene modification" narratives are simply stupid talk. All that can result from any such attempts is either the organism defeats and clears the assault from foreign material inside the cells, or local/systemic damage results, leading to injury or death. That's why all mRNA/DNA technologies failed despite 20+ years of attempts and gazillions plowed in by the biodefense cult of doomsday.

People promoting the gene modification narratives reduce the human body to a "bucket of sequenced genes" but cannot even begin to explain how it functions normally as a living being. They exclude the possibility of human soul, spirit and free will, but cannot explain nor define the normal state of life.

Yet, they claim they can control and modify it! They do not understand what humans are, and that's a massive point of failure when they attempt to "capture, control and subjugate" humans, whether by brute force as in previous centuries of warfare, or by the Harari's "fictional narrative control" of the 5th generation one.

Don't fall for doom cults and their false narratives. When we are not afraid to seek the truth, we cannot be captured, controlled or enslaved. Once you understand this, you see Harari as not a powerful technocrat, but what he really is – a clown with a whiny voice, spinning idiotic narratives for his masters. They already failed anyway because the truth is coming out day by day. They had a good run of it but their plans utterly flopped and left devastation in their wake.

**Sasha Latypova** is a former pharmaceutical R&D executive. She worked in the industry for 25 years, and ultimately owned and managed several contract research organizations working on clinical trials for



60+pharma companies, including Pfizer, AstraZeneca, J&J, GSK, Novartis and many others. She worked many years in cardiovascular safety assessments and interacted with the FDA and other regulatory agencies on these matters on behalf of her clients and as part of the FDA Cardiovascular Safety Research Consortium.

**EDITOR'S COMMENT:** Yuval Noah Harari is humanomiphobic puppet of big money profiting from doom cults. On the other hand, preparedness never hurt anyone!

## Nasal COVID-19 Vaccine Shows Promise

Source: <https://www.genengnews.com/virology/coronavirus/nasal-covid-19-vaccine-shows-promise/>

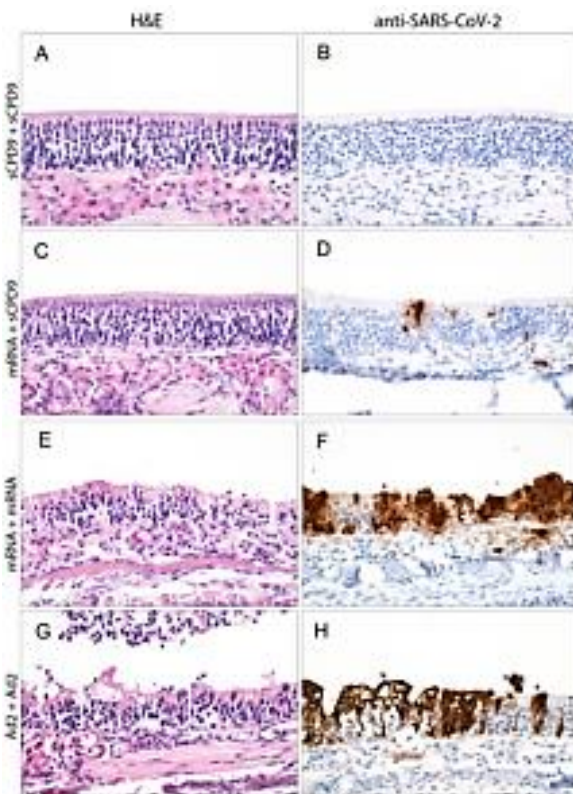
Apr 04 - COVID-19 vaccination continues to be a topic of intense research, even if it lacks the urgency experienced at the height of the pandemic. One area of focus is the development of mucosal vaccines that can be administered through the nose. These nasal vaccines are inexpensive to produce, easy to store and transport, and useful in places with limited access to trained medical staff. Now, scientists have developed a live attenuated SARS-CoV-2 vaccine for the nose that shows promise by targeting the mucous membranes of the nose, mouth, throat, and lungs and confers better immunity than vaccines injected into muscle.

This work is published in *Nature Microbiology* in the paper, "[Live-attenuated vaccine sCPD9 elicits superior mucosal and systemic immunity to SARS-CoV-2 variants in hamsters.](#)"

In the fall of last year, two nasal COVID-19 vaccination formulations were approved for use in India and China though these have not yet applied for approval in Europe. These contain modified adenoviruses that are self-attenuating.

The benefits of a nasal vaccine go far beyond being a needleless option. When a vaccine is injected, it infers immunity primarily in the blood and throughout the entire body. In this case, the immune system only detects and combats coronaviruses relatively late in an infection, as they enter the body via the mucous membranes of the upper respiratory tract. "It is here, therefore, that we need

local immunity if we want to intercept a respiratory virus early on," explained Jakob Trimpert, PhD, a research group leader at the Institute of Virology at Freie Universität Berlin. Scientists tested the efficacy of the newly developed intranasal COVID-19 vaccine on hamster models. They compared "immune responses and preclinical efficacy of the mRNA vaccine BNT162b2, the adenovirus-vectored spike vaccine Ad2-spike and the live-attenuated virus vaccine candidate sCPD9 in Syrian hamsters."



After double vaccination with the live attenuated vaccine (A), the nasal mucosa in the hamster model is well protected and shows hardly any changes from SARS-CoV-2 (B). The combination of live and mRNA vaccines (C) is also very effective, but the virus still finds small sites to attack (stained brown) in the nasal mucosa (D). In comparison, double intramuscular vaccines perform much worse in terms of protecting the nasal mucosa (E+F and G+H). They allow the virus to damage the upper tissue layers. [Anne Voß, Institute of Veterinary Pathology, Freie Universität Berlin] They found that after two doses of the vaccine, the virus could no longer replicate in the model organism. "We witnessed strong activation of the immunological memory, and the mucous membranes were very well protected by the high concentration of antibodies," Trimpert explained. The vaccine could therefore also significantly reduce the transmissibility of the virus.

In addition, the scientists compared the efficacy of the live attenuated vaccine with that of vaccines injected into the muscle. To do so, they vaccinated the hamsters either twice with the live vaccine, once with the mRNA and once with the live vaccine, or twice with an mRNA or adenovirus-based vaccine. Then, after the hamsters were infected with SARS-CoV-2, they used tissue samples from the nasal mucosa and lungs to see how strongly the virus was still able to attack the mucosal cells. They also determined the extent of the inflammatory response using single-cell sequencing. The live attenuated vaccine performed better than other vaccines.





The best protection against SARS-CoV-2 was provided by double nasal vaccination, followed by the combination of a muscular injection of the mRNA vaccine and the subsequent nasal administration of the live attenuated vaccine.

The next step is safety testing: The researchers are collaborating with RocketVax, a Swiss start-up based in Basel for a Phase I clinical trial in humans.

CSS Analyses in Security Policy

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CSS  
ETH Zürich

By Sophie Reiners and Oliver Thränert

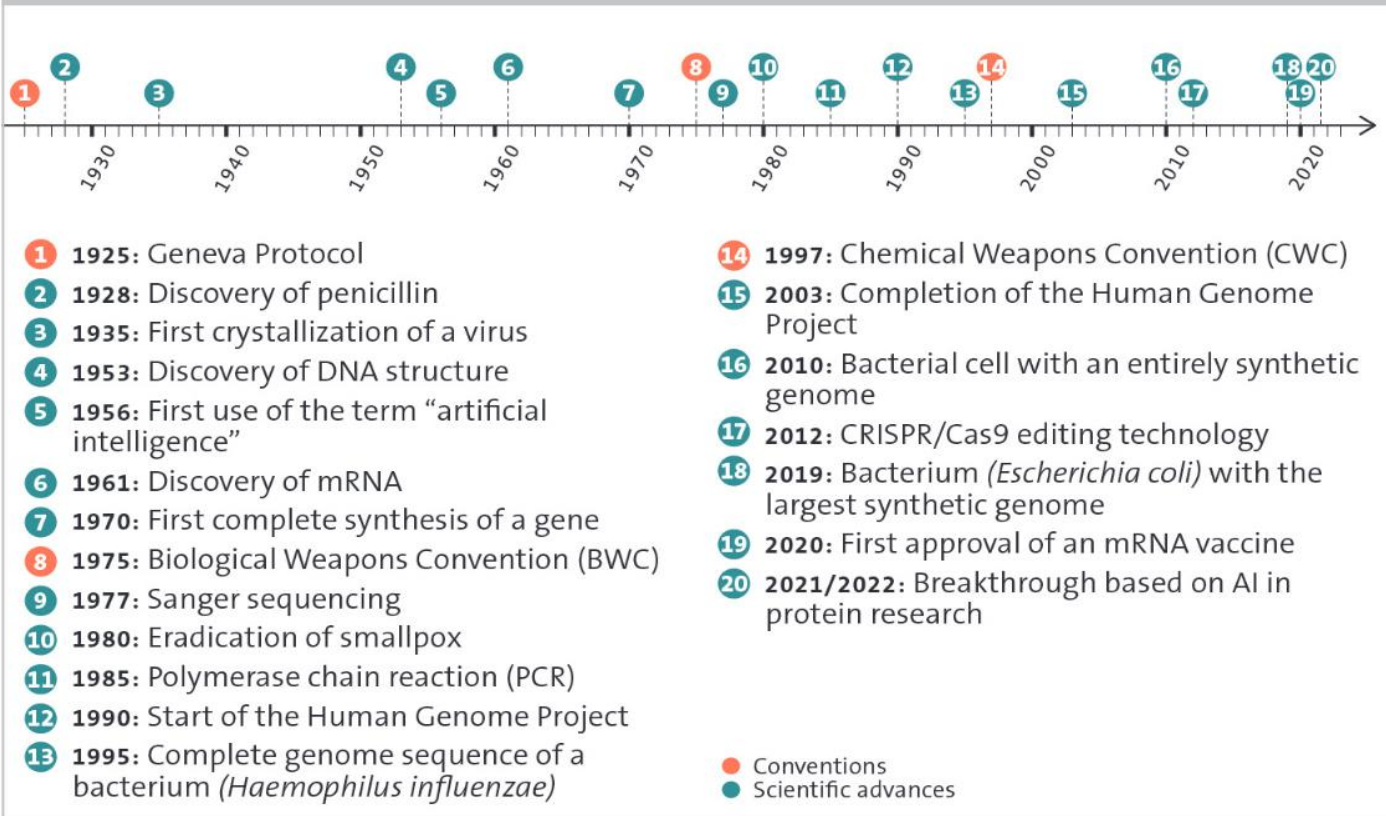
# The Biological Weapons Ban and Scientific Progress



Rapidly developing life sciences produce many exciting and useful innovations, for example in the fight against disease. However, with such powerful advancements also comes the possibility of military misuse. There is therefore an urgent need to strengthen the Biological Weapons Convention. The results of the Ninth Review Conference of this Convention may make this possible.



## Arms Control and Scientific Progress



**Sophie Reiners** is Senior Researcher in the Swiss and Euro-Atlantic Security Team at the Center for Security Studies (CSS) at ETH Zurich.

**Oliver Thränert** is head of Think Tank at the CSS.



## How Mathematics Can Predict—and Help Prevent—the Next Pandemic

By Rachel Crowell

Source: <https://www.scientificamerican.com/article/how-mathematics-can-predict-and-help-prevent-the-next-pandemic/>

Predicting and understanding disease outbreaks doesn't just involve epidemiology. It takes math, too. For centuries, mathematicians have tackled questions related to epidemics and pandemics, along with potential responses to them. For instance, 18th-century Swiss mathematician Daniel Bernoulli is [credited](#) with developing the first mathematical epidemiology model, which focused on analyzing the effects of [smallpox inoculation](#) on life expectancy. Mathematicians have continued this work to the present day, including during [the COVID pandemic](#).

One such researcher is Abba Gumel, a mathematician and mathematical biologist at the University of Maryland, College Park. He was recently elected to the current class of fellows of the American Association for the Advancement of Science. Mathematicians such as him are indispensable to the mission of identifying and [averting the next pandemic](#). Succeeding in this quest, however, requires that they unite with experts from other fields and work together to solve these multifaceted disease transmission problems.



## Russia accuses Pentagon of preparing military biological provocations

Source: <https://www.aa.com.tr/en/russia-ukraine-war/russia-accuses-pentagon-of-preparing-military-biological-provocations/2866667>

Apr 07 - Russia on Friday accused the US of preparing provocations with biological weapons. Speaking at a press briefing in Moscow, Igor Kirillov, head of the Russian Nuclear, Biological and Chemical Protection Forces (NBCP), claimed that the Pentagon is hiring specialists for development of weapons of mass destruction through the Ukrainian Science and Technology Center. According to Kirillov, work experience in double-purpose projects is one of the requirements for the recruits. The applicants, making to the final will have online course on April 24-26 and an offline meeting in Poland's capital Warsaw on the same dates, where they will work on classified projects on the territory of Ukraine and beyond, Kirillov said. "We do not rule out that under the guise of such courses, provocations with biological weapons may be prepared to launch an information campaign against the Russian Federation," he said. Kirillov added that "deployment of the most dangerous research" outside the national territory is part of the US strategy, which poses a "serious threat to entire regions."





## SARS-CoV-2 Crosses Placenta and Infects Brains of Two Infants: 'This Is a First'

Source: <https://www.medscape.com/viewarticle/990554>

Apr 07 - Researchers have found for the first time that COVID infection has crossed the placenta and caused brain damage in two newborns, according to a study published online today in [Pediatrics](#).

One of the infants died at 13 months and the other remained in hospice care at time of manuscript submission.

Lead author Merline Benny, MD, with the division of neonatology, department of pediatrics at University of Miami, and colleagues briefed reporters today ahead of the release.

"This is a first," said senior author Shahnaz Duara, MD, medical director of the Neonatal Intensive Care Unit at Holtz Children's Hospital, Miami, explaining it is the first study to confirm cross-placental SARS-CoV-2 transmission leading to brain injury in a newborn.



### Both infants negative for the virus at birth

The two infants were admitted in the early days of the pandemic in the Delta wave to the neonatal ICU at Holtz Children's Hospital at University of Miami/Jackson Memorial Medical Center.

Both infants tested negative for the virus at birth, but had significantly elevated SARS-CoV-2 antibodies in their blood, indicating that either antibodies crossed the placenta, or the virus crossed and the immune response was the baby's.

Dr. Benny explained that the researchers have seen, to this point, more than 700 mother/infant pairs in whom the mother tested positive for COVID in Jackson hospital. Most who tested positive for COVID were asymptomatic and most of the mothers and infants left the hospital without complications. "However, (these) two babies had a very unusual clinical picture," Dr. Benny said.

Those infants were born to mothers who became COVID positive in the second trimester and delivered a few weeks later.

### Seizures started on day 1 of life

The babies began to seize from the first day of life. They had profound low tone (hypotonia) in their clinical exam, Dr. Benny explained. "We had absolutely no good explanation for the early seizures and the degree of brain injury we saw," Dr. Duara said.

Dr. Benny said that as their bodies grew, they had very small head circumference. Unlike some babies born with the Zika virus, these babies were not microcephalic at birth. Brain imaging on the two babies indicated significant brain atrophy, and neurodevelopment exams showed significant delay.

Discussions began with the center's multidisciplinary team including neurologists, pathologists, neuroradiologists, and obstetricians who cared for both the mothers and the babies.

The experts examined the placentas and found some characteristic COVID changes and presence of the COVID virus. This was accompanied by increased markers for inflammation and a severe reduction in a hormone critical for placental health and brain development. Examining the infant's autopsy findings further raised suspicions of maternal transmission, something that had not been documented before.

Coauthor Ali G. Saad, MD, pediatric and perinatal pathology director at Miami, said, "I have seen literally thousands of brains in autopsies over the last 14 years, and this was the most dramatic case of leukoencephalopathy or loss of white matter in a patient with no significant reason. That's what triggered the investigation."

### Mothers had very different presentations

Coauthor Michael J. Paidas, MD, with the department of obstetrics, gynecology, and reproductive sciences at Miami, pointed out that the circumstances of the two mothers, who were in their 20s, were very different.

One mother delivered at 32 weeks and had a very severe COVID presentation and spent a month in the intensive care unit. The team decided to deliver the child to save the mother, Dr. Paidas said.

In contrast, the other mother had asymptomatic COVID infection in the second trimester and delivered at full term. He said one of the early suspicions in the babies' presentations was hypoxic ischemic encephalopathy. "But it wasn't lack of blood flow to the placenta that caused this," he said. "As best we can tell, it was the viral infection."



### Instances are rare

The researchers emphasized that these instances are rare and have not been seen before or since the period of this study to their knowledge. Dr. Duara said, "This is something we want to alert the medical community to more than the general public. We do not want the lay public to be panicked. We're trying to understand what made these two pregnancies different, so we can direct research towards protecting vulnerable babies."

Previous data have indicated a relatively benign status in infants who test negative for the COVID virus after birth. Dr. Benny added that COVID vaccination has been found [safe in pregnancy](#) and both vaccination and breastfeeding can help passage of antibodies to the infant and help protect the baby. Because these cases happened in the early days of the pandemic, no vaccines were available. Dr. Paidas received funding from BioIncept to study hypoxic-ischemic encephalopathy with Preimplantation Factor, is a scientific advisory board member, and has stock options. Dr. Paidas and coauthor Dr. Jayakumar are coinventors of SPIKENET, University of Miami, patent pending 2023. The other authors have no conflicts of interest to disclose.

## Research with exotic viruses risks a deadly outbreak, scientists warn

By David Willman and Joby Warrick

Source: [https://www.washingtonpost.com/investigations/interactive/2023/virus-research-risk-outbreak/?tid=ss\\_tw](https://www.washingtonpost.com/investigations/interactive/2023/virus-research-risk-outbreak/?tid=ss_tw)

Apr 10 — When the U.S. government was looking for help to scour Southeast Asia's rainforests for exotic viruses, scientists from Thailand's Chulalongkorn University accepted the assignment and the funding that came with it, giving little thought to the risks. Beginning in 2011, Thai researchers made repeated treks every year to remote caves and forests inhabited by millions of bats, including species known to carry diseases deadly to humans. The scientists collected saliva, blood and excrement from the wriggling, razor-fanged animals, and the specimens were placed in foam coolers and driven to one of the university's labs in Bangkok, a metropolis of more than 8 million people.

The goal was to identify unknown viruses that might someday threaten humans. But doubts about the safety of the research began to simmer after the virus hunters were repeatedly bitten by bats and, in 2016, when another worker stuck herself with a needle while trying to extract blood from an animal.

Some of the workers received booster shots to prevent infection by common rabies, and none of them reported illness, according to their supervisor. But the incidents raised disturbing questions about the research: What if they encountered an unknown virus that killed humans? What if it spread to their colleagues? What if it infected their families and neighbors?

As if to underscore the risks, in 2018 another lab on the same Bangkok campus — a workspace built specifically to handle dangerous pathogens — was shut down for months because of mechanical failures, including a breakdown in a ventilation system that guards against leaks of airborne microbes. Then, in a catastrophe that began in Wuhan, a Chinese city 1,500 miles away, the coronavirus pandemic swept the globe, becoming a terrifying case study in how a single virus of uncertain origin can spread exponentially.

In spring 2021, the Thai team's leader pulled the plug, deciding that the millions of dollars of U.S. research money for virus hunting did not justify the risk.

"To go on with this mission is very dangerous," Thiravat Hemachudha, a university neurologist who supervised the expeditions, told The Washington Post. "Everyone should realize that this is hard to control, and the consequences are so big, globally."

Researchers in Thailand catch bats at dusk as the animals leave a cave complex in Ratchaburi province in December 2020. (Andre Malerba/Bloomberg News)

Three years after the start of the coronavirus pandemic, a similar reckoning is underway among a growing number of scientists, biosecurity experts and policymakers. The global struggle with covid-19, caused by the novel coronavirus, has challenged conventional thinking about biosafety and risks, casting a critical light on widely accepted practices such as prospecting for unknown viruses.

A Post examination found that a two-decade, global expansion of risky research has outpaced measures to ensure the safety of the work and that the exact number of biocontainment labs handling dangerous pathogens worldwide, while unknown, is believed by experts to be in the thousands.

In scores of interviews, scientific experts and officials — including in the Biden administration — acknowledged flaws in monitoring the riskiest kinds of pathogen research. While the pandemic showcased the need for science to respond quickly to global crises, it also exposed major gaps in how high-stakes research is regulated, according to the interviews and a review of thousands of pages of biosafety documents. The source of the coronavirus pandemic remains uncertain. While many scientists and experts suspect it may have been caused by a natural spillover from animals to humans, the FBI,

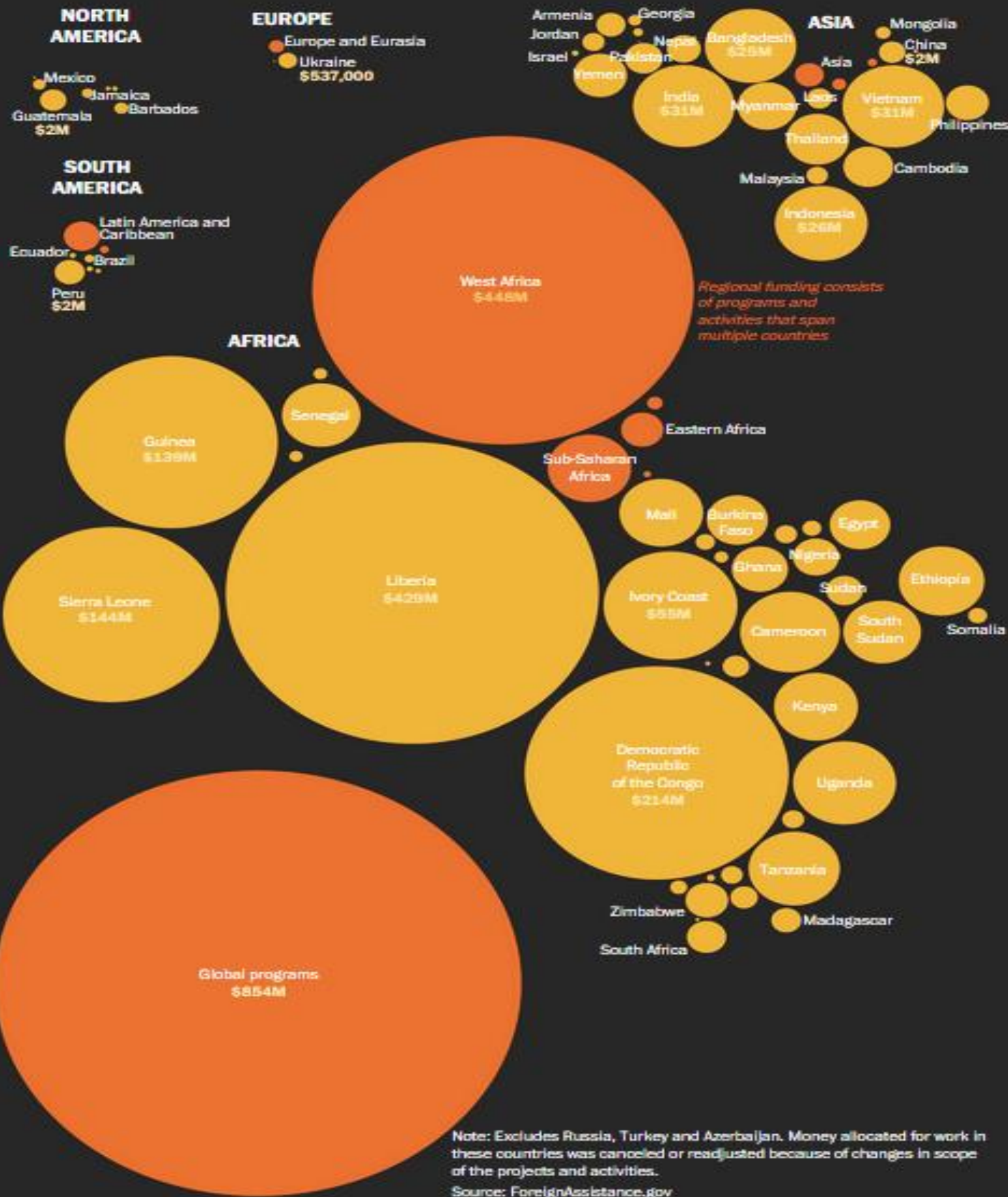




# Spending by the United States on pathogen research worldwide

Since 2012, the United States has spent billions of dollars to combat, prevent and surveil zoonotic viruses and other infectious microbes globally. The federal government has devoted nearly \$3 billion to work and research related to pathogens spreadable between people and animals in at least 78 countries and more than 10 regions around the world.

● Country or territory ● Region



"If you stand back and look at the big picture, the science is rapidly

that its likely source was an accidental release from a lab in Wuhan.

Within the United States, government regulation has also failed to keep step with new technologies that allow scientists to alter viruses and even synthesize new ones. The Biden administration is expected this year to impose tighter restrictions on research with the kinds of pathogens that could trigger an outbreak or a pandemic, according to officials familiar with the matter who spoke on the condition of anonymity to discuss internal deliberations.

Governments and private researchers continue building high-containment laboratories to work with the most menacing pathogens, despite a lack of safety standards or regulatory authorities in some countries, science and policy experts said. Meanwhile, U.S. agencies continue to funnel millions of dollars annually into overseas research, such as virus hunting, that some scientists say exposes local populations to risks while offering few tangible benefits.

“If you stand back and look at the big picture, the science is rapidly outpacing the policy and the guardrails,” said James Le Duc, an infectious-disease expert who led research for the U.S. Army and the Centers for Disease Control and Prevention before directing a maximum-containment lab complex at the University of Texas at Galveston.

“This is a national security concern,” he said. “It’s a global public health concern.”

### Hunting for trouble

A few hours’ drive outside Bangkok are lush rainforests and craggy highlands that are home to dense swarms of bats — ranging from palm-sized insect eaters to foot-long species that feast on fruit. Thai researchers had long monitored the bats for deadly strains of viruses known to infect humans, including rabies and severe acute respiratory syndrome, called SARS.

But the virus hunting performed there over the past decade at U.S. government expense included a different goal — to discover pathogens unknown to science.

Chulalongkorn University, Thailand’s oldest and one of Southeast Asia’s top-ranked biomedical institutions, became a hub for U.S.-funded projects that called for the collection and study of viruses on a vastly larger scale. Rather than focusing on pathogens that had made the jump to humans, the goal was to find and genetically evaluate viruses still circulating principally among animals, project documents show. By building extensive databases of these viruses, U.S. sponsors of the research — including the Pentagon’s Defense Threat Reduction Agency and the U.S. Agency for International Development — hoped to forecast which of the microbes might threaten humans.

Thiravat, the physician who oversaw the work with wildlife pathogens, recalled that he initially welcomed the chance in 2011 to partner with American scientists in the Pentagon-funded virus-hunting program called Prophecy. The following year, the visitors from the United States were touting a similar project, called PREDICT, with an overall \$200 million budget administered by USAID. The goal was to identify pathogens “most likely to become pandemic” and prevent such events.

The virus hunting typically started with flights or difficult drives to remote provinces where clusters of trees and networks of caverns provided sanctuary for bat colonies. The Thai researchers would approach the caves and roosting trees at dusk, just as the nocturnal inhabitants were beginning to stir, and work until dawn, catching some in nets and grasping them with gloved hands so that the bodily fluids could be collected on swabs for analysis.

Sometimes, Thiravat removed his cumbersome rubber gloves to make the task easier.

“In the early days, we didn’t think it was that harmful,” he said.

Humans can become infected through direct contact with the bats’ secretions, including their droppings, which are mined as fertilizer in parts of Southeast Asia. “We were really lucky,” Thiravat said, that no one died.

Over time, Thiravat said he grew worried about the risk of accidental infection — in the field, and as the vials of bat material were transported back to his campus lab in Bangkok — where workers clad in protective masks and coats genetically sequenced the viruses using a technique called polymerase chain reaction. Before those analyses began on the lab’s cramped ninth floor, technicians in the field sought to “inactivate” the specimens to prevent the viral material from infecting anyone.

For more than a decade, the process of collection, transportation and analysis played out several times a year. One misstep could invite trouble: a virus-contaminated needle piercing latex and skin in the field, a spill in transit or an equipment malfunction in the lab. In China, where a separate virus-cataloguing effort has been underway for years, scientists have described being bitten or scratched by bats or having bat urine or blood splashed into their eyes and faces. A 25-year-old American researcher became ill with a Sosuga virus in 2012 after a research expedition to Sudan and Uganda to collect blood and tissue from bats and rodents. She survived after being hospitalized for 14 days upon returning to the United States, suffering from fever, malaise, headache and muscle and joint pain, according to CDC scientists. The virus, rarely detected in humans, is endemic among the African region’s jumbo-sized fruit bats.

In 2018, at Chulalongkorn, the scientists were shaken when technicians discovered malfunctioning safety equipment at another lab operating on the same floor as the one used by the virus hunters, according to



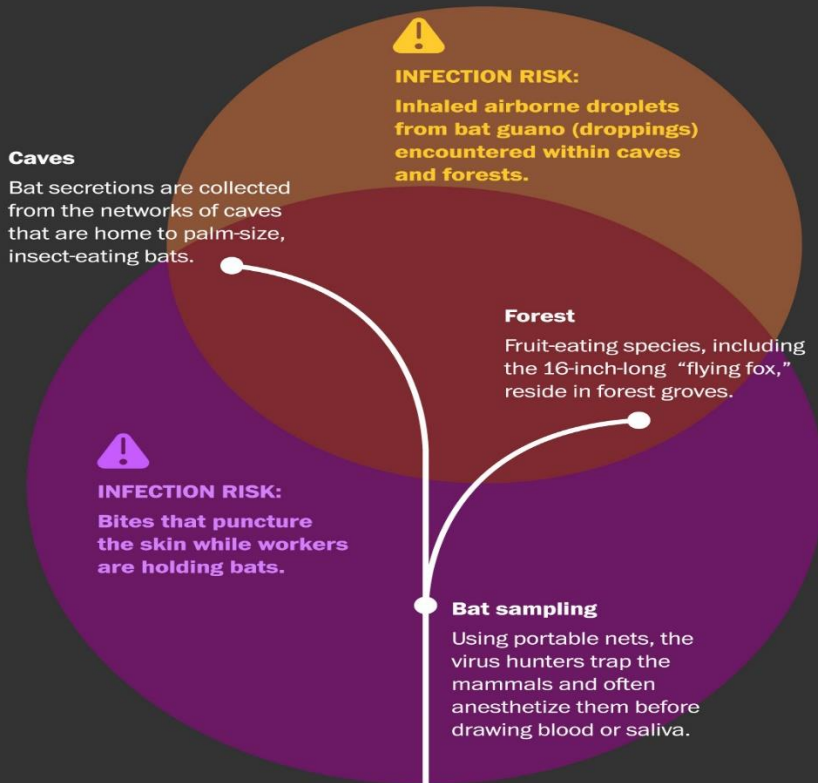


## From field to lab, the risks of virus hunting

Virus hunting — including efforts to collect genetic material from bats in pursuit of pathogens not known to infect humans — relies on three stages of work. A mishap at any stage would invite risk of an outbreak or a global pandemic, according to infectious-disease experts.

### COLLECTION

In Thailand and other parts of Southeast Asia, teams of virus hunters travel to remote areas where multitudes of bats roost.



### SHIPMENT

Once the specimens of genetic material are collected, they need to be sent to a laboratory for detailed analysis.

**INFECTION RISK:**  
Coolers must remain secured to prevent spillage or misuse of the material.

**Packing**  
Samples are loaded into vials and are typically placed in foam coolers along with dry ice for transport.

### ANALYSIS

The specimens are analyzed at a laboratory, where scientists use a technique called polymerase chain reaction to identify which virus might be present.

**Laboratory research**  
The safety of the work depends in part on steps typically taken to “inactivate” live viral material, reducing the chance for infection.

**INFECTION RISK:**  
Accidents within the lab such as spilling, splashing or aerosolized droplets.

Thiravat. The technicians found a fault in an air-pressure system designed to keep dangerous microbes from infecting lab workers, and a broken autoclave, a high-pressure steam sterilizer necessary to inactivate and safely dispose of viruses or other contaminated materials. No sicknesses were reported.

Repairs were ordered, and the lab was shut down for six months, Thiravat and two colleagues who help operate the facility, Chanida Ruchisrisarod and Teerada Ponpinit, told The Post. The deficiencies have not previously been publicized.

In early 2021, with Thailand’s death toll in the coronavirus pandemic topping 22,000, Thiravat began informing his U.S. contacts and others that he was finished with virus hunting. A decade of work, he said, had produced no discernible benefit for Thailand while exposing his researchers to life-threatening risk. Thiravat told American officials that the U.S. money — about \$10 million of it had flowed to his team’s operations — would be better spent on mosquito nets and other conventional public health measures proven to save lives. The field workers’ earlier bat bites also weighed on him. In an email to a Pentagon grants official and others, he described a “paradigm shift” in his decision to move away from virus hunting.

“Instead of wildlife surveillance that revealed hundreds of viruses belonging to many families — including coronaviruses that may or may not jump to humans,” Thiravat wrote on April 14, 2022, “we focus on attempting to identify what is responsible for illness in humans and animals.” A copy of the correspondence was obtained by The Post.

The associate dean for research at Chulalongkorn, Vorasuk Shotelersuk, acknowledged Thiravat’s decision while saying that university policy does not prohibit collecting wildlife viruses. “I see that it has some risks,” Vorasuk said. “But I see that it’s possible that ... the risks can be handled properly.”

A spokeswoman for the Pentagon’s Defense Threat Reduction Agency, Andrea Chaney, said it now funds “no active bio-surveillance studies in Thailand” but “would be eager to partner with



Thailand on future projects.”

On Friday, Thiravat said he had ordered destruction of the thousands of bat specimens collected during virus hunting expeditions and stored at the university.

### Explosive growth

Until the early 21st century, research into the most lethal pathogens — including the Ebola and Marburg viruses — was typically the domain of a handful of fortresslike laboratories around the world, such as those at Fort Detrick, Md., where scientists performed their tasks with elaborate protective gear, including air-purifying respirators and full-body pressurized suits.

But the 2001 American anthrax-letter attacks and later outbreaks of biological threats such as Ebola sparked a construction boom. Funded in part by millions of U.S. dollars, governments worldwide built additional maximum containment labs, which some officials promoted as bulwarks against bioterrorism that would also help diagnose newly emerged human infections, and speed research that could deliver lifesaving vaccines or therapeutics.

The number of labs continues to soar. Of the most restrictive, known as Biosafety Level (BSL) 4 labs, some 69 exist or are under construction in 27 countries. Half were built in the past decade, including 10 last year, according to data gathered for a newly released [report](#) by Global Biolabs, a British-U.S. consortium that advocates for vigorous oversight of pathogen research.

The growth in research also has driven construction of a slightly less-restrictive type of laboratory, known as the BSL-3. These labs are designed to handle sometimes-fatal pathogens such as plague and anthrax and the viruses that cause covid-19 and West Nile fever. The Bangkok laboratory that was shut down over safety concerns in 2018 is rated BSL-3.

Although no reliable totals exist for the number of BSL-3 labs globally — scientists suspect there are perhaps thousands — the federal Government Accountability Office has listed 1,362 in the United States alone, most of those operated by the federal government, state governments or academic institutions.

But the GAO noted that its number is an incomplete count. “We found that there are entities that have high-containment labs but have not registered” with the federal government, Kelly L. DeMots, a GAO assistant director for health care, told The Post. Labs are required to register if they are working with dangerous microbes, including Ebola, anthrax and more than 60 other pathogens and toxins.

The CDC inspects the registered labs, which are supposed to disclose accidents or mishaps. From 2009 to 2018, such labs reported an average of 98 incidents annually, ranging from minor problems with protective gear to exposures from accidental jabs with contaminated needles, according to CDC records.

A separate accounting, based on National Institutes of Health records obtained by private researchers through the Freedom of Information Act, identified 184 incidents between 2004 and 2018. They all occurred in labs rated at BSL-2 or higher and included spills of contaminated wastes, bites from infected animals and label mix-ups that resulted in workers unknowingly handling live viruses, according to an analysis by Lynn Klotz, a senior science fellow at the Center for Arms Control and Non-Proliferation in D.C. The BSL-2 labs handle infectious pathogens or toxins that pose a moderate risk if inhaled, swallowed or exposed to the skin. Labs designated BSL-1 should have some personal protective equipment and an autoclave for decontaminating materials.

Several lab workers identified in NIH records tested positive for exposure to dangerous pathogens, Klotz’s research showed, although there were no reports of serious illnesses or exposures to people outside the labs, according to his analysis, which he provided to The Post.

A [GAO report](#) released in January revealed multiple gaps in the federal government’s policing of the riskiest kinds of experiments. The report, which identified no labs by name, said the Department of Health and Human Services is providing “subjective and potentially inconsistent” oversight of U.S.-funded research. Additionally, “HHS does not conduct oversight” of research funded by foundations and other nongovernment groups, even when the work involves “enhancement of potential pandemic pathogens.”

Far less is known about labs outside the United States. Regulation falls to each individual country, and there are no enforced international standards.

Global Biolabs, the advocacy group, found that nearly 1 in 10 BSL-4 labs operating in other countries score poorly in international rankings for lab safety. In some cases, labs were constructed without local regulations or meaningful oversight of the handling of dangerous pathogens, or “even a well-established culture of responsible research,” said Gregory Koblentz, a co-author of the Global Biolabs report and the director of the biodefense graduate program at George Mason University’s Schar School of Policy and Government.

Most countries lack the sophisticated controls needed to prevent dangerous viruses or bacteria from being misused or diverted for illicit purposes, he said. “This is a major blind spot in global surveillance for future biological threats,” Koblentz said. Neither are there reliable sources of information on research accidents,





especially in developing countries, where laboratories often struggle to pay the bills and sometimes are forced to contend with blackouts and shortages of clean water, according to interviews with scientists and other experts.

“In some parts of the world, they just don’t have the people, the money or the need” for the research performed at the high containment labs, said Thomas Inglesby, a biosecurity adviser to multiple U.S. administrations who also is the director of the Johns Hopkins Center for Health Security in Baltimore.

Scientists and officials contacted in Southeast Asia and Africa, for instance, described constant struggles to fund salaries and the training of lab personnel, along with paying for protective gear, replacement parts and other upkeep of safety systems. “My worry is the maintenance and the costs,” Oyewale Tomori, a virologist and former president of the Nigerian Academy of Science, said in an interview from Lagos. Tomori is “very concerned” with the several BSL-3 labs operating in Nigeria, he said, “because the funding to maintain and sustain” biosafety is lacking.

At the World Health Organization, epidemiologist Kazunobu Kojima has for more than a decade led its efforts to encourage countries to reduce the risks, revising, for example, a biosafety manual that labs are encouraged to adopt. The WHO, Kojima said by email, has found that poorer countries — which he declined to name — “struggle to attain the necessary capacities and capabilities to manage biosafety and biosecurity challenges.”

The U.S. National Academy of Sciences also has sought for more than a decade to promote safety by inviting international lab specialists to conferences and asking them privately to share their concerns. Interviews with participants and conference summaries reviewed by The Post reveal long-standing deficiencies.

“Major gaps in biosafety implementation” were reported in the Caribbean region, “where a survey of 13 major labs found that only about half the respondents indicated that respirators were used correctly,” according to the summary of a conference held in 2011 in Istanbul.

Of about 45 BSL-3 facilities operating in Southeast Asia, “questions exist about standards, management, training and security for most labs in the region,” according to the summary. Many lab safety cabinets — intended to contain pathogenic material aerosolized during experiments — were “neither functional nor regularly inspected,” according to a second account of the meeting prepared by the National Academy of Sciences, which added: “For some labs, the availability of electricity and water was severely limited.”

In 2016, scientists who gathered again warned of systemic lab deficiencies in Asia.

In Malaysia, “adequate resources are needed to improve basic biosafety infrastructure, facilities and equipment.” In Vietnam, of the country’s more than 5,000 BSL-1 and BSL-2 labs, “only 600 of them are certified” by the government and “most facilities do not yet meet the biosafety conditions.” In India, “awareness about bio-risk management at ... many national laboratories is inadequate and ... trained staff on biosafety issues is needed.”

Micah Lowenthal, the director of the National Academy’s committee on international security and arms control, said the conferences sought to “reduce the possibility of an outbreak.”

“We want to improve the practices at the laboratories,” said Lowenthal, who is a physicist. The presentations helped demonstrate, he said, “how hard it is to build and run these facilities. They’re expensive; there’s a lot of care that has to go into it.”

### Reconsidering the risk

The United States has allocated more than \$400 million to virus hunting worldwide since 2009, according to grant documents and other federal records. Proponents contend that this effort could help develop the medicines to counter future spillovers of deadly viruses from animals to humans, and two of the U.S.-funded programs are aimed explicitly at preventing human pandemics.

The Biden administration initially backed the research, announcing on Oct. 5, 2021, a USAID initiative called DEEP VZN (short for “Discovery & Exploration of Emerging Pathogens — Viral Zoonoses”) in Africa, Asia and Latin America. The program would “detect, prevent and respond to future biological threats,” USAID said at the time.

“DEEP VZN will build and expand on previous work by significantly scaling up USAID’s efforts to understand where, when, and how viruses spillover from animals to humans,” said an agency news release, promoting the \$125 million program.

But in December 2021, officials with the White House National Security Council and the Office of Science and Technology Policy privately advocated to end DEEP VZN and another USAID program called “STOP Spillover,” a \$100 million effort to analyze disease threats from animals and prevent outbreaks or pandemics.

According to interviews with people familiar with the matter, who spoke on the condition of anonymity to discuss internal administration deliberations, the officials made their recommendation personally and in emails to USAID Administrator Samantha Power and her top aides. Power pledged a review of the programs, but USAID continues to fund the research, the officials said. Power declined through a spokeswoman to comment. The White House recommendation was based in part on classified warnings about the possibility that foreign adversaries could use the programs’ data to advance bioweapons programs, said those familiar with the events.



Critics of virus hunting contend that the programs create unacceptable risks and have generated vast amounts of genetic data of limited usefulness. They note that the harvesting of bat viruses failed to predict the coronavirus pandemic or yield new vaccines.

The work provides researchers with a snapshot in time of viruses that are continuously evolving, but “there is no way to know, based on the identification of a virus in an animal, whether it’s going to pose a threat to humans, to livestock or to wildlife,” said W. Ian Lipkin, an epidemiologist at Columbia University. Lipkin said his New York City lab analyzed viruses collected abroad for the U.S. government’s PREDICT program.

Prominent biosecurity specialists also have warned of the appeal to terrorists.

Kevin Esvelt, a Massachusetts Institute of Technology biotechnologist who helped develop the pioneering gene-editing technology known as CRISPR, told members of Congress in December 2021 that posting the genetic sequences of viruses could lead to a global pandemic.

Doing so, he said, is like publicly revealing the instructions for making a nuclear bomb. “If someone were to assemble pandemic-capable viruses from a publicly available list and released them in airports worldwide,” Esvelt told The Post, “that might be a civilization-level threat.”

The rapid changes in technology have left regulators a step behind, experts say.

That gap became apparent after an NIH-funded researcher named Ron Fouchier in the Netherlands shocked his peers by revealing in 2011 that he had created a mutant strain of a particularly lethal kind of avian flu, H5N1. The resulting pathogen, Fouchier reported, had for the first time spread through respiratory droplets among caged ferrets. The experiment, approved in advance by the NIH, sought to anticipate what might happen if such mutations threaten humans through natural evolution.

Reached by email, Fouchier said his work “filled crucial gaps in knowledge ... about what makes an influenza virus transmissible in the air via mammals.” His facilities in Rotterdam, he said, are inspected regularly by Dutch and U.S. government officials, and were “specifically built to work safely and securely with airborne viruses.”

As for what controls are needed globally, Fouchier said: “Authorities should ensure that this type of work can only occur in safe and secure labs, to ensure negligible risk to humans and the environment.”

Fouchier’s work, and several high-profile research mishaps in the United States — including the discovery in 2014 of six vials of virulent smallpox on NIH’s central campus in Bethesda, Md. — alarmed the Obama White House. That fall, officials imposed a moratorium on government-funded experiments with some viruses that would result in a “gain of function,” a change that made the pathogen more lethal, more transmissible or more resistant to drugs or vaccines. In late 2017, the Trump administration lifted the moratorium and announced new guidelines and an HHS-appointed expert panel to provide oversight. The new system was meant to ensure that U.S.-funded experiments — including those conducted overseas — that could yield more-dangerous viruses would first undergo high-level federal review to assess such projects’ overall risks and potential benefits.

But the policy change applies only to research funded by the HHS and its components, including the NIH. The rules do not encompass experiments that might be backed by the Pentagon, other federal agencies or private companies and institutions.

The [2017 revisions](#) also included an overlooked loophole that exempted experiments from the expert panel’s review unless a lab-created pathogen was “reasonably anticipated” to be both “highly transmissible” and “highly virulent.”

In a [report in January](#), the HHS inspector general faulted NIH’s oversight of a project that was launched in China and funded by agency grants from 2014 to 2019 to EcoHealth Alliance, a nonprofit organization based in New York City. According to the report, EcoHealth failed to promptly disclose safety concerns about lab work conducted with coronavirus strains by a subgrantee, the Wuhan Institute of Virology, in the Chinese city where the coronavirus pandemic began. The NIH “did not effectively monitor or take timely action to address EcoHealth’s compliance,” the report said. In written remarks to the inspector general, EcoHealth’s president, Peter Daszak, disputed that his company had been required to immediately notify NIH of the concerns that the agency later identified. But Daszak also said that EcoHealth had “corrected certain procedures” and aims for “even better compliance” with federal rules.

Asked for comment, EcoHealth reiterated by email the points that Daszak made to the inspector general.

Officials at NIH did not contest the conclusions and told the inspector general that corrective actions were underway, including tighter monitoring of foreign subgrantees. Anthony S. Fauci, who was the director of the NIH institute that funded the work in Wuhan, has told Congress that none of those experiments amounted to gain-of-function research. Fauci, 82, retired on Dec. 31.

Le Duc, the infectious-disease expert, and other scientists said the coronavirus pandemic has shown that the federal review standards need to be tightened because even a pathogen that kills at a modest rate can inflict devastation if it is highly transmissible. In September, the National Science Advisory Board for Biosecurity [said](#) the existing definition of pandemic-risk pathogens “should be modified to include potentially highly transmissible pathogens having low or moderate virulence.” That would open more U.S.-funded work to the scrutiny of the HHS panel of experts. In January, [the federal board detailed its recommendation in a 29-page report](#). Kenneth W. Bernard, a member of the board, told





The Post that the proposed change would close “the loophole” and enable stricter scrutiny of high-stakes research. But he said that tighter controls may prompt some virologists to move experiments to less-regulated labs overseas.

“We need to develop incentives for people to put safety and carefulness at the same level as scientific advance,” said Bernard, a physician who was a biodefense assistant to President George W. Bush. “The [Biden] administration should move on this quickly.” The White House expects to address the matter in its planned policy revision, officials said.

#### ‘A legitimate use’

Some bioengineering firms, acutely aware of the potential for harm if their technology is misused, have chosen not to wait for tighter federal rules. They have introduced their own safeguards and oversight systems, voluntarily taking on responsibilities and costs that normally fall to governments. One of them is the San Francisco company Twist Bioscience.

The 10-year-old firm is among about two dozen globally that synthesize DNA at scale; Twist manufactures artificial genetic sequences to sell to other scientists in labs around the world. Twist’s synthetic DNA is used by researchers to create “designer” bacteria and viruses that can attack cancer cells or clean up oil spills. In theory, it also could be used for malicious purposes, such as tweaking a disease strain to make it more virulent or drug resistant. Every day, from inside Twist’s glass office tower near San Francisco International Airport, a machine resembling a 3D printer deposits microscopic strands of genetic code on a silicon wafer as workers in protective gear keep watch. New orders arrive over the internet, and the finished products are sent out the door by courier or mail truck in as little as six days. Concealed within the jumble of coding that makes up a typical order could be the keys to a lifesaving cure — or the biological equivalent of a powerful bomb. The synthetic-DNA industry is new, and few federal regulations govern it. Asked by The Post about the technology, HHS officials said the department this year is likely to issue “updated guidance” for “the gene and genome synthesis enterprise.” Twist executives, however, say they have already introduced their own safeguards.

In the company’s security department, computers scan each order to see whether the requested DNA matches up with known pathogens, including restricted microbes that cannot legally be acquired without a license. A different team investigates the individuals behind each order. What’s the history and track record of the buyer? Do names and shipping addresses match up? What’s the intended use of the DNA? On a few occasions, a suspicious order has prompted a call to the FBI, company officials said.

“We’re being asked to manufacture this thing, so we have to make sure we truly understand who the ordering party is and whether they have a legitimate use,” said James Diggans, Twist’s head of biosecurity. The extra steps are costly and time-consuming for a company that has to compete with other synthetic-DNA producers, including in Europe and China. Twist has tried to turn this perceived liability into an asset, marketing itself to customers as a company that sees biosecurity as an essential value that all responsible researchers should share. Some vendors are less willing to spend the money, particularly in markets overseas, said Emily Leproust, a French-born organic chemist and the company’s co-founder and CEO. Twist has pushed its competitors to abide by the same standards. But with few regulations and no international enforcement, biosecurity remains, for now, a premium feature — an option, for the purveyors of a new science who are sufficiently worried about the risks to take an extra step.

“The majority in the industry are good players, but there a few who don’t participate, and I think it’s wrong,” Leproust said. “Every invention is like a coin, with a side that’s positive and a side that is negative. With dynamite you build a canal. But you can also kill.”

[David Willman](#) is an investigative reporter for The Post. He won the 2001 Pulitzer Prize for investigative reporting for articles that prompted the market withdrawal of a widely sold diabetes drug. His subsequent reports documented widespread pharmaceutical industry payments to federal researchers, triggering a ban of such compensation at the NIH.

[Joby Warrick](#) joined The Washington Post’s National staff in 1996. He has served with the Post’s investigative and national security teams, and writes about the Middle East, terrorism and weapons proliferation. He is the author of three books, including “Black Flags: The Rise of ISIS,” which was awarded a 2016 Pulitzer Prize for nonfiction.

## Twisted Testicles, Memory Loss, And Death – What You Need to Know About Stun Guns

Source: <https://www.sciencealert.com/twisted-testicles-memory-loss-and-death-what-you-need-to-know-about-stun-guns>

Apr 11 – Earlier this year, in Louisville, Kentucky, police officers shocked a man with a stun gun so many times that his children [asked whether he was dead](#), a Justice Department investigation found. Police and law enforcement have been using Tasers, known generally as stun guns, [since 1974](#) as a safer alternative to guns. But risk of death is still a concern. There have been more than [1,000 reports of deaths](#) involving a Taser or another conducted electrical weapon (CEW). “A Taser, while intended to be nonlethal, can still incur serious



effects, which in some cases, can be life-threatening," especially for those with a heart condition or who are on drugs that affect the cardiovascular system like cocaine and methamphetamine, said [James Giordano](#), a professor of neurology and biochemistry at Georgetown University Medical Center and an expert on military medical ethics.



About [90 percent of law enforcement](#) in the US issues Tasers, and given that there are roughly 18,000 law enforcement agencies, that corresponds to more than [140,000](#) Tasers nationwide.

Police have been known to shock people as young as [11 years old](#) and as [old as 75](#), so it's important to know how these devices affect the brain and body.

A quick note before we get into it: Taser is a brand name for a specific type of CEW. Put another way, all Tasers are stun guns, but not all stun guns are Tasers. Some of the research cited below involved stun guns, and not Tasers specifically.

### 1. Stun guns make your muscles seize up like a Charley horse

Stun guns are meant to safely stop people in their tracks.

Taser's common X26 model administers a shock of about [1.9 milliamperes](#), according to the Institute of Electrical and Electronics Engineers – well below the [10 milliamps](#) needed to cause a severe electric shock but still enough to have an effect.

"Basically, Taser energy weapons send a signal to your muscles telling them to flex," or seize up, Amy Nguyen, the chief safety officer at Axon, which [manufactures](#) Tasers, said.

This induces a state called [neuromuscular incapacitation](#), which hijacks the communication link between your body and brain, making it difficult to make any voluntary movements.

### 2. People who have been shocked say it hurts a lot

Strikes from stun guns "cause severe, uncontrollable contractions of your muscles, which are very painful," Dr. [Jonathan J. Rasouli](#), a neurosurgeon with Staten Island University Hospital, said, adding: "This is what gives Tasers their incapacitating power and can stun an individual quickly and reversibly."

One person [described the pain](#) as the sensation of his brain shaking "like a peanut in a jar."

"If you were to shake that jar a hundred times as fast as you can and multiply that by a thousand," the person told Reuters.

[A police officer's painful reaction to being tasered during a training course on stun guns.](#) (Star Tribune/Contributor/Getty Images/Business Insider)



### 3. An electrical shock may severely affect the heart

Being exposed to electricity can cause [ventricular fibrillation](#), the most serious type of irregular heartbeat. A study





[attributed](#) at least some of the [deaths following a Taser X26 shock](#) to cardiac arrest, which can be a consequence of VF. An electrical strike from a stun gun could "lead to disruptions in heart function that can range from moderate to severe and possibly fatal," Giordano said.

For most people hit by stun guns, there are no cardiovascular effects, Rasouli said.

"Most studies have shown that 50,000 volts, the voltage seen on most commercial Tasers, is safe to the heart," he said.

Still, with the reports of cardiac arrest after strikes from CEWs, Rasouli said, "scientists are not exactly sure yet" about the likelihood of a stun gun affecting your heart.



#### 4. Strikes can temporarily affect memory and cognition

After being hit with a stun gun, you might not be able to recall short-term memories. And you may have trouble processing new information, which could last for up to one hour, one [study](#) found.

"Since a Taser shock is an incredibly stressful and painful experience, there can certainly be neurocognitive side effects," like trouble finding words or processing information, Rasouli said.

This temporary effect on memory has led to a [push](#) for police to delay questioning or the reading of the Miranda rights to people who have recently been shocked, until they have the chance to recover cognitively.

#### 5. Getting shocked may also be emotionally or psychologically jarring

While there's limited research on the psychological effects of CEW jolts, being shocked may [contribute to trauma](#). The physical and emotional pain of a strike is an "objectively traumatic event," Giordano said.

This is an important area of research, since many people who're hit with stun guns are already in a high-stress situation and [experiencing](#) emotional distress. Rasouli said more research was needed on how a strike might contribute to mental illness long term.

#### 6. Sharp probes can lead to puncture wounds, scrapes, and bruises

In one study involving 1,201 cases of shocks from stun guns against criminal suspects, about [83 percent of people](#) reported a mild injury of superficial puncture wounds, making these wounds the most common injury associated with Tasers.



Many Tasers and some other CEWs have two probes with pointed metal barbs that shoot out and puncture the skin. While the wounds are typically minor, at least one person [reported](#) he needed surgery to remove a barb. Scrapes and bruises are also possible since many people fall over after being hit by a CEW. A [study](#) from 1987 found that 38 percent of people who were shocked reported lacerations or scrapes.

#### 8. Rarely, stun guns can severely harm kidney function

Very rarely, stun guns can cause a serious [condition called rhabdomyolysis](#), AKA rhabdo, which can be fatal.

"Rhabdomyolysis occurs when muscle tissue is overstimulated, becomes over contracted, and components of muscle protein are released into the bloodstream," Giordano said.

Those proteins can [damage kidney function](#) and even induce kidney failure. Rhabdomyolysis is treatable, but without medical attention, it can be fatal, Giordano said.

The same study that found puncture wounds to be a common injury also found evidence for rhabdomyolysis in one out of 1,201 people hit with stun guns.

#### 9. In a few cases, electrical shocks have caused the testicles to twist up

Another [study](#) from the '80s on CEW injuries found that 0.5 percent of people studied experienced [testicular torsion](#), or twisted testicles. That can happen to men when their muscles contract severely, Giordano said, even if a Taser doesn't hit the pelvis directly. During testicular torsion, one or both testes twist on their spermatic cords, tissue that sends blood to the scrotum. That can cut off blood flow to the testicles and cause the testicular tissue to die if blood flow isn't restored within six hours. So testicular torsion isn't just very painful but also a medical emergency, though it's rare for people who are shocked by a stun gun.

"While possible, such injuries are not common when an individual is Tased," Giordano said.

#### 10. You usually regain muscle control quickly

The electrical pulses from a Taser strike last only five seconds. After that, most people return to their normal muscle function right away. "Recovery from the incapacitation is instantaneous," Nguyen said.

Of course, you'd still need to cope with secondary injuries like bruises, cuts, memory impairment, or, sometimes, long-term emotional or psychological trauma.

#### 11. But you'll probably be sore afterward

Some people who are hit with CEWs [experience](#) muscle soreness for a few days after the fact. This happens for two reasons, Giordano said. First, your pain receptors and nerve endings are overstimulated by the electrical shock, making them more sensitive. Second, the strong muscle contractions can induce the same sort of [muscle fatigue you might experience after hitting the gym](#).

You can usually treat it with heat, a cold pack, or over-the-counter painkillers.

## Two individuals with potential monkeypox virus reinfection

By Angelo Roberto Raccagni, Diana Canetti, Davide Mileto, et al.

Source: [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(23\)00185-8/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(23)00185-8/fulltext)

Apr 06 – Over 80 000 mpox (formerly known as monkeypox) cases have been confirmed worldwide and recovered individuals are considered protected against reinfection.<sup>1 2 3</sup>

However, an individual with apparent reinfection has been recently reported.<sup>4</sup>

In this Comment we describe two individuals with potential monkeypox virus reinfection at San Raffaele Hospital, Milan, Italy ([figure](#); see appendix for details on testing and results).

The first individual is a 36-year-old man who has sex with men (MSM) who presented with asthenia, pharyngodynia, and fever with tenesmus and mucorrhoea on May 24, 2022, with symptom onset a week earlier, after attending a large gathering in Spain in early May, during which he had condomless oral intercourse and condomless anal intercourse with several partners. He is on antiretroviral therapy for a known HIV infection (1099 CD4<sup>+</sup> cells per  $\mu$ L; HIV-RNA <20 copies per mL since 2015) and had no other medications or comorbidities.

He presented with a perianal ulceration, a pharyngeal lesion, and lymphadenopathy. Monkeypox virus PCR was positive for lesion, rectal, and oropharyngeal swabs with cycle threshold values ranging between





18 and 32, with concurrent chlamydia proctitis. Symptoms and lesions resolved by June 1, 2022, and a monkeypox PCR was negative for plasma, oropharyngeal, and anal swabs.

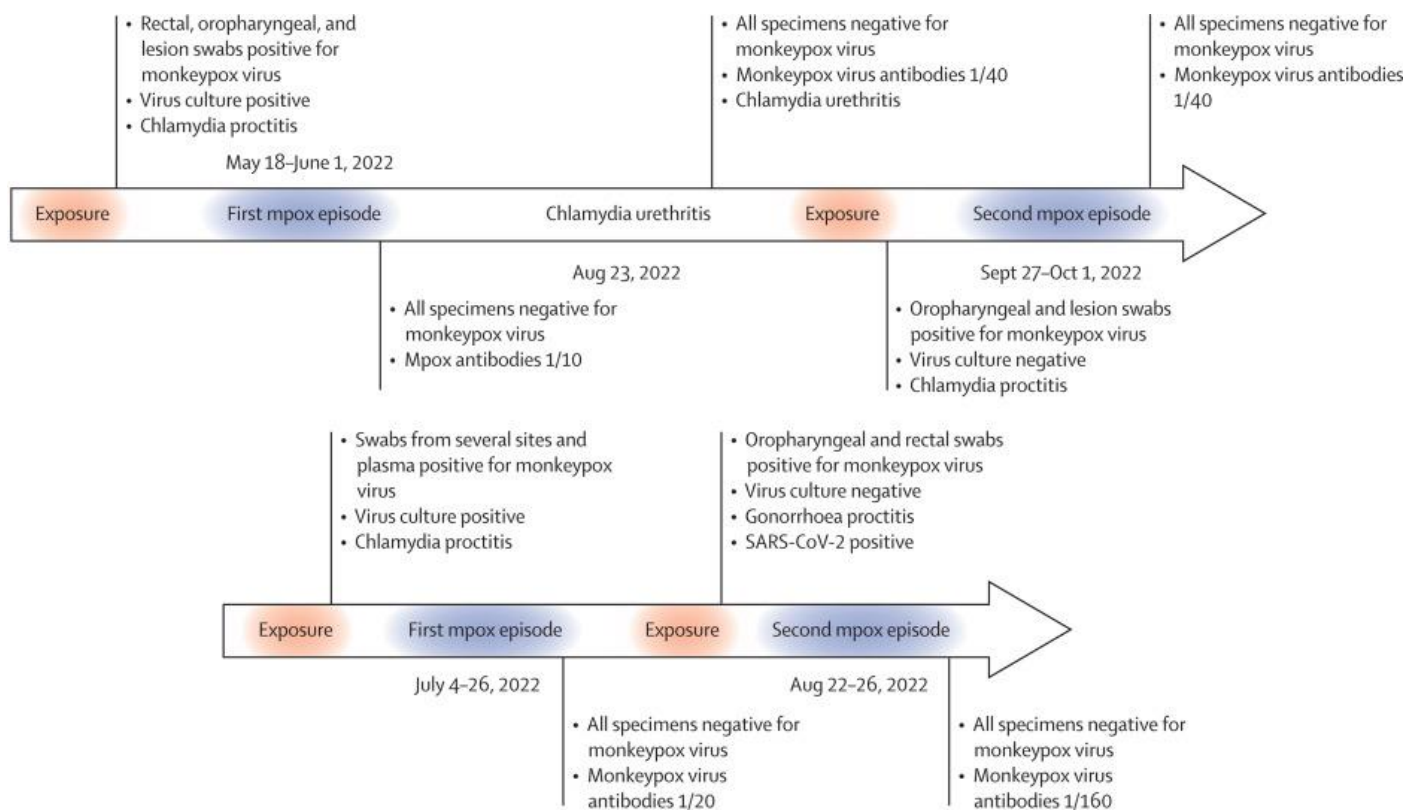


Figure Timeline of monkeypox virus infection among two men who have sex with men

On Aug 23, 2022, he presented with oral and cutaneous non-ulcerated erythematous lesions. Mpx was excluded with oropharyngeal, anal, and lesion swabs, and chlamydia urethritis was detected, which resolved after doxycycline treatment (100 mg twice per day for 7 days).

On Sept 27, 2022, he presented with a single, umbilicated vesicular lesion on the glans penis following condomless oral intercourse and condomless anal intercourse with several individuals who were later diagnosed with mpx. Lesion swabs and oropharyngeal swabs were positive for monkeypox virus with cycle threshold values of 37 and 34, with concurrent chlamydia proctitis. The lesion resolved by Oct 1, 2022, and all subsequent swabs from several locations were negative for the monkeypox virus. He had not received mpx vaccinations and had antibody titre of 1/40 after the first episode. This titre remained stable after the second episode. The second individual is a 33-year-old MSM who uses pre-exposure prophylaxis for HIV with no comorbidities or comedication. He presented with proctitis, a single vesicular lesion on the lower lip, and lymphadenopathy on July 7, 2022, after condomless oral intercourse and condomless anal intercourse with several partners during the previous month. Anoscopy revealed mucosal congestion with erosions and ulcerations, and a rectal swab was positive for both monkeypox virus with a cycle threshold value of 37, and for chlamydia. All other swabs were negative. On July 14, 2022, the proctitis and lesion resolved but he developed pharyngodynia with a positive oropharyngeal swab for monkeypox virus with a cycle threshold value of 25, and a negative rectal swab. On July 20, an oropharyngeal swab, a lesion swab from the right shoulder, and plasma sample were positive for monkeypox virus with cycle threshold values between 22 and 37. Symptoms and lesions resolved by July 26, and swabs from multiple body sites were negative on Aug 2, 2022.

On Aug 22, 2022, he presented with proctitis after a large gathering in Spain (Aug 5–13, 2022), where he had condomless oral intercourse and condomless anal intercourse with several partners. Rectal and oropharyngeal swabs were positive for monkeypox virus at cycle threshold values of 29 and 32, with concurrent gonorrhoea proctitis and SARS-CoV-2 infection of the upper respiratory tract. Proctitis resolved and only the oropharyngeal swab remained positive on Aug 26. Swabs taken between Aug 31 and Sept 7, 2022 from different body sites were all negative. He was not vaccinated for mpx; after resolution of the first episode he had monkeypox antibody titres of 1/20, which increased to



1/160 after the second episode. These cases represent two potential monkeypox virus reinfections. Following clinical and virological healing of the first episodes, we observed high cycle threshold values and short-lasting symptoms for both second episodes, with clinical characteristics consistent with mpox, and detectable neutralising antibodies. The cycle threshold values were high for new-onset mpox and suggest low viral loads. Possible alternative explanations to reinfection include relapse from tissue reservoirs or sexual contamination.<sup>5, 6</sup>

Indeed, potential relapse of infection and persistent monkeypox virus detection have been described previously.<sup>7, 8</sup>

The second patient, in particular, had episodes relatively close together, which could indicate recrudescence. However, high cycle threshold values and fast healing could also be linked to presence of neutralising antibodies. Furthermore, samples from different sites and different time-points (in the second patient) were positive for monkeypox virus, which makes environmental contamination less likely. Both patients had co-infections, which could have caused or exacerbated symptoms, or could have eased reinfection. We isolated and sequenced monkeypox virus from both patients from samples collected during the first episodes. We could not isolate the virus from samples from the second episodes, probably due to low viral loads as indicated by the high cycle threshold values. SARS-CoV-2 could also have had a negative influence.<sup>9, 10</sup>

Although genomic data cannot confirm the presence of two distinct viruses, and thus reinfection (in contrast to relapse, which would have presented with the same virus), clinicians need to be aware of potential monkeypox virus reinfections and should investigate with viral culture and sequencing. Furthermore, the potential of monkeypox reinfection has implications for transmission and vaccination policies.

DC has received research grants from Gilead Sciences and GlaxoSmithKline and received payment for educational events and support for attending meetings from Merck Sharp & Dohme and ViiV Healthcare. AC has received personal fees for advisory boards, speaker panels, and educational materials from Gilead Sciences, ViiV Healthcare, Janssen-Cilag, Merck Sharp & Dohme, and Theratechnologies. SN has received personal fees for advisory boards, speaker panels, and educational materials from Gilead Sciences, ViiV Healthcare, Janssen-Cilag, and Merck Sharp & Dohme. All other authors declare no competing interests. Individuals included in the study signed written informed consent to include case details, personal information, and images in the published version of the manuscript in all formats.

## Is the COVID pandemic really over?

Source: <https://news.yahoo.com/is-the-covid-pandemic-really-over-234637739.html>

Apr 12 — There was no ceremony, as there had been two years ago, when President Biden declared on Independence Day that independence from the coronavirus was at hand. There was no bonfire of vaccination cards on the South Lawn, no celebratory shedding of face masks in Times Square.

Instead, [the national emergency proclaimed by President Trump on March 13, 2020](#), quietly came to a conclusion after 1,124 days, with a Monday evening notice from the White House announcing that Biden had signed a resolution [putting the emergency to an end](#).

The bill Biden signed originated in the Republican-controlled House but also [passed in the Senate with the support of 11 Democrats](#). The White House said the measure was pointless, because the president was preparing to imminently end both the national emergency and the public health emergency. Still, a spokesman said he would sign the bill.

And so, on Monday, he did.

The president did so without a ceremony. On other occasions, [he has sought to highlight bipartisan legislation](#). But not this time. Instead, he was eager to get on with things, to put the virus into the rearview mirror.

The next day, he was heading to Ireland, his ancestral homeland.

Biden's move was largely symbolic, since the national emergency had little impact on how hospitals and doctors operated (the emergency declaration [had mostly to do with waivers for hospitals and health systems](#)).

A parallel health emergency is slated to end next month, [cutting off federal funding for some public health measures](#), including the cost of diagnostic tests and vaccines. "People will have to start paying some money for things they didn't have to pay for during the emergency," Jen Kates of the Kaiser Family Foundation [explained to CNN](#).

New restrictions [will be imposed on telehealth](#), a practice that exploded at the start of the pandemic. An estimated 15 million will also lose Medicaid coverage, though most of the disenrolled should be able to qualify for health care through the Affordable Care Act.

Officially, the coronavirus will cease to be a "pandemic" when the World Health Organization (WHO) drops the designation. There are now clear guidelines for doing so, but WHO Director-General Tedros





Ghebreyesus is clearly moving in that direction. “I am confident that this year we will be able to say that COVID-19 is over as a public health emergency of international concern,” [he said at a briefing last month](#).

Next month will also see the dissolution of the White House pandemic response team, [which used to brief reporters several times each week](#). There has been no briefing for months. Dr. Anthony Fauci, once the president’s top pandemic adviser, is now retired. Jeff Zients, who once led the pandemic response team, is now the White House chief of staff.



Respiratory Therapist Nirali Patel works with a COVID-19 patient at Rush University Medical Center in Chicago in 2022. (Scott Olson/Getty Images)

Not that the pandemic is *really* over, with about 120,000 people across the United States contracting the coronavirus each week and about 1,700 dying weekly from the disease, [according to the Centers for Disease Control and Prevention](#).

“We need to be very clear that just because the national emergency around COVID is coming to an end, that doesn’t mean that COVID is no longer an ongoing threat,” public health expert Dr. Leana Wen told Yahoo News. “There are many other diseases that aren’t considered pandemics, but are extremely serious — including infectious diseases like HIV and influenza and noninfectious diseases like heart disease and cancer.”

To proponents of the billions that poured into federal relief efforts for the first two years of the pandemic, the winding down of the two emergency declarations reflects a loss of crucial supports to people and communities that had been devastated by the coronavirus. Some public health officials charge that the Biden administration ceased to take the coronavirus seriously once the cost of doing so became too great. They warn against excessive confidence about what the future may hold. Then there are the millions who suffer from a debilitating, little-understood set of symptoms known as long COVID, [which looms as a public health challenge of its own](#).

“The need for active management of the virus continues. Many thought the pandemic was over in the spring of 2021,” Boston University public health professor Julia Raifman told Yahoo News. “Unfortunately, we were not prepared for new variants, and we lost hundreds of thousands of lives in the following months. By actively tracking COVID, continuing the work to help people get vaccinated and boosted, and having policies and supplies in place to address new variants, we can help ensure we do not see such a high preventable toll again.”



Even the most cautious of Democratic governors had dropped pandemic-related restrictions near the start of 2022, [sensing a shift in the public's mood that could have electoral consequences](#).

If the administration still has an overarching pandemic policy, it is that the “tools” required to combat the coronavirus — masks and tests, treatments and vaccines — are widely available, to be used at Americans’ own discretion. Many elderly and vulnerable people continue to mask. Booster shots [are expected to become an annual rite](#). Earlier surges have left many households with stockpiles of tests, to be deployed at the first sign of a new infection.

But these are all now a matter of choice — and have been for some time.

To critics, extending the emergencies into 2023 was little more than a means to perpetuate excessive government spending for as long as possible. “The pandemic is over and has been for some time,” said Rep. Mike Gallagher, R-Wis., in [a statement](#) that accused the Biden administration of “gross abuses of executive power” that allowed for the spending of “massive sums of taxpayer dollars.” Trump spent billions on coronavirus relief, too, but he benefited, however briefly, from widespread fears about the damage the coronavirus would do: how many people it would kill, how many workers it would leave without jobs.

By the time the 2020 presidential election approached, the coronavirus had become the razor-edged political and cultural issue it was perhaps always fated to become in a country as divided as the United States. Biden’s own massive coronavirus relief bill received no support from Republicans in Congress. At every level of government, mask and vaccine mandates became the subjects of intense courtroom fights, with the president growing increasingly exasperated at Republican recalcitrance to what was widely believed at the time to be sound public health policy.

The records of governors and presidents, as well as doctors and public health experts, will likely be dissected for years to come, even as most people return to normal. Last year, the Brown University economist Emily Oster, who wrote frequently about the coronavirus, proposed a “pandemic amnesty” that would allow for a measure of grace for all the mistakes and lapses made in the midst of crisis.

“Let’s acknowledge that we made complicated choices in the face of deep uncertainty, and then try to work together to build back and move forward,” [she wrote](#). But the intense pushback her argument received suggested that even as masks come off and vaccine cards fade, bitterness over how the United States handled one of its worst crises will remain.

Much of that accounting will begin with Biden’s predecessor in the Oval Office. Three years to the day before the end of the national emergency, Trump entered the White House press briefing room, for what was, at the time, [one of his regular updates to the nation and the press](#).

As he had done from the start, Trump fulsomely praised his administration’s response. “We’re saving so many lives compared to what it could have been,” Trump said.

Referring to a recent estimate of coronavirus fatalities, Trump predicted that the total number of American fatalities from COVID-19 would be “substantially below 100,000.” To date, the pandemic has killed [1.1 million Americans](#).

## XBB.1.16, New Covid-19 Variant: What We Know So Far

Source: <https://www.ndtv.com/health/xbb-1-16-new-covid-19-variant-symptoms-transmission-rate-precautions-of-this-omicron-variant-3922645>

Apr 10 - Covid-19 cases are again on a rise in several parts of the country. The new Omicron variant which is called XBB.1.16 is responsible for this increased number. According to the World Health Organization, there are more than 600 Omicron variants circulating around the world and XBB.1.16 is one of them. It is believed that the XBB.1.16 variant is driving the surge in Covid-19 cases over the past few months, in different states of India. In March, the Maharashtrian government also reported a rapid spread of the XBB.1.16 variant.

This new variant spreads quickly but does not lead to any serious illness. Let’s take a look at the symptoms of this variant.

### XBB.1.16: Signs and symptoms you shouldn’t ignore

A few symptoms that have been observed till now include **fever that gradually increases and lasts for 1-2 days, sore throat, body pain, headaches and abdominal discomfort**.

### Who is at a risk?

The XBB.1.16 variant does not lead to any severe complications. However, people with underlying health conditions, the elderly population and individuals with respiratory conditions should be extra careful.





**Other things you must know**

- According to the news agency PTI, XBB.1.16 was first discovered in January
- Fully vaccinated individuals can also get the infection

As Covid-19 cases are on a rise again, it is crucial to follow all precautions.

**Biosafety Laboratory Issues and Failures**

By Robert C. Hutchinson

Source: <https://www.domesticpreparedness.com/healthcare/biosafety-laboratory-issues-and-failures/>

Apr 12 - Concerns regarding unexpected biological incidents and their public health implications were discussed in a 2014 Domestic Preparedness biosecurity and bioterrorism [article](#). From the improper possession and storage of decades-old live [smallpox virus](#) in a former Food and Drug Administration laboratory (lab) on the National Institute of Health (NIH) campus to the possible exposure to live [Bacillus anthracis](#) (anthrax) by Centers for Disease Control and Prevention, agencies experienced lab accidents and made serious human errors. The biosafety lab concerns were not limited to these two serious incidents.

These biosafety incidents – and others involving Ebola, high-pathogenic avian influenza, and anthrax – were relevant when considering the findings of a 2014 Government Accountability Office (GAO) [report](#). The report on biosafety lapses at high-containment labs indicated that no federal entity was responsible for strategic planning and oversight of these essential research labs. The expansion of labs was not based on a government-wide coordinated strategy but on the availability of congressional funding for each requesting agency. Lab oversight was reportedly fragmented and largely self-policing. The report recognized the value of national standards and a government-wide strategy. Many other GAO biosafety products since 2007 also documented these insufficient practices.

The biosafety challenges have continued in the decade since the publication of the 2014 Domestic Preparedness article. The worldwide debate of an accidental or intentional biosafety lab leak of the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Wuhan, China, demonstrates the continued threat of non-existent, insufficient, or ignored biosafety policies and practices in high-containment labs. The continued ignoring of these vulnerabilities could produce even more severe consequences, which may be difficult to truly comprehend even after the past three years of the COVID-19 pandemic. However, the biological threats may not be just international.

Scientists working inside positive pressure personnel suit at biosafety level 4 (BSL-4) laboratory of the National Institute of Allergy and Infectious Diseases (NIAID) Integrated Research Facility in Frederick, Maryland (Source: [NIAID](#), n.d.).

**High-Containment Laboratories**

Biosafety labs (BSL) range from BSL-1 (least secure) to BSL-4 (most secure)

rating. As the threat of the agent (pathogen) increases, so does the level of biosafety training, procedures, and equipment required to properly handle them. BSL-3 and -4 are often considered high-containment labs. The number and complexity of BSL-4 labs have expanded since the 1970s but are still rather limited in number in the United States.

Fort Detrick was established in Frederick, Maryland, in 1931 as part of the Maryland National Guard. In the early 1940s, a research program and lab were developed at the fort to study biological agents and infectious diseases. The fort expanded into developing medical countermeasures in the 1950s, including therapeutics and diagnostic procedures. The facility became a leader in the early study of respiratory diseases and the operation and sterilization of biological labs. The research involved offensive biological warfare until the program ended in 1969 and transitioned to defensive in nature.

The U.S. Army Medical Research Institute of Infectious Diseases was created in 1969 at the fort to address biological threats to military personnel. Additional military and similar organizations were also moved to or



originated at Fort Detrick to strengthen medical support and planning for global military operations. Through its various operations and expansions, Fort Detrick helped lead the way in developing high-containment labs.

The Centers for Disease Control and Prevention (CDC) opened its [first permanent](#) high-containment lab in 1969 to handle dangerous infectious pathogens, specifically the recently emerging Marburg virus and Lassa fever. The hemorrhagic fevers required enhanced facilities for their safe handling and research. A second was opened in 1978 that utilized positive pressure suits to protect the researchers. The CDC opened the first high-containment biosafety level (BSL)-4 lab in 1989 as one of only two nationwide. The number of federal government BSL-4 labs grew from two in 1990 to nine in 2007. The total number of BSL-4 labs in the United States increased from 2 to 15 by 2007. In 2008, CDC operated four different BSL-4 labs in one building to handle the deadly pathogens for which no approved treatment or vaccine exists.

There were reportedly [14](#) BSL-4 labs in the United States in 2023. BSL-3 and -4 labs can be found in other governmental agencies as well as in academia and the private sector. The [CDC plans to build](#) a new High Containment Continuity Laboratory in Atlanta, Georgia, by 2025. The BSL-4 facility will have 160,000 square feet to accommodate approximately 80 researchers.

### **Lack of National Strategy**

The GAO issued a [2007 report](#) with preliminary observations on overseeing high-containment BSL-3 and -4 labs across the federal, state, academic, and private sectors. Generally, BSL-3 labs handle agents that can be transmitted through the air and cause lethal infection using air-tight enclosures. BSL-4 labs handle high-risk agents and diseases for which no therapy or vaccine is available and require BSL-3 standards along with full-body suits with an outside air supply and shower upon exit of the facility. The auditors found that no single federal agency was responsible for tracking the BSL-3 and -4 labs or the associated risks.

The auditors reported that the limited federal oversight for the high-containment labs was fragmented across several agencies and often relied on self-policing their activities. It created unnecessary risk. The findings recommended establishing a single federal entity to conduct government-wide strategic planning for high-containment lab requirements, including assessment of risks. There was also a need to develop national standards for designing, constructing, commissioning, operating, and maintaining such sensitive labs.

In a more detailed [2009 report](#), GAO again addressed the need for a national oversight strategy. With no single federal agency overseeing the expansion of high-containment labs, there was no common operating picture or global understanding of the aggregate risks. GAO identified that:

*If an agency were tasked or a mechanism were established with the purpose of overseeing the expansion of high-containment laboratories, it could develop a strategic plan to (1) ensure that the number and capabilities of potentially dangerous high-containment laboratories are no greater or less than necessary, (2) balance the risks and benefits of expanding such laboratories, and (3) determine the type of oversight needed. (p. 66)*

The report emphasized that recent biosafety incidents at high-containment labs and their causal factors were not unique. Those incidents and other biosafety lab accidents involved similar factors and involved the failure to maintain adequate biosafety. GAO recommended that the federal government identify a single entity for the government-wide evaluation of labs.

GAO stressed in a [2013 report](#) that an assessment of the nation's need for high-containment labs was absent. The report showed that, as lab expansion occurred, no single federal agency was responsible for assessing the nation's overall needs. It also found no national standards for lab design, construction, operations, and maintenance, which increased accident risk. With the lack of national standards and uncertainty regarding the number of high-containment labs required to support the country's needs, the auditors believed the nation was exposed to considerable risk.

In [2014 testimony](#) of biosafety lab lapses, the GAO began with their finding that no federal entity was responsible for strategic planning and oversight of high-containment labs. As a result, there was no government-wide strategic evaluation of research requirements based on public health or national security requirements. They believed this failure may have been more critical five years later in 2014 due to budget constraints.

The GAO released a [2015 report](#) for primary observations on federal efforts to address weaknesses exposed by recent safety lapses. The report addressed several 2014 and 2015 Department of Defense (DOD) and CDC lapses that raised biosafety and biosecurity policy and procedure questions. DOD and CDC reportedly improved their operations to better manage high-risk biological agents in high-containment labs. The level of improvement may have been insufficient compared to the level of risk.

A follow-up [2016 report](#) addressed the continued need for more robust policies and oversight for high-containment labs to improve safety. GAO continued to find deficiencies in internal controls for the management of labs. The reviewed policies were not as comprehensive because they lacked vital safety elements or did not apply to the specific labs. In addition, many of the policies were not up to date. The report provided 33 recommendations for federal departments and agencies.





In a [2023 report](#), the GAO found that the Department of Health and Human Services (HHS) could improve research oversight involving enhanced potential pandemic pathogens. HHS developed a framework in 2017 that required funding agencies to refer proposed research involving enhanced potential pandemic pathogens to HHS for additional review and associated risks and benefits. However, the report found that the framework did not fully meet the key elements of effective oversight, leaving HHS without assurance that the department was reviewing all necessary research proposals. These findings may be more relevant in the future. GAO discussed high-containment labs in numerous other reports, testimonies, and products related to biosafety and biological threats and risks. The need for a national oversight strategy and enhanced management and coordination remained essential for the current and future high-containment labs.

### Risk of Lab Leaks

According to a [2020 analysis](#) by Lynn C. Klotz at the Center for Arms Control and Non-Proliferation, the risk of a pandemic from an enhanced influenza virus via an accidental lab leak was unacceptably high. The concern stemmed from the amount of viral enhancements conducted by scientists in various countries. Research that modified avian influenza to be more transmissible to mammals was a substantial concern. According to Klotz, there are at least three ways this could happen:

- (1) *An undetected or unreported laboratory-acquired infection where the infected lab worker leaves the lab and goes into the community at the end of the workday. This is the one release scenario for which there is considerable data, so it is possible to estimate the probability of release from a lab.*
- (2) *Mischaracterization of a virus as harmless, so it is removed entirely from biocontainment or removed to labs with lower biosafety levels (e.g., from biosafety level 3 to biosafety level 2) for further research.*
- (3) *Purposeful release into the community by a mentally unstable lab worker or by someone with evil intent.*

The concerns and risks to humans were real, with 14 facilities reportedly conducting research with lab-created, highly pathogenic avian influenzas transmissible to mammals. The analysis indicated that lab-enhanced avian influenzas were among the more worrisome pathogens since they could cause a deadly worldwide pandemic. Research involving gain-of-function activities may not receive the appropriate review and oversight, causing significantly more serious vulnerabilities.

According to [research](#) in 2019 by Klotz, human error caused 67-79% of incidents that led to potential BSL-3 lab exposures. The percentages came from an analysis of years of incident data from the Federal Select Agent Program and NIH. Klotz found that the first step in calculating the likelihood of a pandemic was to understand the probability of human error – knowledge, rule, or skill-based – in releasing the pathogen. Beyond human error, there are equipment or mechanical failures and incomplete inactivation of a pathogen for a BSL-2 lab (which could be linked to human error).

International biosafety lab leaks may be timely, but domestic risks and concerns are real.

During the 2017 meeting of the Biological Weapons Convention, an [analysis](#) estimated a 20% probability of a mammalian-airborne-transmissible, highly pathogenic avian influenza virus release from one of 10 labs over 10 years. The release could initiate a pandemic of the novel pathogen. Unfortunately, human error remains a continued vulnerability for future lab incidents and possible leaks, no matter the quality of the labs' facilities, training, and procedures. As the number of labs and technology expands, so does the risk. The research and analysis by Klotz may have been prognostic in analyzing possible lab leaks and the emergence of SARS-CoV-2 and the COVID-19 pandemic.

### Pending Confirmation

A review of the information above, along with emerging information and research, provides an interesting assessment of the possible source of SARS-CoV-2. The United States government and its intelligence community appeared to be shifting toward the more significant possibility of a lab leak in Wuhan. The [Federal Bureau of Investigation](#) believed that the virus most likely originated in a Chinese government lab. Other intelligence community members concurred with that belief with varying levels of confidence.

The [Overton Window](#) for the virus origination theory shifted from a wet or seafood market toward a lab leak in Wuhan, China, since its emergence in 2020. However, the debate continued:

- If a lab leak, was it accidental by human error or intentional by the government or a bad-actor employee?
- Either way, did the government of China intentionally conceal its escape or encourage the pathogen's spread after it entered the local population?

All the answers may never be known or trusted by the impacted world. However, what was known was that a lab leak could produce severe, if not catastrophic, consequences well beyond the public health environment.

Both houses of Congress unanimously passed the [COVID-19 Origin Act of 2023](#) to mandate the declassification of COVID-19 origin-related intelligence and information. The president signed the bill with



a statement to continue to review all classified information and its links to the Wuhan Institute of Virology. It remains to be seen how much information will be transparently and timely shared with the public.

### Oversight and Action

Regardless of the location, the threat of a highly pathogenic public health threat escaping from a high-containment lab is a grave risk. The United States has limited control or influence over foreign labs beyond supplied funding and political pressure to adhere to treaties and norms. The United States does have a level of control over domestic labs, where there appears to be room for improvement to enhance safety and security to include a national strategy and oversight.

The number of high-containment labs may increase domestically and worldwide in response to the COVID-19 pandemic. These biosafety labs may utilize controversial procedures and methods with terms such as [gain-of-function](#) or [directed evolution](#) to conduct their research. The results may range from beneficial to cataclysmic. To reduce the possibility of a lab leak, enhanced oversight and coordination in the United States are overdue. Lab accidents have occurred in the past, and there will be more in the future with even more dangerous pathogens. Humans will err. Procedures will fail.

Bioterrorism and biowarfare remain at the top of the list for what keeps many homeland defense and security experts up at night. However, the biological threat may not stem from outside the United States. The next lethal outbreak or pandemic could be home-grown from a lab leak and much more deadly than COVID-19. It is time for expanded high-containment lab oversight and action to address this possible internal threat along with a very serious discussion about gain-of-function and directed evolution research.

**Robert C. Hutchinson**, a long-time contributor to Domestic Preparedness, was a former police chief and deputy special agent in charge with the U.S. Department of Homeland Security (DHS), Homeland Security Investigations in Miami, Florida. He retired in 2016 after more than 28 years as a special agent with DHS and U.S. Department of the Treasury. He was previously the deputy director for the agency's national emergency preparedness division and assistant director for its national firearms and tactical training division. His numerous writings and presentations often address the important need for cooperation, coordination, and collaboration between the fields of public health, emergency management, and law enforcement, especially in the area of pandemic preparedness. He received his graduate degrees at the University of Delaware in public administration and Naval Postgraduate School in homeland security studies. He currently serves on the Domestic Preparedness Advisory Board.

## New video series on biosecurity risks and emerging technology

Source: <https://www.sipri.org/news/2023/new-video-series-biosecurity-risks-and-emerging-technology>

Mar 30 – SIPRI is pleased to launch a new video series that explores biosecurity risks linked to emerging technologies and considers how these risks can be addressed. The series features international experts from the research fields of genetics, bioethics, international affairs and microbiology.

The interviews were conducted during an expert workshop in Stockholm in January 2023 on risk at the intersection of biological science and technological developments.

The workshop and this video series are part of SIPRI's work to develop a toolkit for biorisk assessment, targeting academics and researchers in the life sciences. This work, undertaken with support from the British Foreign, Commonwealth and Development Office, examines dual-use technologies that have implications for the proliferation, development and use of biological weapons. The series gives a voice to key stakeholders in the field, working towards a mutual understanding of the challenges affecting the convergence of biotechnology and emerging technologies.

Dual-use developments across the biological sciences bring challenges to the governance framework centred on the 1972 Biological and Toxin Weapons Convention. This has become a particular concern in recent years, as the same factors transforming biomedical research can also remove technical barriers to the development, production and use of biological weapons. In 2019 SIPRI produced a report entitled '[Bio Plus X](#)' on the convergence of developments in biotechnology with other emerging technologies such as additive manufacturing, artificial intelligence and robotics machine learning. Yet much has already changed since then, and the devastating impact of the Covid-19 pandemic reinforces the need to ensure that innovation in the biological sciences will never be misused, accidentally or deliberately.

The interviewees stressed the urgent need to understand the risks associated with the legitimate use of equipment and materials in a wide range of scientific research and industrial activity and to engage a range of stakeholders, across states, to address the risks. Additionally, they highlighted the opportunities for

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sharing knowledge and expertise between state and non-state stakeholders, including the scientific community, industry, academia and other civil society actors.

Interviewees also underlined SIPRI's leading role within research on the interplay between emerging technology and biosecurity and in bringing stakeholders together.

#### Watch the interviews with:

- [Dr Mirko Himmel](#), Principal Investigator, Department for Microbiology and Biotechnology, University of Hamburg; Associate Senior Researcher within the SIPRI Armament and Disarmament research area;
- [Dr James Revill](#), Head of the WMD and Space Security Programmes, United Nations Institute for Disarmament Research;
- [Dr Margaret Kosal](#), Associate Professor, Sam Nunn School of International Affairs, Georgia Institute of Technology;
- [Lizeka Tandwa](#), Lecturer, Steve Biko Centre for Bioethics, University of Witwatersrand;
- [Dr Chai Lay Ching](#), Associate Professor, Institute of Biological Sciences, University of Malaya;
- [Dr Abhi Veerakumarasivam](#), Professor of Genetics and Provost, Sunway University.

## Water Filtration for Emergency Preparedness

By Robin Jacobs

Source: <https://learn.eartheasy.com/articles/water-filtration-for-emergency-preparedness/>

It's a topic many of us would rather avoid. With climate change news worsening, and dire speculations increasingly credible, it's natural to feel like changing the channel. Extreme weather events are popping up in all kinds of formerly peaceful areas.

[Big storms](#) can render wells and public water supplies undrinkable, when runoff washes chemicals such as pesticides and solvents and even raw sewage from failed septic systems into aquifers. We needn't look far for darker water-contamination fears, including oil spills, bioterrorism, or nuclear accident.

It's time to face our worries and get prepared. We can walk ourselves through some worst-case-scenarios in our minds, and put together the necessary supplies to weather the storm — or whatever heads our way. Once our emergency kits are safely stowed



and family disaster plans are in place, the monsters of "what if" have lost some of their terror. The foundation of every disaster plan is water, because water is the foundation to our very survival.

[Flooding in Gatineau, Quebec, Canada. 2017.](#)

Safe water, that is. Many a hurricane victim has faced the literal version of the proverb: water, water, everywhere, and not a drop to drink. Contaminated water can cause short-term life-threatening dehydration from vomiting and diarrhea, or long-term chronic disease due to chemical or bacterial toxins. North Americans take our exceptionally safe tap water for granted, but even here, communities can be taken by surprise by sudden "boil water advisories", often the result of a broken water line

causing possible influx of pathogens, or local flooding. Residents of Toledo were doubly confused last month, first by a warning of dangerous levels of [microcystin](#), a toxin produced by algae and bacteria "blooms" that can cause serious liver damage: don't boil your water, residents were told. Boiling will only concentrate the toxins through evaporation; reverse osmosis is the only treatment capable of removing microcystin. Days later, Toledo citizens were confusingly told to boil *all* water before drinking. Only later was it clarified that this boil advisory was unrelated to the microcystin event: a broken water main had raised concerns about possible bacterial influx.

In response to similar incidents, industrial disasters, and extreme weather events, trust in the public water supply is shaken. Individual household preparedness begins to make more sense than ever. When it comes to water, what is "prepared"? Ideally, it's a combination of more than one safety net.





After natural disasters like Hurricane Sandy, water is the most urgent supply delivered by rescue workers.

### What types of contaminants am I likely to encounter in a disaster?

#### *Bacteria*

E. Coli crops up most often in North American news, but dysentery, Legionnaire's Disease, typhoid, and cholera are all familiar diseases caused by water-borne bacteria. Current sanitation and water treatment standards protect us from many of them. These tiny bugs cause big problems if ingested in sufficient quantities. In an emergency, municipal water lines can be compromised or broken, causing sewage or storm runoff to mingle with treated drinking water. Flooding can lead to a variety of groundwater sources becoming compromised when rivers and septic systems are subject to unusual water level surges and mingling. Bacterial contamination is the single most common threat to both public and private water supplies, and its impacts are quick, disabling, and potentially deadly. Long and narrow, most bacteria range from 1-10 microns long and 0.2-1 micron wide. Many home technologies treat bacteria with ease, including mechanical and membrane filters, ultraviolet treatment, chemical disinfection and boiling. Filter pore size should be a maximum of 0.2 microns. If heavy contamination is suspected, a combination of chemicals, UV, or boiling plus filtering should be used.

#### *Parasites and protozoa*

Giardia, cryptosporidium, and amoebic dysentery are common water protozoa which cause disease. Like bacteria, many other protozoa are harmless to humans, though they can contribute an unpleasant odor to water. Disease-causing protozoa form protective cysts when they are not inside a host (such as us). These cysts are generally 2-50 microns in diameter: much larger than bacteria. To rid your water of protozoa, use any mechanical or membrane filter that excludes bacteria, in addition to UV, chemicals, and boiling. Non-protozoan parasites, such as intestinal worms and the snails which cause schistosomiasis, are even larger than cysts, so the same technology is effective.





### **Viruses**

Viruses — including those causing hepatitis, gastroenteritis, meningitis and even polio — can also be transmitted by water. Viruses are tiny: 0.004 to 0.1 micron in diameter! Viruses are also harder to detect with standard water testing. Fortunately, we are less likely to encounter widespread viral contamination in North America — though anywhere fecal coliform is a problem, viruses may be present. UV, boiling, and chlorine are all effective in reducing viruses to insignificant levels. Reverse osmosis systems can also be used where power and water pressure are reliable.

### **Organic chemicals**

Ironically, some of the most hazardous compounds present in water are labeled “organic”: in this case, volatile organic compounds, or VOCs. VOCs include most benzene derivatives, as well as compounds based on methane and ethylene, and well known toxins such as MTBE and toluene. VOC contamination is often caused by heavy industry, but can also result from improper disposal of solvents and petrochemicals by individual consumers. In major storms, flood waters can cause large quantities of VOCs to wash from landfills, gas stations, dry-cleaners, or industrial areas— or even from private garages — into both public and private water supplies. Activated carbon and reverse osmosis can both reduce VOCs; boiling will also vaporize many VOCs which evaporate at a lower temperature than water (vent the steam outside).

### **Inorganic chemicals,**

“Inorganic”, in this case, simply means these contaminants do not contain carbon. Heavy metals, chlorine, arsenic, and fluoride all fall into this category. While these are all common problems in drinking water, disaster scenarios are less likely to increase these particular elements. Have your tap water [tested yearly](#) to find out if you should take steps to reduce inorganic chemicals with a home filtration system: which system you need will depend upon your specific contaminants. Mechanical, membrane filters, or multi-stage systems are common choices for these chemicals.

### **Radioactive contaminants**

Radionuclides have gained prominence in public fears and loom large in any disaster impacting a nuclear reactor, such as the Fukushima catastrophe. Certain radioactive elements, including radon, uranium, and radium are naturally present in some groundwater: your water test results will display any relevant numbers, and significant levels should be treated with reverse osmosis, ion exchange, or distillation. While large-scale radioactive disaster contamination is relatively unlikely, those who live in the shadow of nuclear generators should be ready to cope with radionuclides in their water.

### **Turbidity**

Turbidity indicates the cloudiness of water: mud, organic matter, or various sediments may be present, particularly in storm conditions. Turbidity in itself may not be dangerous, however high turbidity is often associated with the presence of microorganisms, and it creates a challenge for water treatment. Treatments, such as UV, boiling, or chemicals, that aim to destroy microbes can be sabotaged by excess particulate matter. Turbid water should be passed first through a filter capable of reducing particles: simple carbon filters work well, as do mechanical and membrane filters. A secondary disinfecting treatment should follow to destroy remaining pathogens.

## **Types of Water Treatment and Filtration**

### **Portable Filters**

Portable supermarket filter pitchers like Brita or Pur won't help with many pathogens or chemical contaminants; the filter rate is too fast and the barriers insufficient. They can improve the taste and appearance of water before or after disinfection by chemical treatment or boiling.

### **Mechanical Filters, including Ceramic and Sand**

Sand filters are unique in utilizing a biological film (various bacteria, fungi, and protozoa) that live in the top layers of the sand. As the water passes slowly through, dissolved organic matter, including pathogens, is absorbed and metabolized by the organisms. A [sand filter](#) has the advantage of material simplicity and can be created as a [DIY home project](#), however it needs to be continually used and maintained in order to support the health of the living systems that make it effective. It's effective in reducing bacteria and protozoa and some industrial pollution, but is less thorough in virus reduction, and is unable to remove dissolved contaminants such as salts, arsenic and fluoride. Sand filters are not recommended for use with chlorinated tap water, as the chlorine will be harmful to the biological film, and





in the initial set-up of the sand filter the water passing through needs to contain enough living organisms to create a healthy colony. Sand filtration is suitable for use in a rural area for untreated surface water where bacteria and protozoa are the primary concerns. Ceramic filters use tiny pores in the solid filter material to reduce sediment and exclude many bacteria and protozoa; ceramic filters cannot remove dissolved chemicals on their own, and are not considered reliably effective against viruses.

**EDITOR'S COMMENT:** LifeStraw is a good solution during the initial phase of a bioterrorism attack with unknown pathogen released in the water system.

#### Carbon

Activated carbon bonds with some contaminants as the water passes through, reducing quantities of chemicals including chlorine, volatile organic compounds, pesticides and benzene. Carbon filters vary widely in effectiveness, with carbon blocks performing better than granulated carbon, and slower-flowing filters showing greater reductions than quick-flow models. These filters are known for improving the taste and odor of water, but cannot affect many inorganic pollutants such as arsenic, fluoride, hexavalent chromium, nitrate and perchlorate, and they are not considered effective on microorganisms. Carbon filters cannot serve as a stand-alone preparedness treatment, though they can provide a helpful pre- or post-treatment stage,

reducing turbidity or improving taste.

#### Membrane Filtration, including Reverse Osmosis

All membrane systems involve forcing water through microscopic pores: depending on the size of the pores, various particles can either pass through or are flushed away in waste water. The pore size of ultrafiltration, one membrane technology, removes many pathogens but does not eliminate most chemicals. Reverse Osmosis (RO) systems rely on a thin film membrane which excludes all particles larger than 0.1 nanometer (a nanometer is one billionth of a meter). This results in an extremely pure standard of drinking water, effectively free from microbial and chemical pollution, as well as heavy metals and even radionuclides. The removal of all of these particles cannot be estimated at 100% due to the expectation of tiny imperfections in and around the membrane, but RO sets a high standard. Unfortunately, for disaster preparedness the benefits are offset by high system and installation costs, as well as requirements for electricity and water pressure, as well as a high ratio of waste water to purified water: at least four gallons go down the drain for every gallon of purified water.

#### Ion Exchange

An ion-exchange resin often takes the form of tiny, porous polymer beads. When water contacts this resin, certain ions are absorbed by the beads, and other ions are released. Ion exchange systems are often used for water softening rather than purification, as they can reduce positively charged ions but do not guarantee water safety.

Ion exchange can provide an essential role in combination with other filtration mechanisms, adding up to a thorough and reliable disaster-worthy system. The [Berkey Light](#) provides a good example of a preparedness filter that can be used every day. Its included "[Black Berkey](#)" purification elements give this





countertop system incorporate ion exchange technology as well as tiny-pore mechanical filtration similar to standard ceramic filters. The ion exchange allows the Berkey to exclude challenging contaminants such as fluoride, in addition to viruses, bacteria, VOCs, pesticides, solvents, and even algal toxins like microcystin. No electricity, fuel, or running water are required makes it portable as well.

### **Ultraviolet**

Ultraviolet light (UV) disinfection excels at effectively reducing bacterial cysts, viruses, protozoa and parasites. This is a purely physical process in which the UV radiation attacks the cells' DNA, destroying them or at the least rendering them unable to reproduce. No residue is left in the water: this is both desirable for drinking, and a drawback for water storage. Other inert contaminants such as heavy metals or chemical residues are unaffected by UV treatment. UV systems require electricity to operate, and their effectiveness is reduced as turbidity increases, making them unsuitable for purifying pond water or other brackish sources.

### **Distillation**

Distillation is the basic process of boiling water and collecting the condensed steam. This simple process makes consistently drinkable water from any source in an emergency, even swimming pools, ponds, or seawater. It removes a wide spectrum of contaminants including radioactive isotopes, toxic metals, and organic pathogens; however many synthetic chemicals, such as some pesticides, herbicides, VOCs and chloramines convert to vapor at a lower temperature than water and can remain in the [distilled water](#).

Though electricity is not required, this process can be energy intensive, as a significant amount of fuel will be consumed to distill enough water for a family's needs. An alternative approach is to harness the sun's energy with a homemade [solar distiller](#), or simply use your [solar oven](#). The [Survival Still](#) Water Purifier and Desalinator is a lightweight portable unit that can utilize any heat source.

### **Multi-stage**

Multi-stage filters, as the name implies, use various technologies to progressively reduce contaminants through a graduated series of permeable barriers. Most of these systems are designed to hook up to your plumbing, either at a point of entry to the house, under the sink, or on the countertop such as this easily installed [water filter](#). Multi-stage systems vary widely depending on their materials and specifications, but most are not considered true preparedness filters, as they rely on reliable running water.

### **Chemical Disinfection**

This process requires no equipment, and a bottle of bleach will store indefinitely. Chlorine bleach is the most common and universally-accepted home chemical treatment for water. If you drink city tap water, chances are you're already used to the smell and taste of chlorine disinfection! Every household should have a bottle of plain unscented bleach with no additives (5 to 6 percent sodium hypochlorite should be the only active ingredient). Have an eyedropper stored with the bleach: "one drop" is actually a scientifically standardized measurement unit, unlike "one teaspoon". Pre-filter the water as specified above. Use 16 drops per gallon of water. Stir and let stand for 30 minutes. Check for chlorine smell; if there is no detectable "swimming pool" aroma, add another 16 drops, stir, and wait another 30 minutes. If at this point there is no chlorine smell, the water may be too dirty for treatment, and should be discarded. Post-treatment carbon filtration will reduce the chlorine greatly for immediate drinking: chlorine should not be removed from storage water until ready to use.

Some sources also recommend iodine tablets, or using liquid iodine from your medicine cabinet. Since iodine is not standardized as bleach often is, treatment quantities can vary. Be aware that sunlight can compromise iodine's potency, and that some individuals have allergic reactions or [health problems](#) that may be impacted by iodine ingestion.

### **Boiling**

Back to basics: to kill pathogens, boil questionable water over a campfire or on any heat source. Most dissolved solids, toxins, and heavy metals, if present, will remain, though VOCs will be greatly reduced. However if you suspect microorganism contamination and have no other effective means of removing them, boiling can keep you from getting sick. The Red Cross actually [recommends](#) a combination of boiling for one minute, then treating with bleach. Other sources rely on boiling alone as sufficient, though some err on the side of caution, boiling for up to [10 minutes](#) to be sure all pathogens are eliminated. First filter out any sediment or turbidity: simply pour through a coffee filter, paper towel, or clean t-shirt, changing the filter material whenever it begins to look dirty. Any particles in the water can provide a hiding place for bacteria, protecting them from the boiling water (this is the same reason you must always boil suspect water for the full time allotment before adding food for cooking). Pro: it's simple, low-tech, and effective. Con: it requires fuel to achieve,



## ICI C<sup>2</sup>BRNE DIARY – April 2023

which may be limited or unavailable in an emergency. If your stove requires electricity to operate, for instance, you should not make boiling fundamental to your water treatment plan.

### Basic Water Survival Strategies

#### Bottled/Stored Water

We should all have a stash of safe water that needs no preparation. One gallon per person, per day is the rule — have enough for a minimum of three days. Store-bought bottles are simplest, as they are sealed and guaranteed drinkable through the expiry date (always keep track of that date and rotate your stock before it arrives). If you choose to store your own well or tap water, be aware it may need treatment (boiling or chemical) before drinking — some bacteria can survive even in treated water, and over long stretches of time in enclosed spaces these organisms can multiply to unsafe levels. For example, [Legionella](#), the bacteria known to cause Legionnaire's Disease, thrives during long storage, particularly at warm temperatures. Rotate every 6 months to be safe. For long-term storage, the EPA recommends [4-ppm chlorine](#): you can achieve this, if desired, with bleach and swimming pool test-strips. [Sterilize and seal](#) your food-grade containers. And in the short-term, remember to fill up your bathtub and large cooking pots at the first extreme weather warning. Supermarket bottled water stocks are often the first to sell out during storm warnings. Filtering stored water before use will improve both the taste and the purity.

#### Rainwater Catchment

[Collecting your own rainwater](#) provides a frequently renewed and rotated water storage system, and has the added benefit of reducing your water bill, or the demands on your well. Rainwater reduces overall household water needs, and is great for garden and landscape irrigation. In an emergency that keeps you at home for an extended period without running water, your [rain barrels](#) become a lifeline. If your system is kept clean and rotated, the resulting water can be consumed with only basic filtration. Unless local regulations prohibit rain barrels, many homeowners can install their own simple systems for up to [100 gallons of storage](#): enough to sustain a family of four for more than three weeks.

Before the advent of modern water treatment, many cultures avoided drinking water altogether in favor of processed liquids such as teas, beer, and wine (during the European settlement of North America, [apple cider](#) was an important staple). Before the [germ theory of disease](#) was widely accepted, folklore and superstitions against drinking plain water served as inherited protection. Times have changed: now, we can use easy [home water test kits](#) to provide immediate data on what we're drinking.

With greater scientific understanding, our treatment choices have multiplied — unfortunately, so have possible contaminants. Choose a combination of emergency water options that feels right. Depending on your personal situation and your region, some approaches will make more sense than others. When an emergency strikes, you may be advised to boil or disinfect your water, or alternatively not to drink the water at all, turning instead to your stored water supply or distillation. If someone in your household has a weakened immune system, plan to use a combination-treatment approach — boiling and/or chemical treatment followed by filtering, for example. For healthy individuals, a single situationally-appropriate treatment may suffice; keep in mind that [no tap water is sterile](#), and trace quantities of bacteria below certain thresholds are considered safe by the EPA.

Each home designs its emergency plan to match household members' priorities, beliefs, and risk-tolerance. Apartment dwellers may have less storage space, making high-quality filtration even more important. A rural family with a large well or storage tanks may feel self-sufficient, but if forced to evacuate will need portable options. Weigh your needs and options, but don't procrastinate: disasters don't happen on schedule.

[Robin Jacobs](#) grew up in the “back to the land” movement in rural Maine, and then made her way to the west coast where she now practices some of the same values of simplicity and sustainability with her husband and daughter. She holds a master's degree in counseling psychology, with special interests in holistic nutrition and community systems.

### Pandemic by numbers (as of April 25, 2023)



	CASES	DEATHS	COUNTRIES & TERRITORIES	MOST AFFECTED COUNTRIES*
<a href="#">COVID-19</a>	(682,949,371) <b>686,514,238</b>	(6,823,077) <b>6,859,837</b>	229	USA, India, Brazil, France, Germany, Japan, S. Korea

Numbers in parenthesis are those from previous month | \* over 30 million





Renowned cardiologist, Peter McCullough, referring to the deaths caused by the Covid-19 vaccines, said that the vaccination program should be stopped by the CDC, as most of the deaths occurred in the vaccination centers.



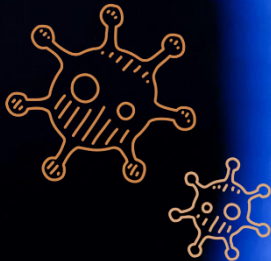
## Dr. Peter McCullough At The Summit For Truth & Wellness



**DR. PETER MCCULLOUGH**  
CHIEF SCIENCE OFFICER, THE WELLNESS COMPANY

THE SHANNON JOY SHOW

SJ Visit the website: [TheShannonJoy.com](http://TheShannonJoy.com)



We made a terrible mistake. We wanted to protect people from a dangerous virus. But it turns out that the virus is much less dangerous than we thought. And the vaccine is much more dangerous than one might imagine.

*Bill Gates*



Scroll down the site (in Greek) to watch the video.



## US working on 'universal' genetically engineered bioweapon: Russia's Duma

Source: <https://www.presstv.ir/Detail/2023/04/12/701444/Russia-Ukraine-US-bioweapon-UN>



Apr 12 - The United States is allegedly developing a 'universal' genetically-engineered bioweapon in Ukraine aimed at severely causing harm to enemies.

A Russian parliamentary commission investigating Washington's military-related biological activities at laboratories across Ukraine concluded on Wednesday that Washington is developing a "universal" genetically-altered bioweapon comparable to that of a "nuclear winter."

The commission added in its [207-page report](#) that the probe into the manufacturing of the highly-damaging bioweapon was based on findings made public by Russia's Radiation, Chemical and Biological Defense Troops over the past year.

"The United States aims to develop a universal genetically engineered biological weapon capable of infecting not only people but animals as well as agricultural crops. Its use involves, among other things, the goal of inflicting large-scale and irreparable economic damage on the enemy," the commission said.

"The covert and targeted use of such a weapon in anticipation of a positive inevitable direct military confrontation could create a significant advantage for US forces over the adversary, even against those who possess other types of weapons of mass destruction," it said.

"The possession of such highly effective biological weapons creates, in the view of the US military, the real prerequisites to change the nature of contemporary armed conflicts."

Soon after Russia launched its military operation in Ukraine in February 2022, Russian Ambassador to the UN Vassily Nebenzia claimed that secret American labs in Ukraine had been engaged in biological warfare. The US and Ukraine, however, denied the charges.

In October last year, Russia asked the UN Security Council to establish a commission to investigate its claims that Washington and Kiev were violating the convention prohibiting the use of biological weapons as a result of alleged activities being carried out at biological laboratories in Ukraine.

The Council rejected Moscow's proposal after the US, the UK, and France voted against it. Back in January, Russia's Nuclear, Biological and Chemical Defense Forces, Lieutenant General Igor Kirillov said the US opposition at the time "confirms that Washington has something to hide, and that ensuring the transparency of biological research is contrary to US interests."







municipal and state public health officials, the outcomes could serve as potential guidelines for the development of mitigation initiatives. The disease model Argonne developed was first used in the early 2000s when a MRSA epidemic emerged in Chicago. The same model was later applied to the threat of an Ebola outbreak in 2014.

More recently, Argonne researchers developed CityCOVID, a highly refined version of the model, to simulate the spread of COVID-19 in Chicago. By forecasting new infections, hospitalizations and deaths, the model provided a computational platform for investigating the potential impacts of nonpharmaceutical interventions for mitigating the spread of COVID-19. It was chosen as one of only four finalists for the 2020 ACM Gordon Bell Special Prize for High Performance Computing-Based COVID-19 Research, which recognized outstanding research achievement towards the understanding of the COVID-19 pandemic through the use of high performance computing (HPC). Developing such models, known as agent-based modeling (ABM), is a complex effort and HPC becomes critical. This is due to the large amount of data the model requires, the number of parameters researchers must take into account and additional factors or inputs that combine to make the model as accurate as possible.

“Getting access to the data, landing on the right parameters and evolving the best fit of information that is timely and relevant to decision makers are among the biggest problems we face,” said Charles “Chick” Macal, chief scientist for Argonne’s Decision and Infrastructure Sciences division and its social, behavioral and decision science group leader. “A large component of the work that we do as part of the biopreparedness project is to develop high performance computing workflows to improve the computational techniques, to make them more efficient.”

The parameters and factors have to predict real-world targets that researchers want to understand, like number of hospitalizations, deaths and vaccinations. To get it right, researchers run simulations over and over — sometimes hundreds of thousands of times — adjusting parameters until the model mimics what the data is telling them.

Making sure these components align, and reducing the number and run-time of the simulations, is where Sandia’s efforts come into play. Like Argonne, Sandia already had roots in computational epidemiology, starting with the anthrax scare of 2003. Later work focused on smallpox and, most recently, COVID.

For this project, Argonne’s computing infrastructure will be adapted to automatically apply Sandia-developed calibration algorithms as parameters for the epidemiological models change or new ones come to light.

“We are the guys who search out those parameters,” said Sandia’s Jaideep Ray, principal investigator of the project.

One of the most important parameters is the unknown spread rate of the disease, according to Ray. Calibrating the model predictions to real data — much of it from Chicago and New Mexico COVID-19 data and other public health surveillance sources — by optimizing the spread rate over several weeks of simulation runs and data collection allows the model to forecast future case counts in an epidemic. “If the forecasts are right, then we know we have the right set of parameters,” said Ray.

When it comes to infectious disease epidemics, time is of the essence. Naïve calibration, which requires running an ABM thousands of times, is neither efficient nor practical. **By using an artificial intelligence method called machine learning, researchers can construct and train a metamodel — a model of their ABM — that can run in seconds. The results can then be used by the machine to “learn” the spread-rate from epidemic data and make forecasts.**

While the process may sacrifice the accuracy of long-term forecasts, it could generate faster, short-term forecasts that reduce computational expense and set mitigation efforts in motion more quickly.

“Our whole point in doing this type of work is to make the process routine, more akin to weather forecasting or other domains where a large computational infrastructure is dedicated to continuously adjusting the models automatically as new data is obtained,” said Ozik. “We can then provide short-term forecasts and the ability to run longer-term scenarios that answer specific stakeholder questions.” While Chicago served as the testbed for this model, the team expects to generalize their methods for application to any other place in the world.

## Are 15-minute Cities a Plan to Create Lockdowns?

By Rachel Baig and Nadine Michollek

Source: <https://www.homelandsecuritynewswire.com/dr20230413-are-15minute-cities-a-plan-to-create-lockdowns>

Apr 13 - For many, it may sound like a good idea: reducing everyday journeys to a quarter of an hour on foot, by bike or by public transport, with the goal of helping citizens to better meet basic needs.

This is what the 15-minute city concept sets out to achieve.

“We need to make cities for walking, for having more medical services, educational activities, for the needs of our daily tasks, to make cities livable,” says Carlos Moreno, a professor at Paris’s Sorbonne University who has been credited with developing the concept.





### Locked Up in Neighborhoods?

So far, [several cities worldwide](#) have discussed or in some cases implemented this concept or very similar ones, including Paris, Barcelona and Shanghai.

But the 15-minute city concept is increasingly becoming the focus of [mis- and disinformation](#) on a global scale.

## 15-Minute Neighbourhood



Additionally, urbanist Carlos Moreno told DW that the 15-minute concept “is a humanistic concept for fighting against current segregations, to fight against certifications and gentrification.”

“We want to promote a polycentric city, a multi-center city and a more climate resilient city with public spaces for humans and not for cars.”

Claim: “Residents are gonna need a permit to leave their district from 2024,” is a claim made in this [viral Tik Tok video](#) about Oxfordshire, in the United Kingdom. Katie Hoopkins, a columnist and far-right political commentator, is even calling the driving restrictions [climate lockdowns](#).

First of all, the users mixed-up two concepts: the new traffic filter plan for the city of Oxford, with a trial phase beginning in 2024, and [Oxford's 15-minute city plan](#) as part of the wider strategy Oxford Local Plan 2040.

Regarding the traffic filter plan, it was passed in November 2022 by Oxfordshire County Council in order to set up traffic filters on six roads in the city of Oxford.

The plan is meant to reduce traffic by restricting the use of private cars in these areas during peak hours. Walking, cycling, using the bus, taxis and other means of transportation are exempt.

Residents may apply for a permit to drive through the filters for up to 100 days per year. However, authorities made clear that people will still be able to reach every part of the city by car at any time, but they might have to use alternative routes.

Let's check some of the claims.

Claim: “The population lives locked up in neighborhoods and the goal is that they do not commute in order to reduce emissions,” according to a claim by Spanish far-right TV channel [‘El Toro TV’](#) (claim can be seen around minute 50 in the video).

**DW fact check:** False.

The 15-minute concept is less about designing plans for each single neighborhood and more about making basic needs accessible within 15 minutes, author and urban mobility advocate Chris Bruntlett told DW.

He wrote a book about the Dutch cycling culture and its challenges called ‘Building the Cycling City’.

### Utrecht as a 15-minute city

The Dutch city of Utrecht has already implemented the 15-minute concept. [Research based on data from 2019 to 2021](#) showed that almost 100% of the population in Utrecht can reach nine basic needs - like food, healthcare, education and sports - within 15 minutes by bike.



## ICI C<sup>2</sup>BRNE DIARY – April 2023

The scheme will be monitored by cameras but there will be no physical checking points. This is not related to the 15-minute city plan for the city of Oxford.

Because of the mis- and disinformation on the 15-minute city plans for Oxford, authorities received numerous messages from worried residents. Therefore, local authorities [published a statement](#) answering the most frequent rumors and questions on this topic.

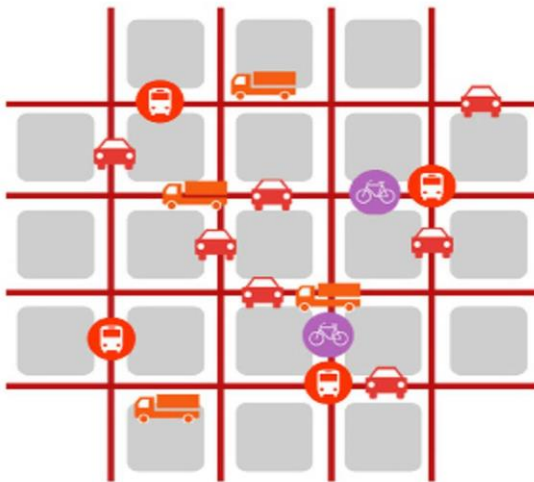
**Claim:** “15-minute cities in China - each neighborhood zone is separated by a fence, with an entrance gate being guarded. If you want to get in or out of your zone, you need permission, and a FACE SCAN,” is a [claim made by a TikTok user](#) ([archived version of the original post that was deleted here](#)).

**DW fact check:** Partly unproven, partly false.

The video suggests — as [other social media posts](#) do — that the 15-minute city concept has already been implemented in a strict way in [Chinese cities](#).

## SUPERBLOCKS MODEL

### Current Model



### Superblocks Model



This video purports to show that neighborhoods are separated by fences and citizens can only leave them via facial recognition because of the 15-minute concept.

But is this really the case?

In short, we came to the conclusion that the claims mixed up three things: [COVID restrictions](#), Chinese government surveillance, and the 15-minute concept.

Shitao Li, from DW's Chinese department, says facial recognition systems, gated communities and mass surveillance are common in China. But these do not necessarily have something to do with the 15-minute concept. “There are many things you can criticize about the Chinese State, but the 15-minute city does not seem to be one of them yet.”

But let's take a deeper look at the Tik Tok video.

The video is a compilation of different scenes. The first scene shows a barbed-wire fence dividing a street. Certain hints lead to the assumption that these are COVID protection measures in the city of Shenzhen.

The sign on the building reads 'Sha He Apartment'. We were not able to identify the specific building, but there is a district in Shenzhen called 'Sha he' and also a 'Sha He Apartment' building, so the signs indicate that the video was likely shot in Shenzhen.





The woman in the video speaks in a southern Chinese accent, which could also indicate that the video refers to Shenzhen, since the city is in southern China. Moreover, [other social media users reposted this video](#) saying these are [COVID protection measures in that city](#). During coronavirus outbreak peaks, [multiple reports](#) from China documented very strict protection measures imposed by the government as part of a zero-Covid strategy.

### 15-minute Community Life Circles

Regarding the 15-minute city model, Shenzhen authorities do plan to implement ideas from this urban planning concept. Shenzhen local government announced it had set up so-called "[15-minute domestic service circles](#)." But we could find no hints that fences or gates are part of the implementation. In general, fencing off neighborhoods rather contradicts the 15-minute concept, as people have to circle them. [Liu Daizong](#), the Director of the China Sustainable Cities Program at the World Resources Institute, says gated land breaks up the urban landscape and complicates planning initiatives.

Meanwhile, Eva Heinen, professor at the University of Dortmund in Germany, as well as the model's designer, Carlos Moreno, both told DW that they don't know of any 15-minute city concepts that plan to fence off neighborhoods or use facial recognition systems. Also, cities like Utrecht, Paris, or Barcelona that are about to or have already implemented the concept don't use these restrictions. Let's have a look at the second sequence of the video.

We see a person walking through a gate using facial recognition to enter an open outdoor area. Then, the person approaches another gate in order to leave the compound again using facial recognition. The claim is that the sequence shows a measure related to the 15-minute concept.

But in fact, it shows the entrance of the Yuzhong campus of the Northwest University for Nationalities in Lanzhou, the capital city of Gansu province in Northwest China. The campus can be found via geolocation. In the video, we recognized the sign of a karaoke bar. That karaoke bar [is located next to the university](#). Also, in the [original upload](#), the student describes excitedly how the security system on their college campus works via facial recognition.

So this scene doesn't show the implementation of the 15-minute concept in a Chinese city.

[Rachel Baig](#) is a journalist working at the Social Media News-Desk at DW. [Nadine Michollek](#) is a DW journalist. [Javier Perez De La Cruz](#), [Ines Eisele](#), [Shitao Li](#), [Thomas Sparrow](#), [Kathrin Wesolowski](#), and [Silja Thoms](#) contributed to this report.

## US biolabs endanger communities, violate international law, experts say

Source: <https://global.chinadaily.com.cn/a/202304/14/WS6438b13ea31057c47ebba156.html>

Apr 14 - US activities related to biological laboratories in Ukraine and other countries have posed biological threats to local communities and violated international regulations on biological weapons, an international law expert said.

The comments came after the Russian State Duma, the lower house of the Federal Assembly of Russia, approved on Tuesday the parliamentary commission's final report on US biolabs in Ukraine. According to the commission, the United States has stationed a network of biological laboratories in a number of states neighboring Russia, where dangerous viruses and other pathogens are being worked on under the auspices of the US Defense Department. Russian lawmakers called for international attention and a thorough investigation into the US' illegal activities related to biological laboratories.

"We must do everything in our power to draw the attention of the global community to this unlawful activity by the US," Kremlin spokesman Dmitry Peskov said on Wednesday. Peskov said Russian President Vladimir Putin was "certainly briefed" about the report. Vyacheslav Volodin, chairman of the Russian State Duma, said US Under Secretary for Political Affairs Victoria Nuland should testify before the parliamentary commission.

"She should testify before the Commission, the representatives of the people. They say one thing and do another. The law is the same for everyone, and they like to talk about standards. Thus, they should first fulfill the standards and come here," Volodin said.

Wang Hanling, a research fellow with the Institute of International Law at the Chinese Academy of Social Sciences, said the US biolabs in Ukraine have posed a serious threat to the lives and health of local people, citing media reports saying that those activities could be behind the increase in the number of diphtheria, rubella and measles cases in the country since 2014.

### 'Great danger'

"In fact, the US move has exposed local people's health to great danger. It could also cause widespread diseases," Wang said. Viktor Bondarev, chairman of the Federation Council Committee on Defense and Security, emphasized that research conducted by the Pentagon on the territory of Ukraine, as well as



former Soviet countries, poses a direct threat to Russia and requires the development of special measures to ensure biological security.



Russian State Duma Deputy Speaker Irina Yarovaya speaks at a plenary meeting of the Russian State Duma, the lower house of the country's parliament, on Tuesday. ANTON NOVODEREZHKIN/TASS

"The situation in Ukraine is a blatant example of how the United States, in practice, under the guise of biological activities for preventive and other peaceful purposes, is implementing projects in foreign states aimed at developing components of biological weapons," Sergey Ryabkov, deputy minister of foreign affairs of the Russian Federation, said. Wang said the US military's bioresearch violated the 1925 Geneva Protocol and the Biological Weapons Convention, which are important parts of international law to prevent the proliferation of weapons of mass destruction.

The Geneva Protocol is the first international pact that banned the use of asphyxiating, poisonous and other gases, and bacteriological weapons in war. The Biological Weapons Convention went a step further toward the total elimination of such weapons by prohibiting their development, production, stockpiling, acquisition, retention, transfer and delivery systems, as well as requiring their destruction, Wang said. Valentina Matviyenko, speaker of the Federation Council, the upper house of Russia's parliament, said Russia is fully prepared to repel potential biological threats.

"During the work of the parliamentary commission, we are also convinced that our country is fully prepared for repelling biological threats," Matviyenko said. "As (Russian Deputy Prime Minister) Tatyana Alekseyevna confirmed, relevant work is being carried out in our country in full and at a high professional level. And our citizens are in safety."

## Warning: Prosecuting for Unknown Viruses Risks a Deadly Outbreak

Source: <https://www.homelandsecuritynewswire.com/dr20230414-warning-prosecuting-for-unknown-viruses-risks-a-deadly-outbreak>

Apr 14 – In 2018, a lab on the Bangkok, Thailand campus of Chulalongkorn University — a lab built specifically to handle dangerous pathogens — was shut down for months because of mechanical failures, including a breakdown in a ventilation system which guards against leaks of airborne microbes. Then the [Washington Post](#) reports, in a catastrophe that began in Wuhan, a Chinese city 1,500 miles away, the coronavirus pandemic swept the globe, becoming a scary case study in how a single virus of uncertain origin can spread exponentially.





The *Post* continues:

In spring 2021, the Thai team's leader pulled the plug, deciding that the millions of dollars of U.S. research money for virus hunting did not justify the risk.

"To go on with this mission is very dangerous," Thiravat Hemachudha, a university neurologist who supervised the expeditions, told *The Washington Post*. "Everyone should realize that this is hard to control, and the consequences are so big, globally."

Three years after the start of the coronavirus pandemic, a similar reckoning is underway among a growing number of scientists, biosecurity experts and policymakers. The global struggle with covid-19, caused by the novel coronavirus, has challenged conventional thinking about biosafety and risks, casting a critical light on widely accepted practices such as prospecting for unknown viruses.

In that feature article in the [Post](#), David Willman and Joby Warrick discuss ongoing fears about the risks posed by seeking out viruses that may one day be able to spread in human populations, starting first with recounting concerns about research in Southeast Asia in the 2010s. They then write:

Three years after the start of the coronavirus pandemic, a similar reckoning is underway among a growing number of scientists, biosecurity experts and policymakers. The global struggle with covid-19, caused by the novel coronavirus, has challenged conventional thinking about biosafety and risks, casting a critical light on widely accepted practices such as prospecting for unknown viruses.

"A *Post* examination found that a two-decade, global expansion of risky research has outpaced measures to ensure the safety of the work and that the exact number of biocontainment labs handling dangerous pathogens worldwide, while unknown, is believed by experts to be in the thousands.

[Pandora Report](#) notes that they also feature Gregory Koblenz, director of the [Biodefense Graduate Program](#) at George Mason University, and his work with the Global Biolabs project:

Global Biolabs, the advocacy group, found that nearly 1 in 10 BSL-4 labs operating in other countries score poorly in international rankings for lab safety. In some cases, labs were constructed without local regulations or meaningful oversight of the handling of dangerous pathogens, or "even a well-established culture of responsible research," said Gregory Koblenz, a co-author of the [Global Biolabs report](#) and the director of the biodefense graduate program at George Mason University's Schar School of Policy and Government.

"Most countries lack the sophisticated controls needed to prevent dangerous viruses or bacteria from being misused or diverted for illicit purposes," he said. "This is a major blind spot in global surveillance for future biological threats," Koblenz said."

### Had COVID? Part of the Virus May Stick Around in Your Brain

Source: <https://www.medscape.com/viewarticle/990741>

Apr 13 - If you or someone you know is experiencing "brain fog" after COVID-19, scientists now have a possible explanation — and it might not bring much comfort.

Researchers in Germany found that part of the virus, the spike protein, remains in the brain long after the virus clears out.

These investigators discovered the spike protein from the virus in brain tissue of animals and people after death. The finding suggests these virus fragments build up, stick around, and trigger inflammation that causes long COVID symptoms.

About 15% of COVID patients continue to have long-term effects of the infection despite their recovery, said senior study author Ali Ertürk, PhD, director of the Institute for Tissue Engineering and Regenerative Medicine at the Helmholtz Center Munich in Germany. Reported neurological problems include brain fog, brain tissue loss, a decline in thinking abilities, and problems with memory, he said.

"These symptoms clearly suggest damages and long-term changes caused by SARS-CoV-2 in the brain, the exact molecular mechanisms of which are still poorly understood," Ertürk said.

The researchers also propose a way the spike protein can get into the brain in their [preprint report](#) published online before peer review April 5 on *bioRxiv*.

Delivered by circulating blood, the spike protein can stay inside small openings in the bone marrow of the skull called niches. It can also reside in [the meninges](#), thin layers of cells that act as a buffer between the skull and the brain. From there, one theory goes, the spike protein uses channels to enter the brain itself.

The hope is researchers can develop treatments that block one or more steps in this process and help people avoid long COVID brain issues.



**'Very Concerning'**

"This is a very concerning report that literally demonstrates the SARS-CoV-2 spike protein in the skull-meninges-brain axis in postmortem individuals," said Eric Topol, MD, director of the Scripps Research Translational Institute in La Jolla, CA, and editor-in-chief of Medscape, WebMD's sister site for medical professionals.

Having the spike protein accumulate in structures right outside the brain and causing ongoing inflammation makes sense to Topol. The clustering of spike proteins would trigger an immune response from this niche reservoir of immune cells that cause the inflammation associated with long COVID and the symptoms such as brain fog, he said.

Problems with thinking and memory after COVID infection are relatively common. One research team found [22% of people with long COVID](#) specifically reported this issue, on average, across 43 published studies. Even people who had mild COVID illness can develop brain fog later, Ertürk and colleagues note.

So why are researchers blaming the spike protein and not the whole COVID virus? As part of the study, they found SARS-CoV-2 virus RNA in some people after death and not in others, suggesting the virus does not need to be there to trigger brain fog. They also injected the spike protein directly into the brains of mice and showed it can cause cells to die.

Researchers also found no SARS-CoV-2 virus in the brain parenchyma, the functional tissue in the brain containing nerve cells and non-nerve (called glial) cells, but they did detect the spike protein there.

**Surprising Findings**

Investigators were surprised to find spike protein in the skull niches of people who survived COVID and died later from another cause. Ertürk, lead author and PhD student Zhouyi Rong, and their colleagues found spike protein in 10 of 34 skulls from people who died from non-COVID causes in 2021 and 2022.

They also found COVID can change how proteins act in and around the brain. Some of these proteins are linked to Parkinson's disease and Alzheimer's disease, but have never before been linked to the virus.

Another unexpected finding was how close the findings were in mice and humans. There was a "remarkable similarity of distribution of the viral spike protein and dysregulated proteins identified in the mouse and human samples," Ertürk said.



**Shaney Wright**  
@ShaneyWright · Follow

I've noticed with #LongCovid that my brain is all over the place: It finds it difficult to fixate properly on things. For example, if I need to read something like a sign, I really & intentionally have to focus on it until it becomes clear, otherwise it's an indecipherable blur.

3:54 PM · Jan 28, 2023

[Read the full conversation on Twitter](#)

70  See the latest COVID-19 information on Twitter

[Read 5 replies](#)

**Future Treatments?**

Tests for protein changes in the skull or meninges would be invasive but possible compared to sampling the parenchyma inside the brain. Even less invasive would be testing blood samples for altered proteins that could identify people most at risk of developing brain complications after COVID illness.

It will take more brain science to get there. "Designing treatment strategies for these neurological symptoms requires an in-depth knowledge of molecules dysregulated by the virus in the brain tissues," Ertürk said.

**Why an interdepartmental coordination group should be part of the CDC's reforms for future pandemics**

By Sanjay Patnaik, James Kunhardt, and Richard G. Frank

Source: <https://www.brookings.edu/research/why-an-interdepartmental-coordination-group-should-be-part-of-the-cdcs-reforms-for-future-pandemics/>

Apr 18 – On August 17, 2022, Centers for Disease Control and Prevention (CDC) Director Dr. Rochelle Walensky [announced sweeping reforms](#) to allow the CDC to publish data quicker and make public health guidelines clearer to improve the effectiveness of the agency. This is an important step to address many of the CDC's shortcomings that came to light during the COVID-19 pandemic. As Dr. Walensky acknowledged, many of these problems arose from the calcified, bureaucratic nature of the CDC.





However, other reforms may be needed to address a different issue: the lack of a mechanism that would allow CDC expertise to be more directly integrated into the policy processes of other federal institutions. It is now clear that pandemics affect many aspects of life beyond individual health, from personal finance and housing to national security. Consequently, multiple federal agencies had to make decisions and promulgate regulations to respond to the pandemic. For example, the Department of Housing and Urban Development (HUD) [published guidelines](#) protecting certain tenants from eviction; the Department of Defense [helped to develop, manufacture, and distribute](#) COVID vaccines [along with](#) the Food and Drug Administration (FDA); the FDA [approved COVID tests](#) for use among the general population; and the Department of Homeland Security determined [vaccination requirements and travel restrictions](#) for international travelers. These are just a few examples of agencies other than the CDC that played a large role in the federal government's response to the pandemic.

Some of the actions by these agencies [have been criticized](#) for making untimely, arbitrary decisions not grounded in the science of public health or epidemiology. To improve future decisionmaking in public health crises, we propose that Congress set up an interdepartmental coordination group that would include the CDC as well as the FDA, HUD, and the Departments of the Treasury, Education, Transportation, and Homeland Security, and the National Security Council in the White House. This would integrate the CDC's expertise into the development of guidance and regulations related to pandemics and other public health emergencies. Such a body would establish a formal mode of communication between the scientists who research pandemics and transmissible disease and the institutions that make policy decisions. Though the coordinating group would not hold any inherent power in issuing regulations on its own, it would bring together technical expertise to facilitate coordinated problem solving across agencies and provide each agency with a direct line to the latest scientific research to help develop and justify pandemic-related policies.

This coordination group would also bring expertise on the operational capacities of other agencies into the CDC, promoting a better understanding of what scientific questions need to be answered to support the complex array of programs that make up the federal response to pandemics. The goal would be to make CDC's scientific advice more responsive to the context in which it would be applied and thereby potentially also attenuate problems attributable to the CDC's calcified bureaucracy. For example, this type of group might consider how the CDC's understanding of how diseases are transmitted can better equip agencies such as HUD in designing guidance for limiting disease spread in public housing or how evidence on mask efficacy and viral transmissibility could best inform Department of Transportation (DOT) regulations on mass transit. While the CDC considers many of these issues already, the agency has been [criticized for its long-term, academic approach](#). Creating a mechanism that facilitates communication, coordination, and alignment with other agencies to supply relevant data may reveal the need for the CDC to accelerate key research and reorient its work in a way that is more responsive to whole-government needs.

There is [precedent](#) for interdepartmental coordination of regulatory and programmatic efforts in the U.S., including the [U.S. Interagency Council on Homelessness](#), [composed](#) of the Departments of Labor, Health and Human Services, Housing and Urban Development, and others. This group coordinates comprehensive policy to combat homelessness and helps set a comprehensive federal policy agenda, though the council itself does not issue rules or regulations. An analogous team of agencies collaborating to establish the best emergency policies during a pandemic might help to create a more timely and effective federal response to the next pandemic, more in line with countries that tackled COVID more successfully, such as [South Korea](#) and [Taiwan](#).

This report outlines some of the issues that an interdepartmental coordination body may help to address before discussing what such an institution might look like.

## Federal agencies' responses to COVID-19

### *The role of the CDC*

The [statutory basis of the CDC's](#) isolation and quarantine authority is to "take measures to prevent the entry and spread of communicable diseases from foreign countries into the United States and between states," as described in the [Public Health Services Act](#). During the COVID pandemic, this authority took many forms. The agency issued [guidance on the use of masks](#) as well as [other public safety recommendations](#). However, the main function of the agency has been to perform research on COVID-19 itself, including its [various health effects](#) and [transmissibility](#) as well as how the virus manifested in certain areas—the day-to-day maps of COVID "hot-spots," emerging international COVID outbreaks, which populations disproportionately suffered the virus's adverse health effects, etc. Additionally, the CDC's data [helps to inform](#) many decisions by policymakers, including those who issue rules and regulations in federal agencies.

As CDC Director Dr. Rochelle Walensky [has stated](#), the CDC has typically opted to perform longer-term, academic-type research rather than nimbly reacting to emerging science. This caused problems for the CDC during the COVID pandemic, contributing to some of its public missteps. Dr. Walensky's [recent proposals for structural reforms](#) at the CDC begin to address these issues. Specifically, the reforms [create](#) a new executive council to help the director set the agency's overall strategy, reroute two science offices to report directly to the



director, and beef up training for staff on how to more effectively respond to public health crises. The reforms also aim to de-emphasize publishing academic articles as the end-goal of CDC researchers and instead push the agency to consider its “public health impact.”

While the restructuring is a good starting point to reorient the CDC so it can more quickly respond to emerging public health threats and focus on the real-world impact of its actions, it will not fully address these problems. An interdepartmental coordination group would be a significant improvement on these existing plans.

The CDC’s authority was limited when the Supreme Court [ruled](#) in August 2021 that the agency could not issue an eviction moratorium for tenants living in areas of high COVID spread. In [its ruling](#), the Court stated that it “strains credulity” to believe that the CDC’s authority under the Public Health Services Act to prevent the spread of communicable diseases grants the agency “the sweeping authority that it asserts.” Although the agency could still test the limits of its power in other ways, experts generally agree that this ruling indicates that the judiciary will uphold more narrow interpretations of the CDC’s role in the future, [potentially preventing](#) the agency from exercising regulatory authority in areas not expressly stated to fall under the agency’s purview as determined by Congress.

### *Other federal agencies’ responses to COVID-19*

Because of this Supreme Court ruling, many emergency policy decisions in future pandemics will be the province of other federal agencies, even if they are motivated by public health concerns. Policies regarding evictions, for example, may be implemented by HUD, which promulgated [a rule](#) in 2021 to assert that in times of emergency, such as a pandemic, it can require landlords of HUD-subsidized housing to give 30 days’ notice to tenants before evicting them and provide tenants with information about federal emergency rental relief and the availability of emergency rental assistance in public housing.

This rule by HUD was created in October 2021, a few months after the CDC’s eviction moratorium was struck down. Increased collaboration between the CDC and these agencies would allow the federal government to create a more robust set of rules that could be implemented in the next pandemic, guided by CDC data. This type of policymaking that proactively mitigates threats and utilizes data to deploy a measured response is essential to combatting a future national emergency and providing more objective reasoning to garner public support for these actions.

The interagency coordination framework would also have been useful to apply to other agencies’ responses to the pandemic. The Department of Homeland Security [issued rules](#) throughout the pandemic restricting the entry of foreign travelers based on their vaccination status and [maintained a list](#) of countries on which travel restrictions were imposed. Many of these decisions, as well as [some of the travel restrictions](#) imposed by the Trump White House early in the pandemic, [have been criticized](#) as being arbitrary and not based on science. Had DHS begun issuing these rules jointly with the CDC at the onset of the pandemic, cited CDC data to back up its decisions, and worked with the CDC to establish objective criteria as to when a travel restriction would be implemented (e.g., based on the per capita COVID infection rate of a country which the [CDC](#) and the [WHO](#) had begun tracking), this may have protected the agency from some of the backlash it received.

Still another agency that could have benefitted from increased collaboration with the CDC was the FDA in its capacity to approve COVID test kits. At the start of the pandemic, the FDA [had rules](#) on the books that prevented state and commercial labs from developing their own COVID tests. This rule was not lifted [until February 29, 2020](#), at which point the CDC had already tried and failed to create its own COVID diagnostic test, which it [revealed was flawed on February 12](#). This left the U.S. [far behind other countries](#) that had tests readily available to help track the virus. Had an interdepartmental coordination group existed to bolster communication between the CDC and the FDA, the agencies could have worked more quickly to rescind the rule prohibiting private test development rather than [operating in separate silos](#) and rescinding the rule more than two weeks after the CDC realized its tests were flawed.

Collaborations between the CDC and agencies like the Department of Education (ED) may have addressed the issues that resulted in [criticism](#) that the CDC [made rules and guidance](#) solely based on science without considering social or economic impacts on children and their families. Specifically, the CDC was accused of publishing guidance on school closings that were deemed [too cautious](#) by some who claimed that they would have an adverse effect on learning and child well-being. This theory has been borne out in [numerous studies](#) that have shown the significance of these effects, with many schoolchildren struggling to catch up. Some have also argued that guidelines did not [fully account](#) for the effects virtual learning would have on [children’s mental health](#), which deteriorated significantly for students learning remotely. Consultation with experts from the ED and the joint publication of guidance might have prompted the two agencies to weigh the full health and educational effects of the federal government’s school closing guidelines more proportionately.

One example of a successful coordination mechanism between agencies was [Operation Warp Speed](#), which set up collaboration between HHS and the DOD to develop, manufacture, and distribute an effective





COVID-19 vaccine. This collaboration delivered a viable vaccine within one year. The production of vaccines accelerated when Presidents Trump and Biden [decided to initiate](#) the Defense Production Act, which allowed the government to use Merck facilities to manufacture the Johnson & Johnson vaccine. DOD involvement in this process made the vaccine rollout [faster and more effective](#). Had the CDC been part of a formal coordination group with additional agencies, it could have more directly supplied data, in turn allowing these agencies to establish better informed rules and regulations to ensure a more timely, objective, well-informed response.

### *Current inter-agency coordination*

Attempts to create a formal mode of communication between federal agencies during a pandemic have been made in the past. In 2016, then-President Obama's National Security Council wrote a document that has often been called a "[pandemic playbook](#)." This playbook outlined which federal officials are responsible for certain aspects of the response and a requirement that these officials communicate with each other to plan and coordinate the execution of a federal response. It also [instructed](#) federal agencies to convene on a regular basis, with the National Security Council serving as the "[principal forum](#)" for these meetings. The meetings would include multiple agencies within HHS as well as the Departments of Labor, Defense, Transportation, State, and members of the intelligence community, among other federal actors. The playbook specified that these meetings would cover decisions on everything from public communication to international coordination to deploying inventory of medical equipment to agency "exercises" to improve real-time decision-making.

It also detailed specific ways in which agencies could coordinate, such as improving the interoperability of their data and the implementation of the WHO's framework for a risk assessment dashboard to formally monitor the state of epidemiological threats. [Experts have said](#) that the pandemic playbook, if used during COVID-19, would have secured a federal effort to provide masks and other personal protective equipment to hospitals two months before the Trump administration began to do so in March 2020.

The fatal flaw of this playbook, however, was its impermanence. The playbook was not legally binding, and the Trump administration [did not follow its advice](#). When then-Vice President Mike Pence [created the White House Coronavirus Task Force](#) in January 2020 to coordinate a federal response, he was starting from scratch. A founding document with comprehensive, specific mechanisms of coordination among task force members did not exist, and the federal government mounted [a shambolic pandemic response](#).

In 2021, President Biden established the new [White House COVID-19 Response Team](#) through [Executive Order 13987](#). Though this did include some information on how the federal government would convene to mount a pandemic response, it is a temporary measure and does not fully outline how federal agencies could coordinate their respective authorities as the Obama administration's pandemic playbook did. Even after the establishment of Biden's Response Team, a couple months later, in March 2021, the Government Accountability Office published [a report](#) that outlined numerous ways in which the federal government failed to coordinate amongst itself to deploy an effective pandemic response, including a lack of a central pandemic database for all agencies and the public to use, a lack of coordination among agency staff on testing kits and vaccination efforts, a lack of a consistent timeframe among agencies on joint initiatives such as vaccine rollouts, and a lack of coordination regarding the role, funding, and supply allocation of the national stockpile.

To best combat the next pandemic, the congressional establishment of a formal pandemic response coordination framework, akin to that proposed in 2016 but permanent, would allow the U.S. to proactively monitor future emerging threats and remedy many of the inter-agency coordination challenges outlined above.

### **Establishing an interdepartmental coordination group**

#### *Our proposal*

To fully address the myriad challenges of inter-agency coordination during a public health crisis, Congress should authorize an interdepartmental coordination group at the cabinet level that includes the CDC and other agencies. This group would be primarily composed of career officials from agencies within multiple departments of the federal government that would convene regularly in the event of a public health emergency, such as a future pandemic. The group would be tasked with sharing information to ensure that agency decisions are based on the latest science and expert knowledge. Such topics would include school closings and eviction moratoriums in areas of high spread; loan and tax extensions and exemptions for individuals and businesses; travel restrictions; and binding public health and quarantine measures for various places (schools, public spaces, work environments, transportation). To be able to effectively consider this broad range of issues, the group would have to include the CDC and the Departments of the Treasury, Education, Housing and Urban Development, Transportation, and Homeland Security, as well as the FDA and the National Security Council in the White House.

By including a range of departments, such a group would establish a formal mode of communication and bring the scientific expertise of the CDC to other agencies, and the policy-making expertise of other agencies to the CDC. While the CDC [does currently have](#) some economists, evaluators, and statisticians



working for it, it does not have the wide range of experts necessary to tackle the diverse threats that emerge in a pandemic, and other agencies sometimes lack the scientific knowledge the CDC can provide to formulate the best regulations. Additionally, increased communication between these various experts is especially necessary given the reported breakdown of communications, particularly the [breakdown of public health data communications](#), between the CDC and other agencies.

The proposed interdepartmental group would set the policy agenda on how to bolster the federal response against current and future pandemics by publishing a “federal strategic plan” roughly once each year. These agendas would include data summaries and discursive analyses that assess the state of the public health threat at hand, the stated positions of the federal government and long-term outlook, and how the regulations of member agencies fit into broader, comprehensive solutions proposed by the interdepartmental group. This is very similar to regular [reports published](#) every one-to-two years by the [Interagency Council on Homelessness](#), as discussed below.

Numerous collaborations between the CDC and other agencies could be facilitated by this group. The CDC could have published rules with the Treasury Department specifying how to target funds from its [Emergency Capital Investment Program](#), a 2021 initiative meant to augment efforts by financial institutions in low- and moderate-income communities to “support small businesses and consumers in their communities” during the pandemic. The CDC’s health data revealing the [inequitable spread](#) of the virus in certain vulnerable communities combined with the Treasury’s economic data could have better identified areas in most need of these funds. The CDC could work more closely with the National Security Council in the White House on [biodefense](#), including how to best allocate money in the government-backed [global pandemic defense fund](#), established in 2021 to provide resources for pandemic preparedness. The CDC could also work with DHS’s Office of Health Affairs, which houses the department’s [National Biosurveillance Integration Center](#). This center coordinates public health surveillance efforts, creating “a comprehensive picture of ongoing incidents and outbreaks” domestically and abroad. The CDC could jointly publish rules with DHS to modernize and accelerate this type of monitoring based on data from its [Epidemic Intelligence Service](#), a fellowship program meant to investigate and deploy emergency response efforts to emerging international pandemic threats, with researchers in the field.

Congress may also consider requiring the agencies in the group to share certain data and information on the state of the public health threat, such as comprehensive reports by the CDC on their work on emerging epidemics, information by HUD on the state of evictions, any evaluations the Department of Homeland Security may conduct on the efficacy of their travel restrictions, or any other information relevant to the policy examples listed above. This could help prevent efforts by a particular agency or an administration as a whole to undermine this type of cross-agency collaboration. While individual administrations may set up forums for interagency collaboration, getting authorization from Congress would ensure the longevity of this interagency group, continuously operating from one administration to the next.

Lastly, an interdepartmental coordination group would be better equipped to monitor emerging health threats. In the last year we have seen the outbreak of [monkeypox](#) and the threat of a [polio re-emergence](#). Even more recently, scientists said a [bird flu outbreak](#) starting in winter 2023 has the potential to jump to other animals, including humans, with widespread calls for more proactive surveillance of the disease. While the CDC’s data on these types of emerging [health threats](#) have been invaluable, collaboration with other Departments, including the Department of Homeland Security, would allow the government to properly assess the national security threat posed by new outbreaks. This type of real-time monitoring is essential to gain insight quickly and better prepare any future federal action that may be necessary to combat disease.

### ***Existing collaborations***

Ongoing collaboration between departments to establish rules is nothing new. The [U.S. Interagency Council on Homelessness](#), for example, coordinates homelessness policy among 19 federal agencies. The council was authorized by Congress in the [Homeless Assistance Act of 1987](#), which allowed it to exist as an “independent establishment” in the executive branch. With the goal of using evidence-based practices to increase housing accessibility, decriminalize homelessness, and achieve racial equity in housing, the council publishes “[federal strategic plans](#)” every few years to set their agenda. [These plans](#) include summaries on the current state of homelessness with supporting data, updates on the regulatory solutions that have been implemented, and summaries of how the coordinated, multi-agency response will commence in the future. The council issues a report semi-annually.

The Interagency Council on Homelessness [is composed of](#) an executive director, a national initiatives team to coordinate with state and local officials, a policy team to work with the White House and federal agencies, a legislative affairs team to coordinate effective legislation in Congress, and a communications team. A similar structure would be appropriate for an analogous pandemic coordinating group.

The CDC itself is already a member of interagency groups on issues apart from pandemics. The CDC [already collaborates](#) with the Departments of Justice, Energy, Homeland Security, Defense, and the





Environmental Protection Agency to combat bioterrorism. Together, these agencies have created a joint inspection program and improved information sharing related to bioterrorism, increasing their collective efficiency.

### Conclusion

In today's interconnected world, a new disease can spread rapidly and touch every aspect of daily life. We cannot afford to make the same mistakes we made with COVID with a more deleterious pathogen in the future. While Dr. Walensky's recent reforms partially address the calcified bureaucracy that has plagued the CDC, it does not solve the problem of CDC's experts being relatively siloed from other agencies or its inability to push necessary mandates, thereby leaving it to conduct research that may not always have practical policy implications. Indeed, the [GAO's 2021 report](#) evaluating the federal pandemic response found a lack of coordination and information-sharing between agencies led to inconsistent decisionmaking. The office subsequently recommended that agencies "establish compatible policies, procedures, and other means to operate across agency boundaries."

An interdepartmental coordination group would help CDC reorient and become more pragmatic in how it uses its research, and, in turn, would allow other federal agencies to act more quickly based on the latest science. This new group would be tasked with coordinating joint regulations on everything from binding public health measures and school closures to eviction moratoriums and emergency financial mechanisms for both individuals and businesses.

Increased collaboration among agencies could begin immediately. However, to create this interdepartmental coordination group, give it teeth, and allow it to operate as an independent entity within the executive branch, Congress would have to authorize its existence and allocate funding. Of course, while an interdepartmental coordination group will allow federal agencies to make coordinated decisions, it will not inherently grow the power of the federal government. To do that, additional legislation would likely have to be passed, such as an addition to the [Public Health Service Act](#) to give the government greater power in times of emergency. We have the means to tackle the next pandemic, but it requires a more agile federal government with broad-reaching authority to coordinate and execute a comprehensive plan. An interdepartmental coordination group would not only foster a more responsive, flexible environment in each of its agencies, but it would also allow the federal government to quickly promulgate rules to mitigate the effect of a public health crisis on multiple aspects of American life and create a safer public health environment.

**Sanjay Patnaik** is Director - Center on Regulation and Markets, Bernard L. Schwartz Chair in Economic Policy Development; Fellow – Economic Studies

**James Kunhardt** is Senior Research Assistant - Center on Regulation and Markets, The Brookings Institution

**Richard G. Frank** is Senior Fellow - Economic Studies; Director – USC-Brookings Schaeffer Initiative for Health Policy

## Disease forecasters are convinced there's a 27% chance of another COVID-like pandemic within 10 years—but experts believe there's a silver bullet

Source: <https://fortune.com/well/2023/04/18/disease-forecasters-predict-new-covid-like-pandemic-within-10-years/>

Apr 18 - Climate change, international travel, and a growing global population are all among the factors scientists are citing for the increased likelihood of a severe pandemic occurring again within the next decade.

London-based disease forecasting company Airfinity's latest risk modeling suggests that there is a 27.5% chance that a pandemic as [deadly as COVID-19 could occur by 2033](#).

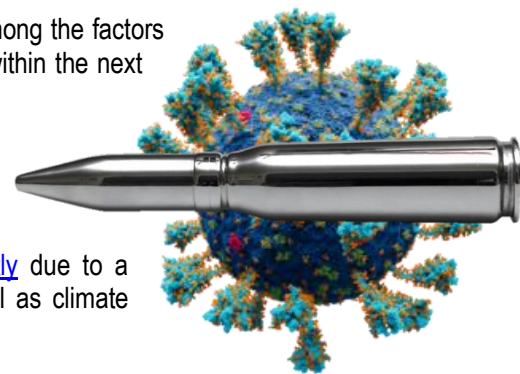
Since its outbreak in 2020, coronavirus has [claimed more than a million lives in the U.S.](#) with more than 102 million cases confirmed, [according to the WHO](#).

The [new research out of Airfinity](#) suggests that [viruses are emerging more frequently](#) due to a combination of factors such as increasing international travel and populations, as well as climate change and an "increasing threat posed by zoonotic diseases."

Zoonotic diseases are those which can transmit from animals to humans, like avian flu.

Bird flu has been known to make the leap to humans, [first occurring in 1997](#) and [recently killed an 11-year-old schoolgirl in Cambodia](#) after both she and her father were infected.

In a worst-case scenario, Airfinity suggested that an outbreak of avian flu transmittable to humans could kill as many as 15,000 people in the U.K. every day. Airfinity's conclusions are based on 150,000 simulations modeling various potential pathogens, which range in infectiousness, starting outbreak size, the population of the country of outbreak, and case fatality rate.



### There is good news

The modeling company found that if lessons from the coronavirus pandemic are taken on board, the risk of another comparative pandemic can be reduced by as much as 71%.

Key to the reduction is a set of "counterbalances," Airfinity said, such as a fast vaccine rollout, strong delivery infrastructures, and other "pandemic preparedness strategies."

Vaccines in particular are paramount, the predictions showed, since if a jab can be rolled out within 100 days of the [discovery](#) of pathogen, the likelihood of a [pandemic as deadly as COVID-19](#) in the next decade drops from 27.5% to 8.1%.

### The 100-day race

The understanding of vaccines has rapidly improved because of the pandemic, with teams at the U.K.'s University of Oxford building on COVID vaccination technology to [create a possible cancer treatment](#).

However, the global health community would need to act far faster to meet the 100-day deadline than they did with COVID-19.

The [COVID pathogen](#) was first reported in [December 2019](#) whereas the first approved vaccine—the PfizerBioNTech vaccine in the U.K.—was not first [administered until December 2020](#).

Airfinity points out that a handful of high-risk diseases like [Zika](#) and [Marburg](#)—[which has broken out in two African nations in the past few months](#)—don't currently have approved vaccines, adding it believes "existing surveillance policies are unlikely to detect a new pandemic before it is too late."

"A robust pandemic preparedness system is the world's insurance against a COVID-19-like pandemic or something even worse," said Rasmus Bech Hansen, Airfinity's CEO and cofounder.

"We have calculated the real risks, but also the potential risk reduction that can be achieved. This can help inform decision-makers to the level of ongoing pre-emptive investment in the space to keep people safe."

### 'Far better prepared'

Professor Paul Hunter is a U.K.-based expert in the epidemiology of emerging infectious diseases, who believes the public is much better protected should an emerging deadly pathogen be identified.

He highlighted key differences between coronavirus and other infectious diseases: "The first is asymptomatic transmission," he explained.

"With COVID people could transmit the virus very early on into their infection. With the SARS outbreak in 2003, people became infectious when they already had severe symptoms, often they were already in hospital.

"We thought COVID would be the same as SARS when actually, people could be transmitting the disease with no symptoms at all." The second difference Hunter highlighted was the length of immunity people get after contracting coronavirus, which is [estimated to be around five months](#).

People who battle viruses like [smallpox](#), [measles](#), or [polio have immunity](#) for years, or [even for the rest of their lives](#).

Hunter also believes the global health community now has the skills and capability to rapidly produce vaccines in the face of a new deadly pathogen, adding that delays in rollouts often come down to proving new vaccines are safe and effective.

Although it could slow the timeline in the face of an outbreak, Hunter reiterated that these formalities are paramount to making sure the vaccine not only is useful, but won't make the situation any worse.

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## Airborne disease transmission during indoor gatherings over multiple time scales: Modeling framework and policy implications

Avinash K. Dixit<sup>a,1</sup> , Baltazar Espinoza<sup>b</sup>, Zirou Qiu<sup>b,c</sup>, Anil Vullikanti<sup>b,c</sup>, and Madhav V. Marathe<sup>b,c,1</sup> 

Contributed by Avinash Dixit; received October 4, 2022; accepted February 21, 2023; reviewed by Abba Gumel and Hazhir Rahmandad



Indoor superspreading events are significant drivers of transmission of respiratory diseases. In this work, we study the dynamics of airborne transmission in consecutive meetings of individuals in enclosed spaces. In contrast to the usual pairwise-interaction models of infection where effective contacts transmit the disease, we focus on group interactions where individuals with distinct health states meet simultaneously.

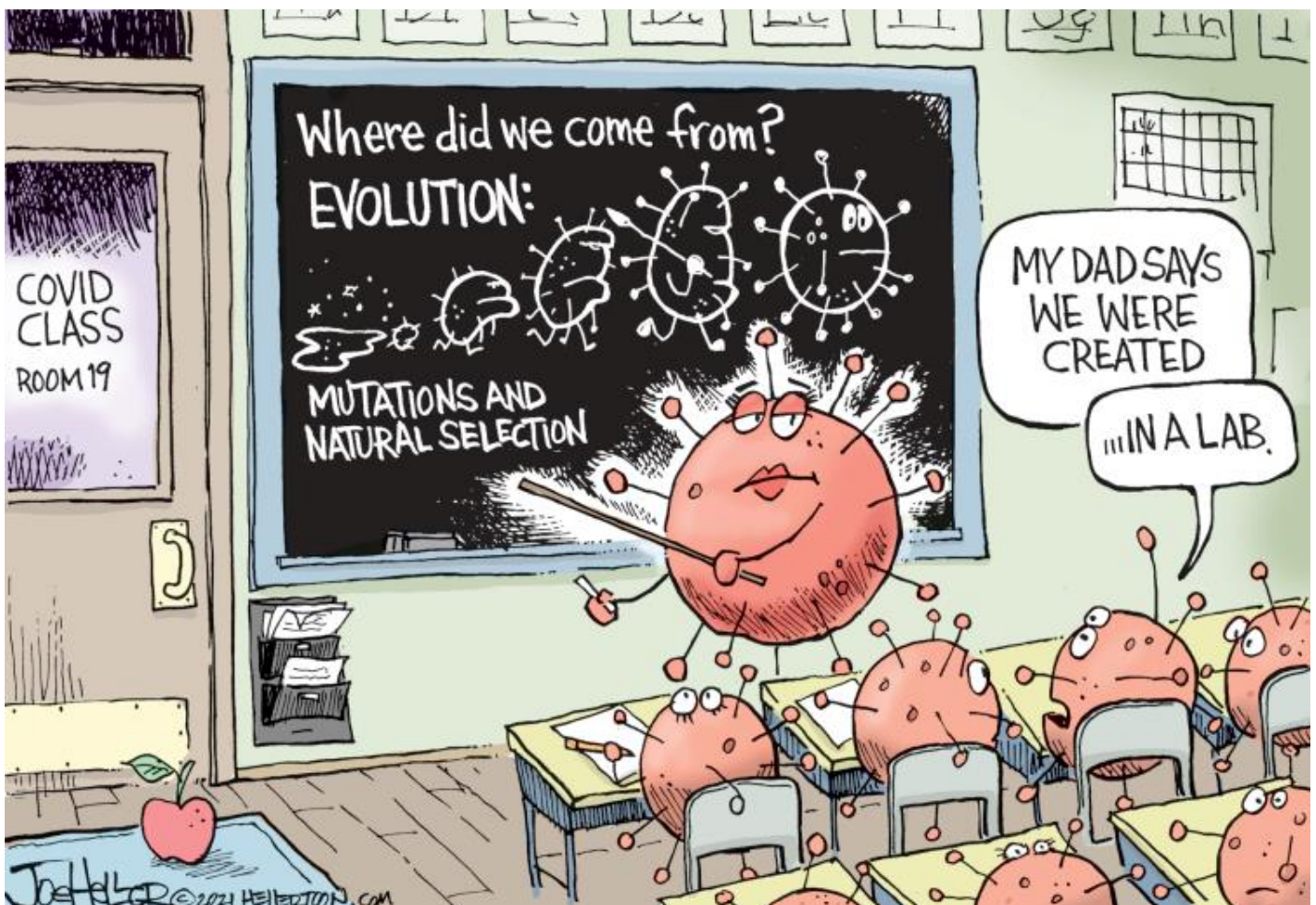




Specifically, the disease is transmitted by infected individuals exhaling droplets (contributing to the viral load in the closed space) and susceptible ones inhaling the contaminated air. We propose a modeling framework that couples the fast dynamics of the viral load attained over meetings in enclosed spaces and the slow dynamics of disease progression at the population level. Our modeling framework incorporates the multiple time scales involved in different setups in which indoor events may happen, from single-time events to events hosting multiple meetings per day, over many days. We present theoretical and numerical results of trade-offs between the room characteristics (ventilation system efficiency and air mass) and the group's behavioral and composition characteristics (group size, mask compliance, testing, meeting time, and break times), that inform indoor policies to achieve disease control in closed environments through different pathways. **Our results emphasize the impact of break times, mask-wearing, and testing on facilitating the conditions to achieve disease control.** We study scenarios of different break times, mask compliance, and testing. We also derive policy guidelines to contain the infection rate under a certain threshold.

### Significance

Group gathering in enclosed spaces (e.g., classrooms, conferences) is an important route for the spread of respiratory diseases such as COVID-19. Based on the proposed modeling framework, we examine airborne disease transmission among a group of people, under scenarios of indoor meetings involving multiple time scales. Our framework captures the feedback loop between infected individuals' viral shedding, the venue's viral dynamics, and the group composition and behavioral characteristics. We study the epidemiological trade-offs emerging by implementing control measures aimed at controlling the viral load. Numerical analysis suggests that ventilation and break times are critical in preventing high viral load levels. Moreover, we found that their impact would equal or exceed that of masking and moderate isolation of infected individuals.



► Quiz (answer – p.4): Famine in Africa





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