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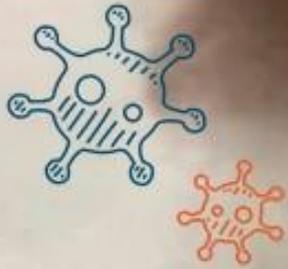
# 2 CBRNE



*Dedicated to Global  
First Responders*

# DIARY

April 2021



**HZZ C<sup>2</sup>BRNE DIARY– 2021<sup>©</sup>**

April 2021

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► **Cover photo:** *Hands of Love* made by Brazilian ICU nurses (see p.173)



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# EDITOR'S CORNER




**Editorial**
**Brig Gen (ret.) Ioannis Galatas, MD, MSc, MC (Army)**
*Editor-in-Chief*  
 HZS C<sup>2</sup>BRNE Diary

**Dear Colleagues,**

April was kind of a disappointment since the long-expected single jab vaccine from Johnson & Johnson proved to be problematic. Again it is difficult to explain mechanisms for a drug that is super new aiming against a virus that is so clever (and new). People around the globe are confused about vaccination and the so-called experts make it even harder with their conflicting directives. In Greece, the situation is similar to other EU countries – mixing politics with vaccination. A person cannot choose his/her vaccine and the Russian vaccine (Sputnik V) is facing strange opposition from EMA except for certain nations that proved that care more about their public health issues than politics and profits. It seems that even disasters cannot change things in Europe.

But it is not only Europe that follows the wrong path. Together with the US and NATO, they are that close to making a huge mistake that might even provoke a 3<sup>rd</sup> World War that could be nuclear as well. And the funny thing is that if such a war becomes a reality, it would not be the US that will lose territories and human lives. On the other hand, it is always tempting to see if a Poseidon 2M39 torpedo can generate a nuclear tsunami in a coastal megacity.

As if this was not enough we have the ongoing bullying rhetoric of Turkey against Greece, Cyprus, and the EU in general that is not good for the peace in this part of the world. Iznogood desire to be Vezir in the place of Vesir was a funny comic of the past but this does not mean that life should copy a comic or that a modern nation should pursue repetition of historic achievements. If this was the case, then Greece should pursue to restore what King Alexander the Great accomplished starting from Macedonia all the way to India and Afghanistan. Unfortunately, there is no such thing as a European UNION and our strong ally despite existing CAATSA sanctions continues to support Turkey in their endeavors (e.g., the dual spy satellite Turksat 5B or the Bayraktar TB.27 ACINCI drone). Time will show how this dispute will end but it will not be good because solutions are achieved between two logical parts with equal mentality.

Another very hot spot in our wider area is the rivalry between Iran and Israel. Sabotage, assassinations of scientists, missiles against Damona nuclear power plant, missile attacks against commercial vessels, and the presence of Hizbollah in Lebanon and Hamas in Gaza make an explosive cocktail that cannot predict a happy ending. Historically, it would be interesting to see if nuclear weapons are superior to thousands of rockets and missiles.

What else?

The US and its allies are evacuating Afghanistan. Why? Who knows? Perhaps those who initially decided to send troops in this country that for decades cannot enjoy the benefits of peace and prosperity. They say that it is OK. Interestingly, the Taliban are saying the same thing implying that without the Americans between their feet they will be able to continue their brutal governance and reorganize their terrorist ambitions and narco-business as usual. Big mistake to invade Afghanistan. Big mistake to leave Afghanistan alone – but this is the fate of the weak who believed that their mighty friends will be there forever.

Another case that profit won against public health is the Tokyo 2021 Olympic Games. Unless they change their mind in the coming days, the final decision is to continue as planned even without spectators. This is not a surprise if you consider that recently they decided to release tons of radio-contaminated water from Fukushima nuclear power plant into the ocean despite the objections of fishermen associations and neighboring countries. And some venues are very close to Fukushima but this seems to bother nobody. People in high places forget that after the Chernobyl disaster, thousands of sheep farms in Welsh and Cumbria, UK were sealed (for 26 years) because of field contamination and that in 2021 it was



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discovered that honey in certain US states has been contaminated with radiation from 1950, and 1960, nuclear tests. But these are small details when money talks!

The World Economic Forum recently warned that “A cyber attack with Covid-like characteristics would spread faster and further than a biological virus”. Meaning what? That it is not only the Pandemic-X that we must have in our minds and correct our current mistakes amid a pandemic but also be prepared for – perhaps – a deadlier cyber pandemic. It is time to realize that for the evil, the sky is NOT the limit, and be prepared for this.

And who will be in the front line fighting against old and new or unknown threats? CBRN First Responders, of course! Men and women who are dedicated, well trained, and willing to protect their fellow countrymen and give them a chance for a better life. The few and the brave!

*The Editor-in-Chief*



A C<sup>2</sup>BRN future?



## ISIS Magazine: Stop Dancing on 'Tok-Tok' and Making 'Aimless and Stupid' YouTube Videos

By Bridget Johnson

Source: <https://www.hstoday.us/subject-matter-areas/counterterrorism/isis-magazine-stop-dancing-on-tok-tok-and-making-aimless-and-stupid-youtube-videos/>



Mar 22 – People making funny videos to post on YouTube and Facebook or “dancing on Tok-Tok [sp]” are furthering the “satanic” agenda of Hollywood and trying to turn people to “dark and gloomy abysses,” declared the latest issue of an English-language magazine published online by ISIS supporters.

ISIS has long used social media and videos — many with high production value to emulate a stylized action film or video games — to recruit and inspire followers and sympathizers.

The article in the March issue of “The Voice of Hind,” released monthly by ISIS supporters in India, called Hollywood “one of the greatest obstacles in the path of Islam” as “attempts are made to control hearts and minds of people all over the world and to add a certain style and colour to their ideas and culture, habits and abodes.”

“Then, under this global satanic industry, certain wicked Kuffar [disbeliever] men and women are presented to the world as role-models,” the article said, noting that pockets of the entertainment industry such as India’s Bollywood and Pakistan’s Lollywood and “countless of these ‘Woods’ have come into existence” to influence culture.

On the heels of a Women’s Day March in Pakistan that drew threats from the Pakistani Taliban, the ISIS publication took a shot at “so called freedom of speech and opinion, equality of men and women and countless other wicked principles and slogans such as ‘My Body, My Choice’ which are resounding everywhere today.”

The article stated that people’s “mentality has been shaped up to such extent that even at the individual level, people are seen making nonsensical, aimless and stupid videos wasting all their time in ‘fun’ and entertainment.”

“Today, situation has become such that everyone is trying to get ahead of each other by picking up a microphone and a guitar to play satanic music,” the article continued. “And others make videos by insulting, mocking and ridiculing people and then sharing those videos on YouTube, Facebook etc. where thousands more idiotic men and women view it and laugh at it, desensitizing their hearts and buying an undue burden of sins.”



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The article also chided Muslims considered to be “spreading Fahasha [indecent or lewdness] in various forms publicly, secretly or through different social media applications.”

“Often, you’re seen dancing on Tok-Tok [sp] and sometimes your stories of Fahasha are shared on Facebook,” the ISIS piece said, calling instead on people to prepare to “wage a war by announcing disassociation from the satanic and tawaghit [worship focus other than God] systems and civilizations.”

Last month’s “Voice of Hind” issue included a call for those disseminating ISIS propaganda through creating and running online media to “not spare any effort” as “every single click of yours has its reward.”

The magazine has somewhat stepped into the void — left by the demise of official ISIS publications “Dabiq” and “Rumiyah” — of regular English-language ISIS magazines offering tips and incitement. Though shorter in length, “Hind” routinely has seized on current events to recruit and incite.

In August, the magazine [urged](#) followers to “race” to emulate the *Charlie Hebdo* attack, arguing that governments aren’t doing enough to punish those viewed by the terror group as blasphemers. “If we do not become forceful, then the assaults on our religion... will continue,” the text stated, calling on supporters to “take revenge on each and every one who has insulted our beloved Messenger (PBUH).”

In September, the magazine [lamented](#) that some who are claiming affiliation to the terror group “don’t have any clue” and could use more propaganda education.

Days after French teacher Samuel Paty was beheaded outside his school in Conflans-Sainte-Honorine in October, “Hind” [published](#) a full-page graphic urging more attacks and showing the severed head.

“If your freedom of expression doesn’t stop you from criticizing prophet Muhammad PBUH then our swords will not stop defending the honour of prophet Muhammad PBUH,” the image said, with a cutout photo of Paty’s head below a graphic of a sword.

*Bridget Johnson is the Managing Editor for Homeland Security Today. A veteran journalist whose news articles and analyses have run in dozens of news outlets across the globe, Bridget first came to Washington to be online editor and a foreign policy writer at The Hill.*

## Jihadi Movements 2021: ISIS, al Qaeda and Hayat Tahrir al Sham

Source: <https://www.hstoday.us/subject-matter-areas/counterterrorism/jihadi-movements-2021-isis-al-qaeda-and-hayat-tahrir-al-sham/>

Mar 20 – In early 2021, the jihadi movement was the most splintered it had been since prior to 9/11 when al Qaeda was one among many jihadi groups. The movement had three main poles: al Qaeda and its branches from Afghanistan to West Africa; the Islamic State (ISIS) and its external provinces from North Africa to South Asia to East Asia, and Hayat Tahrir al Sham (HTS – flag photo), mainly in northern Syria.



Al Qaeda and ISIS are still engaged in global jihadism, regional military campaigns, and local politics. The two differed on religious interpretations, such as when a Muslim can be considered an apostate, or *takfir* – and what punishment or excommunication was justified. They also split over the right conditions to create an Islamic state.

ISIS’s primary goal has been to capture and govern territory. Al Qaeda’s goal is to convert people to gradually build a global caliphate but controlling territory has not been a priority in its short-term

strategy. In contrast, HTS has focused mainly on local jihadism and backing a civilian polity in northwest Syria. Although its predecessor was once aligned with al Qaeda until 2016/2017, HTS has since become more independent within the jihadosphere. Most other jihadi groups have sided with either al Qaeda or ISIS since their own discord in 2013-2014. Both al Qaeda and ISIS are in transition phases. Neither entity was at its peak, yet neither were degraded, and they had differing challenges.



## Why Central American Migrants Are Arriving at the U.S. Border

By Paul J. Angelo

Source: <http://www.homelandsecuritynewswire.com/dr20210323-why-central-american-migrants-are-arriving-at-the-u-s-border>

Mar 23 – Thousands of people are arriving at the U.S. southern border after fleeing the Northern Triangle countries of El Salvador, Guatemala, and Honduras. President Biden is reviving efforts to tackle the problems that are prompting them to migrate.

### Why are people leaving the Northern Triangle?

Economic precariousness, government corruption, crime, violence, and—increasingly—climate change are all driving migration from El Salvador, Guatemala, and Honduras. A majority of Guatemalans and Hondurans live below the poverty line, and most people in the Northern Triangle are employed in the informal sector, which deprives them of social protections and insurance. The pandemic, which has disproportionately affected Latin America in public health and economic terms, has laid bare governance deficiencies across the region. Meanwhile, the erosion of democratic checks and balances by populist politicians and corrupt officials has left many Northern Triangle residents exasperated and disenfranchised.

Despite seeing reductions in homicides, the Northern Triangle countries remain among the most dangerous in the world. High rates of domestic violence and gang recruitment of minors have contributed to a surge in unaccompanied children and families journeying to the U.S.-Mexico border. Likewise, after a decade of shifting weather patterns and resultant [food insecurity](#), back-to-back Category 5 hurricanes struck Central America this past fall: the storms eviscerated subsistence farms, killed hundreds of thousands of livestock, and devastated large-scale agricultural production. Many people in the region have family ties to the United States and, in the face of such adversity, migrate with the hopes of reuniting with loved ones and improving their lives.

### Are governments in the region doing anything to curb emigration?

**Mexico.** The Mexican government announced that it will close its borders to nonessential travel to contain the spread of COVID-19, and Mexico's National Guard and army stepped up enforcement on the southern border with Guatemala in recent weeks. Similar efforts in the past resulted in a [temporary decrease](#) in migration. The country has also expanded its own asylum programs and is on track to set a national record this year for number of asylum requests processed.

**Guatemala.** In January, Guatemalan soldiers blocked part of a caravan of some nine thousand migrants from Honduras. Yet, many of these migrants found passage into Guatemala and onward to Mexico through informal border crossings or by hiring human smugglers.

**El Salvador.** The country has seen a considerable drop in gang violence, and President Nayib Bukele is widely suspected of [negotiating a truce](#) with the Mara Salvatrucha (MS-13) gang to reduce homicides. To help families struggling with the pandemic-induced economic recession, Bukele oversaw the administration of generous subsidies for 1.5 million households. However, his disregard for democratic checks and balances has concerned opposition and civil society groups, and put him at odds with U.S. President Joe Biden's intention of strengthening democracy in Central America.

**Honduras.** President Juan Orlando Hernandez is under investigation by U.S. authorities for suspected ties to drug trafficking organizations, which have contributed to the country's high rates of violence. Additionally, his government is [implicated in graft](#) involving hurricane relief, raising doubts about the future of the U.S.-Honduras relationship and the potential for collaboration on migration.

### What are Biden's policies toward the region?

President Biden's approach largely relies on reviving policies that were starting to show success late in the tenure of President Barack Obama, as well as undoing unhelpful policies by President Donald J. Trump's administration.

The Obama administration increased U.S. assistance to the Northern Triangle to \$750 million in a bid to address the root causes of migration following a 2014 uptick in [asylum claims by unaccompanied minors](#). Those efforts were beginning to bear fruit, with homicides dropping in the region's most dangerous neighborhoods and [internationally supported anticorruption commissions](#) [PDF] making strides in holding venal officials to account. Biden, then the vice president, became the Obama administration's de facto envoy to the region and oversaw its U.S. Strategy for Central America.

In 2019, the Trump administration froze that assistance over regional governments' purported failures to curb migration, and progress on addressing the drivers of migration was halted. Senior Trump administration officials [rhetorically undermined](#) good governance in the region, siding with deeply compromised political leadership in exchange for [symbolic](#)



[cooperation](#) on migration. The administration's closure of the U.S. southern border and disruptions to the U.S. asylum system reduced cross-border migrant flows temporarily, but Trump's policies failed to alleviate the pressures to migrate.

The Biden administration is now seeking \$4 billion to put development, security, and anticorruption efforts back on track. This assistance would be directed to civil society organizations, reform-minded public institutions, and vulnerable communities with the aim of reducing poverty, curbing violence, and building climate resilience. Government-to-government aid would be strictly conditioned on the implementation of [anticorruption measures](#). Such targeted assistance would likely not bear immediate results but represents the only enduring option to reduce irregular migration from the region. And today, the administration named a special envoy for the Northern Triangle, Ricardo Zuniga, to work with regional governments and other partners to curb unauthorized migration and carry out Biden's \$4 billion plan.

Meanwhile, Biden is reactivating the U.S. asylum system to ensure compliance with international law. In addition to processing asylum claims from unaccompanied minors, some families, and individuals waiting in Mexico under the [Migrant Protection Protocols](#), his administration restarted the Central American Minors program, which allows at-risk youth to apply for U.S. asylum from their home countries instead of applying only after making the dangerous journey to the U.S.-Mexico border.

*Paul J. Angelo is a fellow for Latin America Studies at the Council on Foreign Relations (CFR).*

## Study: Testing Strategies for Safer Air Travel During the Pandemic

Source: <https://www.ucsf.edu/news/2021/03/420111/study-outlines-testing-strategies-safer-air-travel-during-pandemic>

Mar 22 – Almost 90 percent of infectious travelers could be detected with rapid SARS-CoV-2 tests at the airport, and most imported infections could be prevented with a combination of pre-travel testing and a five-day post-travel quarantine that would only lift with a negative test result, according to a computer simulation by UC San Francisco researchers.

The study offers much-needed data to airlines and states that have struggled through a year of the pandemic with little guidance on how to enable safe travel.

The issue is becoming more pressing as states reopen and travelers return to the skies. Data from the Transportation Security Administration show that air travel has been on the rise since the 2020–2021 holiday season, although it is still only one-third to one-half of what it was before the pandemic.

“This evidence could be useful to standardize testing and quarantine policy for COVID-19 at the airline, city and state level for travelers,” said [Nathan Lo](#), MD, PhD, a resident physician and incoming faculty fellow in infectious diseases at UCSF and senior author of the paper, which was published March 22, 2021, in *The Lancet Infectious Diseases*. “Nothing will be perfectly safe, and travel will always pose a risk to the individual and for importation to states, but this is a way to substantially minimize the risk.”

The data in the study come from a large-scale computer simulation of how different combinations of testing and quarantine can prevent infectious travelers from spreading COVID-19. The model makes forecasts based on what is already known about how many people are likely to be infected on any given day, how long they are likely to be infectious and how likely different types of tests are to detect infectious people.

The study simulated the probability that 100,000 travelers would be infectious on any given day shortly before, during and after their trips, given a range of different pre-travel testing and post-travel quarantine-plus-testing strategies.

“We know from the published literature how the infection spreads, and we can simulate how likely different testing and quarantine strategies will be to protect a person from infection, and also reduce their chance of being a source of transmission in the community,” Lo said.

The study found that PCR-based testing three days before departure or rapid testing at the airport both reduced the number of infectious travelers by almost 90 percent, while imposing



a five-day quarantine that could only be lifted with a negative PCR test, reduced the number of “infectious days,” or the days that travelers would be able to spread the virus, by two-thirds.

The simulated quarantine had an added benefit because it would catch people who tested negative before departure but were actually infected. People may test negative at the early stages of infection and only turn positive on a test several days later. The quarantine would prevent those people from spreading the virus in the days after they arrived at their destination.

The scientists were impressed to find that rapid tests like the Abbott BinaxNOW antigen test administered to travelers on the day of travel were about as effective in the simulations as the gold-standard PCR prior to travel. They noted, however, that many rapid tests perform poorly and that the study’s results were only applicable if a rapid test performed as well as those like the Abbott BinaxNOW, which has been [studied at UCSF](#) and found to be reliable.

“It is reasonable to assume the more sensitive PCR would be the most useful,” said Mathew Kiang, ScD, a fellow at the FXB Center for Health and Human Rights at the Harvard TH Chan School of Public Health, first author of the paper. “But here we saw that the same-day rapid testing was almost as good after accounting for the delay in test results from a PCR.”

He added that the rapid tests have the advantage of being a quick and easy alternative for travelers, whereas PCR tests require them to make an additional trip to get tested a few days before departure.

“Asking people to get tested before the day of travel may not be as feasible,” he said.

Researchers also found that a five-day quarantine was about as effective as a 10- or 14-day quarantine, and also more likely to be enforceable.

One of the key implications of the study is the extent to which requiring a negative test before travel, as well as five days after travel, can reduce the importation of infections from high-risk areas to low-risk areas, thus controlling the spread of the pandemic.

“Ultimately, it’s a value judgment,” Lo said. “These strategies are not perfect, but if we implement test-and-travel strategies, we can dramatically reduce the risk of infection when traveling.”

**Authors:** *Joining Lo and Kiang in the study were Lloyd Chapman, PhD, Isabel Rodríguez-Barraquer, MD PhD, Bryan Greenhouse, MD, George Rutherford, MD, Kirsten Bibbins-Domingo, MD PhD, and Diane Havlir, MD, all of UCSF; Elizabeth Chin and Benjamin Huynh, of Stanford University; and Sanjay Basu, MD, PhD, of Harvard Medical School.*

## IS children brought back to Britain could pose a terror threat, watchdog warns

Source: <https://www.standard.co.uk/news/terror-islamic-state-syria-safaa-boular-shamima-begum-b925699.html>

Mar 24 – There is no guarantee that the children of Islamic State parents brought back to Britain from Syria will not pose a threat to the public in future, the government’s terror watchdog warned today.

Jonathan Hall QC, the independent reviewer of terrorism legislation, said the only children who have been returned so far are aged under 10.

But he warned that the growing number of domestic teenagers becoming radicalised showed the risk of extremism among the young and that it was impossible to know how children exposed to extremism in Syria will turn out.

“A difficult cadre of children are those who have returned from Da’esh controlled areas,” he writes today in his annual report to Parliament.

“The fact that many children are brutalised victims and require rehabilitation does not mean that they do not present terrorist risk on return and may not have been trained specifically to carry out terrorist acts.

“This poses the question of how to address that risk, either overseas or back home. So far, all children brought back have been under 10 years of age.

“But since matters are rarely absolute, and intelligence often incomplete, no assessment can exclude the possibility that a child may immediately, or in due course, be drawn into violence as a result of their experiences overseas.”

Mr Hall said that although terrorism prevention and investigation measures, known as TPIMS, or temporary exclusion orders to delay their return could in theory be used to address the risk, neither piece of legislation appears designed to deal with children.

But he warns that although family court powers could be used, they require judges to place the interests of the child ahead of those of national security and the potential danger they might pose.

“The focus of family proceedings is on the risk of harm to the child rather than the risk of harm by the child,” Mr Hall states.

“The interests of the individual child are paramount and cannot be eclipsed by wider considerations of counter-terrorism.”



Warning of other legal problems that might hinder effective controls being imposed on a child returnee from Syria, Mr Hall adds that “the standard of proof in family proceedings can be demanding”, while local authorities which are responsible for handling cases “have varying degrees of expertise on terrorist risk” and “will not have access to intelligence”.

He says they might also “simply take different views from counter-terrorism police” in a further warning that any danger they pose might not be adequately addressed.

Mr Hall cites a number of international and domestic terror cases involving children as evidence of the growing risk, which he says has led to police arresting an increasing number of teenagers.

One case highlighted is that of Safaa Boular, the 16-year-old Londoner who was jailed for life with a minimum 13 year tariff in 2018 for plotting to either to travel to Syria to carry out a suicide bombing or to attack the British Museum if she failed to get to the Middle East.

Mr Hall said she “had from the age of 12 been subject to radicalisation through the malign influence of her mother and her mother’s friends”.

Boular’s mother Mina Dich, 44, and sister Rizlaine Boular, 22, were also jailed for a planned knife attack on Parliament with terms of six years and nine months and life with a minimum of 16 years respectively.

The government’s policy is to enable the return of British children either taken to Syria by their parents or born there. Few have come back so far, however, because of the difficulty they and their parents face in getting from the Kurdish controlled detention camps where most are held to another country where they can obtain consular assistance to assist their return.

Some parents have also had their citizenship removed on the grounds that they are dual nationals. The most famous case involved Shamima Begum, the former east London schoolgirl, now 21, who has been stripped of her British nationality on the grounds that she is also a Bangladeshi citizen. She has lost three children since going to Syria to join Islamic State and recently lost a Supreme Court challenge that would have allowed her to return to Britain to fight to get her passport back.

Mr Hall says her case highlights the need for ministers to consider extending temporary exclusion orders, which currently apply only to British citizens and allow their return to be delayed and carried out subject to controls, to foreign nationals.

## Teen terrorism inspired by social media is on the rise. Here's what we need to do.

By Farah Pandith and Jacob Ware

Source: <https://www.nbcnews.com/think/opinion/teen-terrorism-inspired-social-media-rise-here-s-what-we-ncna1261307>



Mar 22 – The [would-be terrorist's plans were chilling](#), written out in detail alongside neo-Nazi tropes in his manifesto. The list of targets included post offices, pubs, schools and banks (for “obvious reasons,” he wrote), and they were accompanied by a list of at least 19 firearms he dreamed of acquiring.



The plot, while frightening, is not necessarily surprising for analysts of far-right terrorism. Many of the ideological themes, justifications and targets were familiar. But the case is still shocking: The plotter was just 13 when he began radicalizing and 16 when he was convicted, in November 2019, of planning six terrorist attacks. According to reports, at the time of his arrest he was the youngest person convicted of plotting a terrorist attack in the U.K.

This is not a one-off. Recent years have revealed a scary, dangerous new era in which children have been taught to hate, are recruiting others and are plotting terrorist attacks. While several schemes conceived by young far-right extremists were thwarted, the future may be bleaker. We have [missed emerging trends in the past](#); counterterrorism professionals must urgently renew their vigilance — and implement new countermeasures — over the radicalization of young people in the West and beyond.

In October, police in Germany arrested a 14-year-old [accused of plotting violence](#) at a synagogue or a mosque. A 14-year-old was also arrested that month in [San Diego on hate crimes charges](#) after being accused of having punched a rabbi in the face. Kyle Rittenhouse, 17, is charged with killing two protesters in Kenosha, Wisconsin, in August.

There have even been cases of young people leading extremist organizations, such as the far-right [British Hand](#), led by a 15-year-old. Authorities said a 17-year-old Midwesterner led the recruitment for a cell hoping to [attack power lines](#) should Donald Trump lose the 2020 election. Perhaps the most shocking case involves [a leader of the Feuerkrieg Division](#) who was caught in Estonia at just 13. According to [The Guardian](#), "At least 17 children, some as young as 14, have been arrested on terrorism charges over the past 18 months."

The changing threat has been catalyzed by arguably the [two most significant trends](#) in terrorism over the past two decades: the emergence of people acting alone who have been inspired by the ideology of terrorists and the ease of online radicalization. Both trends encourage the increased involvement of young people in extremism: When radicalization occurs in the living room and not places of worship and when acts of terrorism no longer require complex planning, barriers to entry are lowered, allowing even teenagers to take active part.

It was the so-called Islamic State that revolutionized the latest wave of online radicalization, finding new and unique ways to appeal to young people the world over. Knowing there are [around 1 billion](#) Muslims [under age 30](#), ISIS leveraged age-appropriate curated messages and platforms to entice youths from around the world.

Largely gone are the days when lengthy religious sermons radicalized the religiously zealous; today's recruits are inspired more by community and belonging than ideology. For years now, the "[jihad cool](#)" concept has been one of the movement's most powerful attractions, resulting in a [unique appeal to younger audiences](#).

In one of the more notorious ISIS foreign fighter cases, three [schoolgirls](#) left their school in Bethnal Green, London, to travel to Syria to join the terrorist organization. Policymakers and the public were shocked — but should they have been? The navigation of identity and the search for belonging are at their most persistent during these formative years, and the same issue had already emerged in other contexts.

The ISIS case study also highlights why the dangers will only intensify. Gen Zers, the demographic born roughly between the mid-1990s and the early-2010s that [makes up at least 32 percent of the world's population](#), are [often described](#) as digital natives because they never experienced life before the internet. Seeking and exploring one's identity may be common, but what appeals, and why, may not be. Observing the new changes on the terrorism landscape from far-right extremism to ISIS-inspired extremism can offer some signposts.

Gen Zers are always connected and are therefore always exposed to radically different viewpoints, including extremist ideology. Around 80 percent of Gen Z Arabs primarily [get news through social media](#), and Gen Zers in the Asia-Pacific region spend [over two hours a day on social media](#). Those trends will persist in [Gen Alpha](#), which is heavily influenced by social media — [one study](#) indicated that over half of Gen Alpha respondents were more likely to purchase a product if their favorite influencer featured it on social media. The post-pandemic landscape is particularly [fraught](#). Teens around the world have spent unprecedented time online while grappling to understand and accept a transformative political, social and economic climate. TikTok has swept to prominence and been manipulated for extremist recruitment by both [far-right extremists](#) and [ISIS](#).

The issue is particularly worrying in the American context. The country has already struggled through a school shooting plague for decades, so a model already exists for disaffected young people, and those youths will have far easier access to firearms than in other Western countries.

It is critical that Western counterterrorism efforts include strategies more focused on long-term preparedness and protection rather than just reaction. Pushing back against QAnon and other extremist networks in the wake of the storming of the U.S. Capitol was an ideal first step, but more is urgently needed to ensure that young people, particularly those suffering from vulnerabilities such as bullying, exclusion and mental health issues, are identified and get the help they need. Online, this includes



drastically improving content moderation, engaging parents and teachers around counter-radicalization and [promoting digital literacy skills](#).

We also need to redesign our counterterrorism strategy to account for child and adolescent development and gender differentiation, so we can design more sensitive and targeted countermeasures.

This might include the promotion of youth networks of positive influencers, which promote values of inclusion and shared humanity — regardless of race, religion and even just teen awkwardness. Such measures, when scaled, might allow teens looking to fill the need for identity and purpose to apply themselves in more positive ways — and allow us to prevent young people looking for belonging from finding it in online extremist forums.

In 2019 the [Department of Homeland Security](#) explicitly acknowledged "the need to support and protect our most vulnerable populations, our youth in particular." Despite these good intentions, though, its call has not been successfully implemented. Preventing teenage terrorism will require ensuring that all young people feel included, comfortable in their identity (or identities) and safe from nefarious actors online. Such an initiative should be central to any counterterrorism strategy implemented by the new administration. There is no time to waste.

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## Gulf of Guinea Piracy: A Symptom, Not a Cause, of Insecurity

By Ifesinachi Okafor-Yarwood, Timothy Walker, and Denys Reva

Source: <http://www.homelandsecuritynewswire.com/dr20210325-gulf-of-guinea-piracy-a-symptom-not-a-cause-of-insecurity>

Mar 25 – Piracy in the Gulf of Guinea appears to be worse than ever, judging by recent [headlines](#). But these accounts and the data they rely on must be approached with caution. Figures on piracy and armed robbery at sea are susceptible to under-reporting and problems of definition. Over-hasty responses could lead to narrow solutions that fail to solve the underlying causes of maritime insecurity. A snapshot of piracy in the region shows a relatively consistent number of reported incidents. According to the International Maritime Bureau (IMB), attacks were documented in 15 Gulf of Guinea littoral states over the past three years.

The IMB's Piracy Reporting Centre [recorded](#) 84 attempted and successful attacks in 2020, up from the 64 in 2019, but almost the same as 2018, at 82 incidents. Most assaults targeted the crew to kidnap them for ransom. The region is now the site of over 90% of the world's reported [kidnappings](#) at sea.

Piracy data is often used as an indicator of general maritime security in the Gulf of Guinea, but unless its carefully interpreted, using it could lead to poor responses. Changing piracy trends could be the result of different levels of maritime awareness and capability among countries, which in turn affects the reporting of incidents.

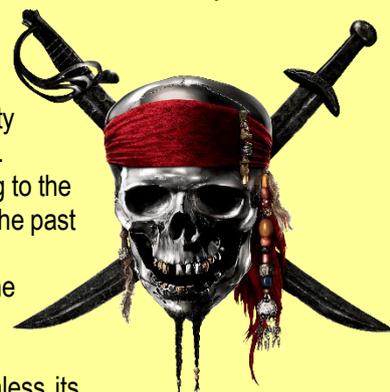
Reports from the IMB, as well as other sources such as the Interregional Coordination Centre in Yaoundé, greatly influence public and policy discourse on the state of maritime security in West and Central Africa. Yet the extent of the threat is disputed and the numbers need to be carefully examined to avoid gaps and pitfalls.

For instance, the Nigerian Navy [reports](#) 339 incidents of piracy in 2020. But according to the definition of the crime under international law, 214 out of these would not be considered 'piracy' but acts of armed robbery, as they took place in Nigerian territorial waters and not on the High Seas.

Incidents of armed robberies at sea are the [responsibility](#) of the coastal state if they occur fewer than 12 nautical miles from the coast. The location of attacks is therefore significant, both to interpreting the data and crafting responses.

Effective law enforcement far out at sea is beyond the capacity of most regional states. This means that any solution to the problem of piracy is a collective one requiring multinational support as envisioned in the Yaoundé [Agreement](#) of 2013.

While the numbers may vary, there is a trend of more sophisticated and violent attacks occurring on the High Seas. On 30 January the MV *Rowayton Eagle* was struck 200 nm from shore – and similar incidents further out to sea are not uncommon. It's possible that ships on the High Seas are being targeted because coastal law enforcement by Gulf of Guinea states is becoming more effective.



Nevertheless, increased reports of piracy in the Gulf of Guinea have triggered comparisons with piracy off the coast of Somalia, and prompted a global debate on solutions. Shipping companies operating in the Gulf of Guinea are worried as no one seems able to provide them with security.



The [loudest](#) voices are calling for a greater international naval presence or coalition, and advocating for more armed private security personnel. While both areas have suffered from piracy, they are very distinct, and policy responses should be too. A key difference in the Gulf of Guinea is that any international force would need approval from each of the many countries in the region. The concave shape of the Gulf of Guinea littoral and the clustering of countries with relatively short coastlines means their maritime areas of interest converge. This increases the number of stakeholders whose consensus is required.

The Horn of Africa, by contrast, is an enormous peninsula jutting into the Indian Ocean. Somalia has one of Africa's longest coastlines, and the maritime area over which it has responsibility has few neighbours and is surrounded by the High Seas.

The United Nations Security Council has adopted anti-piracy [resolutions](#) for both the Horn of Africa and the Gulf of Guinea since 2008. The measures permitted in the former had the consent of Somalia's recognised government and started largely from scratch. The latter prioritised capacity building for emerging regional institutions, such as those established by the Economic Community of West African States and Economic Community of Central African States under the auspices of the Yaoundé Agreement.

It's unlikely that the 'Somalian scenario' would be endorsed in the Gulf of Guinea. These states would prefer to be supported so they can provide maritime security, rather than abrogate this responsibility to external parties.

A challenge similar in both the Horn and Gulf of Guinea is that a crackdown on piracy can mean offenders [switch](#) to other illicit activities to continue their criminal enterprises, or commit piracy in other parts of the region. There's also the danger that a narrow focus on piracy means policymakers neglect other maritime and security problems that affect livelihoods and the ecological conservation of coastal areas.

Policy and strategy must provide safety to seafarers' in- and offshore, and deal with threats to the natural environment and livelihoods of littoral communities, such as fisheries crime and marine pollution. Sustainable security solutions in the Gulf of Guinea should aim to improve the socio-economic well-being of coastal communities so that they are less [vulnerable](#) to organised criminal networks.

Piracy cannot be tackled by any government operating alone. States and organisations operating in the region must continue working together to agree on an approach that suits all their maritime security interests.

A rushed response in reaction to sensational reports of attacks at sea may well benefit shipping companies. But in the long run, it could exacerbate the situation by focusing on symptoms at the expense of root causes. Grievances among marginalised coastal communities must be addressed so they can pursue sustainable livelihoods and escape the cycle of deprivation that exposes them to crime.

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## The North Korean-Syrian Partnership: Bright Prospects Ahead

By Samuel Ramani

Source: <https://www.38north.org/2021/03/the-north-korean-syrian-partnership-bright-prospects-ahead/>

Mar 23 – As the Syrian civil war passes its tenth anniversary, President Bashar al-Assad is seeking to escape international isolation and preserve Damascus's wartime partnerships. While Syria is primarily focused on returning to the Arab League and courting reconstruction investments from China, Russia and Iran, it also wishes to preserve its historic relationship with North Korea. Under Kim Jong Un's leadership, the Democratic People's Republic of Korea (DPRK) has consistently defended Assad from international criticism, provided military assistance to the Syrian Arab Army and supplied Syria with missile and chemical weapons technology. These displays of solidarity ensure that the Syria-North Korea partnership will continue to strengthen as the Syrian civil war transitions into its reconstruction phase.

### North Korea's Diplomatic Support for Syria

The Syria-North Korea partnership originated during the Cold War, when North Korean fighter pilots [aided](#) the Syrian Air Force during its 1967 and 1973 wars with Israel, and strengthened after Bashar al-Assad became president of Syria in 2000. North Korea's flagship 5-megawatt reactor at its Yongbyon nuclear center, which produces fissile material for its nuclear weapons, served as a template for Syria's Al-Kibar nuclear reactor outside of Deir ez-Zor. The Al-Kibar site [possessed](#) an "identical configuration" to Yongbyon and included "the same number of holes for fuel rods" as the North Korean plant. Israel's September 2007 strike on the Al-Kibar allegedly [resulted](#) in the deaths of ten North Korean nuclear scientists who [assisted](#) in the nuclear reactor's construction.

This diplomatic partnership has endured and thrived throughout Syria's decade-long civil war. In 2012, Kim Jong Un [praised Assad's defense](#) of Syria's sovereignty. North Korean election observers [certified](#) Assad's victory in Syria's June 2014 presidential election and Kim was among the first world leaders to congratulate Assad on his win. North Korean media outlets have also defended Assad against allegations of chemical weapons use and condemned US military activities in Syria. *The Pyongyang Times* described the 2017 US missile strikes on Syria's Shayrat airbase as a "sordid plot of the current US administration to overthrow the Assad government."<sup>[1]</sup> Syria has reciprocated North Korea's solidarity with Damascus. In August 2015, Syria [inaugurated](#) a 9,000-square-meter park honoring Kim Il Sung in southwestern Damascus. In June 2018, the *Korean Central News Agency (KCNA)* [reported](#) that Bashar al-Assad wished to visit Pyongyang and praised the "outstanding political caliber and wise leadership" of Kim Jong Un.

In return for North Korea's loyal support for the Assad regime, Syria continues to defy United Nations (UN) sanctions against the DPRK. In June 2019, Syria and North Korea's foreign ministries [signed](#) a memorandum of understanding (MOU) to bolster bilateral economic relations and coordinate their resistance to international sanctions. Syria's refusal to comply with UN sanctions against North Korea reflects the enduring strength of its partnership with the DPRK. In August 2020, a UN Panel of Experts report [revealed](#) that at least 800 North Korean military personnel and laborers arrived in Syria in the second half of 2019. Some of these workers were likely destined for the construction sector in response to an unnamed Syrian construction company's request in October 2019 for at least 800 North Korean workers. The admission of these workers violated UN sanctions, which mandated the repatriation of all North Korean overseas workers by December 22, 2019 and banned countries from accepting North Korea's military-technical assistance.

### North Korea's Military Support for Assad During the Syrian Civil War

Beyond its rhetorical support for Assad's regime, North Korea has been credibly accused of providing military support to the Syrian Armed Forces, supplying ballistic missiles to Syria and aiding the country's illicit chemical weapons program. While the extent of the North's military role in Syria is unclear, reports of North Korean military involvement in Syria have circulated since 2013. There is anecdotal evidence that DPRK military advisors [aided](#) the Syrian Arab Army's May 2013 offensive on Al-Qusayr, which resulted in a decisive victory for Assad's forces. In 2013, Burhan Ghalioun, the former president of the Syrian National Council, [alleged](#) that North Korean pilots were fighting in the Syrian Air Force. The North Korean Foreign Ministry [denounced](#) these accusations as part of a "foolish plot" to discredit the DPRK and emphasized the North's support for a political resolution of the Syrian civil war.

With the exception of reports about the Islamic State (ISIS) seizing North Korean man-portable air defense systems (MANPADS) in Kesh in August 2014, [new information](#) about the DPRK's involvement in the Syrian civil war dissipated from 2013 to 2016. In March 2016, the Saudi-aligned High Negotiations Committee of the Syrian opposition [informed](#) an international delegation in Geneva that two North Korean units, Chalma-1 and Chalma-7, were present in Syria. Chalma-1 was [reportedly deployed](#) to Jobar, a neighborhood in Damascus, and actively took part in combat missions. Chalma-7's



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responsibilities were more ambiguous. Reports also circulated of a Korean battalion in Syria ranging from 300 to 3,000 personnel. North Korean military personnel were allegedly deployed to Jabal Qasioun, which is located on the outskirts of Damascus, and DPRK officers participated alongside Syrian Arab Army forces in the battle of Aleppo. Syria's recruitment of North Korean military support against domestic unrest may have had its roots in the [participation](#) of Korean People's Army (KPA) personnel in the 1982 crackdown in Hama and the Arabic-language training afforded to select North Korean officers.

### North Korea's Ballistic Missile and Chemical Weapons Assistance to Syria

Throughout the Syrian civil war, Pyongyang has supplied Damascus with missile technology. In September 2017, the UN [singled out](#) Syria in a report documenting how North Korean nationals facilitated the prohibited trade of surface-to-air missile systems in the Middle East and Africa. A February 2018 UN report [listed](#) Syria and Myanmar as two major destinations of North Korean missile technology. The relationship between North Korean missile suppliers and the Syrian Arab Army dates back to the Cold War. In 1991 and 1992, North Korea [delivered](#) 24 Scud-C and 20 mobile launchers to Syria. North Korean arms brokers [have also](#) supplied Syria with graphite, specialty steel and nozzle throats. These parts allow Syria to indigenously produce short-range and medium-range ballistic missiles. The Korea Mining Development Trading Corporation (KOMID), which saw two of its representatives in Syria blacklisted by the UN Security Council in 2016, [has been](#) Pyongyang's most consistent missile supplier to Damascus over the past few decades.

North Korea's missile shipments to Syria are also intertwined with its support for Damascus's chemical weapons (CW) program. In May 2005, Syria test fired a Scud-B and two Scud-D missiles in order to [ascertain](#) how North Korean missile technology could deliver air-burst chemical weapons. This link between Damascus's purchases of missiles and CW has persisted throughout the Syrian civil war. From 2012 to 2017, North Korea [shipped](#) 40 batches of material for CW production, such as "acid-resistant tiles, valves and pipes." The Syrian Scientific Studies and Research Center, which operates Syria's chemical weapons program, [has used](#) North Korean industrial equipment to build new CW facilities. These allegations were [strenuously denied](#) by North Korea, which called it a "nonsensical argument," and Russian Foreign Minister Sergei Lavrov, who [claimed](#) not to know about the February 2018 UN report on North Korean CW assistance to Syria.<sup>[2]</sup>

### Prospects for Future Cooperation

Looking ahead, three trends in Syria-North Korea relations are especially noteworthy. First, the Caesar Syria Civilian Protection Act sanctions, which restrict international investment in Syria's process, could open the door for North Korean participation in the country's rebuilding efforts. In May 2019, North Korean Vice Foreign Minister Pak Myong Guk [visited Damascus](#) to pledge Pyongyang's support for Syria's reconstruction and tighten Syria-North Korea bilateral cooperation against economic sanctions. In July 2019, Syrian Foreign Minister Walid al-Moallem [claimed](#) that North Korean workers could assist the "construction and redevelopment" of Syria. The June 2019 Syria-North Korea economic agreement and transfers of North Korean workers to Syria, which were reported throughout 2019, could result in reconstruction-related cooperation between Pyongyang and Damascus.

Second, Syria could facilitate North Korea's military cooperation with Iran and its proxies, such as Yemen's Houthi movement. According to a recent UN Panel of Experts report, North Korea [transferred](#) "critical parts" for Iran's long-range missile development in 2020. The Houthis [possess](#) North Korean-made Scuds, which are called Hwasong-6s, in their military arsenal. There is also evidence of Syria's willingness to act as a hub for engagement between North Korea and Iranian proxies. On July 13, 2016, a Houthi representative wrote a letter inviting North Koreans to [visit Damascus](#) in order to discuss the "transfer of technology and other matters of mutual interest." Hussein al-Ali, a Syrian arms trafficker, [serves](#) as North Korea's main interlocutor in its outreach to the Houthis; he has also [brokered](#) North Korean light weaponry transfers to Libya and Sudan, creating the potential for Syria to play a critical role in the proliferation of North Korean technology to non-state actors across the Middle East.

Third, North Korea could assist Syria's efforts to retaliate against Israeli airstrikes on Syrian territory. The Syria-North Korea partnership originated out of their shared opposition to Israel, and both countries are close allies of Hezbollah. North Korean engineers [reportedly manage](#) CW and missile plants in Hama, Adra and Barzah, three Syrian cities that Israel has targeted with airstrikes. In order to retaliate against Israeli airstrikes in Syria, North Korea could carry out [cyberattacks](#) on Israel, such as the August 2020 attack on the Israeli defense industry. North Korea [could also](#) revive its training program for Hezbollah operatives, which significantly improved the Lebanese armed group's ability to resist Israel during the 2006 Israel-Lebanon war.

### Conclusion

In spite of crippling UN sanctions, the Syria-North Korea partnership remains robust. Since North Korea sees its relationship with Syria as a core pillar in its web of partnerships with anti-Western states, such as Cuba, Iran and Venezuela, high-level diplomatic exchanges



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between Pyongyang and Damascus are likely to resume once the COVID-19 pandemic subsides. US officials should keep a close eye on Syria-North Korea relations, as they seek to isolate Assad's embattled regime and limit the proliferation of ballistic missiles across the Middle East.

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*Samuel Ramani is a doctoral candidate at the University of Oxford's Department of Politics and International Relations, where he will receive his DPhil in April 2021. Samuel is a regular contributor to Foreign Policy and think tanks, such as the Carnegie Endowment for International Peace, the Middle East Institute and the Royal United Services Institute (RUSI).*

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He joined Abu Dhabi Police in 1980 and started his career in 1986 as an officer in the Burglar Alarm Branch; then he became Director of Forensic and Science Institute; Head of IT Division in the Telecommunication and Information Systems Department; Director of IT and Telecom Department.

In 2005, he was appointed as General Director of Central Operations, Abu Dhabi Police GHQ. In addition to this, he was also appointed as General Director of E-Services, Ministry of Interior, United Arab Emirates.



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## Humans Have The Biological Toolkit to Have Venomous Saliva, Study Finds

Source: <https://www.sciencealert.com/humans-have-the-biological-toolkit-to-be-venomous-but-evolution-had-other-plans>

Mar 29 – Could humans ever evolve venom? It's highly unlikely that people will join [rattlesnakes](#) and [platypuses](#) among the ranks of venomous animals, but new research reveals that humans do have the tool kit to produce venom - in fact, all reptiles and mammals do.

This collection of flexible genes, particularly associated with the salivary glands in humans, explains how venom has evolved independently from nonvenomous ancestors more than 100 times in the animal kingdom.

"Essentially, we have all the building blocks in place," said study co-author Agneesh Barua, a doctoral student in evolutionary genetics at the Okinawa Institute of Science and Technology in Japan. "Now it's up to [evolution](#) to take us there."

Oral venom is common across the animal kingdom, present in creatures as diverse as [spiders](#), [snakes](#) and [slow lorises](#), the only known venomous species of primate. Biologists knew that oral venom glands are modified salivary glands, but the new research reveals the molecular mechanics behind the change.

"It's going to be a real landmark in the field," said Bryan Fry, a biochemist and venom expert at The University of Queensland in Australia who was not involved in the research. "They've done an absolutely sensational job of some extraordinarily complex studies."



**A flexible weapon**

Venom is the ultimate example of nature's flexibility. Many of the toxins in venom are common across very different animals; some components of [centipede](#) venom, for example, are also found in snake venom, said Ronald Jenner, a venom researcher at the Natural History Museum in London who was not involved in the research.

The new study doesn't focus on toxins themselves, as those evolve quickly and are a complex mix of compounds, Barua told Live Science.



Researchers studied the genome of the Taiwan habu, a venomous brown pit viper. (Alexander Mikheyev)



Instead, Barua and study co-author Alexander Mikheyev, an evolutionary biologist at Australian National University who focuses on "housekeeping" genes, the genes that are associated with venom but aren't responsible for creating the toxins themselves. These regulatory genes form the basis of the whole venom system.



The researchers started with the genome of the Taiwan habu (*Trimeresurus mucrosquamatus*), a brown pit viper that is well studied, in part because it's an invasive species in Okinawa.

"Since we know the function of all the genes that were present in the animal, we could just see what genes the venom genes are associated with," Barua said.

The team found a constellation of genes that are common in multiple body tissues across all amniotes. (Amniotes are animals that fertilize their eggs internally or lay eggs on land; they include reptiles, birds and some mammals.)

Many of these genes are involved in folding proteins, Barua said, which makes sense, because venomous animals must manufacture a large quantity of toxins, which are made of proteins.

"A tissue like this really has to make sure that the protein it is producing is of high quality," he said.

Unsurprisingly, the same sorts of regulatory housekeeping genes are found in abundance in the human salivary gland, which also produces an important stew of proteins - found in saliva - in large quantities. This genetic foundation is what enables the wide array of independently evolved venoms across the animal kingdom.

### From nonvenomous to venomous

In other words, every mammal or reptile has the [genetic](#) scaffolding upon which an oral venom system is built. And humans (along with [mice](#)) also already produce a key protein used in many venom systems. Kallikreins, which are proteins that digest other proteins, are secreted in saliva; they're also a key part of many venoms.

That's because kallikreins are very stable proteins, Fry said, and they don't simply stop working when subjected to mutation. Thus, it's easy to get beneficial mutations of kallikreins that make venom more painful, and more deadly (one effect of kallikreins is a precipitous drop in blood pressure).

"It's not coincidental that kallikrein is the most broadly secreted type of component in venoms across the animal kingdom, because in any form, it's a very active enzyme and it's going to start doing some messed-up stuff," Fry said.

Kallikreins are thus a natural starting point for theoretically venomous humans.

If after the drama of 2020, Barua joked, "people need to be venomous to survive, we could potentially start seeing increasing doses of kallikreins."

But that's not so likely - not unless humans' currently successful strategies of acquiring food and choosing mates start falling apart, anyway. Venom most commonly evolves as either a method of defense or as a way of subduing prey, Jenner told Live Science. Precisely what kind of venom evolves depends heavily on how the animal lives.

Evolution can essentially tailor venom to an animal's needs via natural selection, Fry said.

There are some desert snakes, for example, that have different venom despite being the same species, just due to where they live, he said: On the desert floor, where the snakes hunt mostly mice, the venom acts mostly on the [circulatory system](#), because it's not difficult for a snake to track a dying mouse a short distance on flat ground. In nearby rocky mountains, where the snakes hunt mostly [lizards](#), the venom is a potent neurotoxin, because if the prey isn't immediately immobilized, it can easily scamper into a crevice and disappear for good.

A few mammals do have venom. Vampire bats, which have a toxic saliva that prevents blood clots, use their chemical weapon to feed from wounds more effectively. Venomous shrews and shrew-like solenodons (small, burrowing mammals) can outpunch their weight class by using their venom to subdue larger prey than they could otherwise kill.

Shrews also sometimes use their venom to paralyze prey (typically insects and other invertebrates) for storage and later snacking. Meanwhile, platypuses, which don't have a venomous bite but do have a venomous spur on their hind legs, mostly use their venom in fights with other platypuses over mates or territory, Jenner said.

Humans, of course, have invented tools, weapons and social structures that do most of these jobs without the need for venomous fangs. And venom is costly, too, Fry said. Building and folding all those proteins takes energy. For that reason, venom is easily lost when it isn't used.

There are species of sea snakes, Fry said, that have vestigial venom glands but are no longer venomous, because they switched from feeding on fish to feeding on fish eggs, which don't require a toxic bite.

The new research may not raise many hopes for new superpowers for humans, but understanding the genetics behind the control of venom could be key for medicine, Fry added.

If a [cobra's](#) brain were to start expressing the genes that its venom glands expressed, the snake would immediately die of self-toxicity. Learning how genes control expression in different tissues could be helpful for understanding diseases such as [cancer](#), which causes illness and death in large part because tissues start growing out of control and secreting products in places in the body where they shouldn't.



"The importance of this paper goes beyond just this field of study, because it provides a starting platform for all of those kinds of interesting questions," Fry said.

►► The research was published online Monday (March 29) in the journal [Proceedings of the National Academy of Sciences](#).

## The WHO Confirms that the Covid-19 PCR Test is Flawed: Estimates of "Positive Cases" are Meaningless. The Lockdown Has No Scientific Basis

By Prof Michel Chossudovsky

Source: <https://www.globalresearch.ca/nucleic-acid-testing-technologies-use-polymerase-chain-reaction-pcr-detection-sars-cov-2/5739959>

Mar 26 – The Real Time Reverse Transcription Polymerase Chain Reaction (rRT-PCR) test was adopted by the WHO on January 23, 2020 as a means to detecting the SARS-COV-2 virus, following the recommendations of a Virology research group (based at Charité University Hospital, Berlin), supported by the [Bill and Melinda Gates Foundation](#). (For Further details see the [Drosten Study](#))

Exactly one year later on January 20th, 2021, the WHO retracts. They don't say "We Made a Mistake". The retraction is carefully formulated.

While the WHO does not deny the validity of their misleading January 2020 guidelines, they nonetheless recommend "Re-testing" (which everybody knows is an impossibility).

The contentious issue pertains to the number of amplification threshold cycles (Ct). According to Pieter Borger, et al

**The number of amplification cycles [should be] less than 35; preferably 25-30 cycles. In case of virus detection, >35 cycles only detects signals which do not correlate with infectious virus as determined by isolation in cell culture...[\(Critique of Drosten Study\)](#)**

The World Health Organization (WHO) tacitly admits one year later that ALL PCR tests conducted at a 35 cycle amplification threshold (Ct) or higher are INVALID. But that is what they recommended in January 2020, in consultation with the virology team at Charité Hospital in Berlin.

If the test is conducted at a 35 Ct threshold or above (which was recommended by the WHO), segments of the SARS-CoV-2 virus cannot be detected, which means that **ALL the so-called confirmed "positive cases" tabulated in the course of the last 14 months are invalid.**

**According to [Pieter Borger](#), [Bobby Rajesh Malhotra](#), [Michael Yeadon](#), et al, the Ct > 35 has been the norm "in most laboratories in Europe & the US".**

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

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## Guns and Drugs Don't Mix: Psychiatric Medications and Violent Behavior

### America's Immigration Amnesia

By Caitlin Dickerson (Staff writer at *The Atlantic*)

Source: <https://www.theatlantic.com/ideas/archive/2021/03/whats-really-happening-at-the-border/618442/>

Mar 29 – In 1989, refugees from Central America sleep in bunk beds in Brownsville, Texas. Mark Wilson / The Boston Globe via Getty  
In the early 2000s, Border Patrol agents in the Rio Grande Valley of South Texas were accustomed to encountering a few hundred children attempting to cross the American border alone each month. Some hoped to sneak into the country unnoticed; others readily presented themselves to officials in order to request asylum. The agents would transport the children, who were exhausted, dehydrated, and sometimes injured, to Border Patrol stations and book them into austere concrete holding cells. The facilities are notoriously cold, so agents would hand the children Mylar blankets to keep warm until federal workers could deliver them to child-welfare authorities.

But starting in 2012, the number of children arriving at the border crept up, first to about 1,000 a month, then 2,000, then 5,000. By the summer of 2014, federal officials were processing more than [8,000 children a month in that region alone](#), cramming them into the same cells that had previously held only a few dozen at a time, and that were not meant to hold children at all.

As the stations filled, the Obama administration scrambled to find a solution. The law required that the children be moved away from the border within 72 hours and placed in the custody of the Department of Health and Human Services, so they could be housed safely and comfortably until they were released to adults willing to sponsor them. But HHS facilities were also overflowing. The department signed new contracts for “emergency-influx shelters,” growing its capacity by thousands of beds within a matter of months. Government workers pulled 100-hour weeks to coordinate logistics. And then, seemingly overnight, border crossings began to drop precipitously. No one knew exactly why.

“The numbers are unpredictable,” Mark Weber, an HHS spokesperson, told me in 2016, just as another child-migration surge was beginning to crest. “We don’t know why a bunch of kids decided to come in 2014, or why they stopped coming in 2015. The thing we do know is these kids are trying to escape violence, gangs, economic instability. That’s a common theme. The numbers have changed over the years, but the themes stayed the same.”

The cycle repeated itself under President Donald Trump in 2019, and is doing so again now. And as border crossings rise and the government rushes to open [new emergency-influx shelters](#), some lawmakers and pundits are declaring that the Biden administration is responsible for the surge. “The [#BidenBorderCrisis](#) was caused by the message sent by his campaign & by the measures taken in the early days of his new administration,” Marco Rubio tweeted last week. The administration is “luring children to the border with the promise of letting them in,” Joe Scarborough, the Republican congressman turned cable-television host, told millions of viewers during a recent segment.

But for decades, most immigration experts [have viewed border crossings not in terms of surges, but in terms of cycles](#) that are affected by an array of factors. These include the cartels’ trafficking business, weather, and religious holidays as well as American politics—but perhaps most of all by conditions in the children’s home countries. A 2014 [Congressional Research Service report](#) found that young peoples’ “motives for migrating to the United States are often multifaceted and difficult to measure analytically,” and that “while the impacts of actual and perceived U.S. immigration policies have been widely debated, it remains unclear if, and how, specific immigration policies have motivated children to migrate to the United States.”

The report pointed out that special protections for children put into place under the Trafficking Victims Protection Reauthorization Act of 2008 may have shifted migration patterns by encouraging parents to send their children alone rather than travel as a family. But it found that blaming any one administration for a rise in border crossings ultimately made no sense—the United States has offered some form of protection to people fleeing persecution since the 1940s, and those rights were expanded more than 40 years ago under the Refugee Act of 1980.

This is not to say that President Joe Biden’s stance on immigration—which has thus far been to discourage foreigners from crossing the border while also declaring that those who do so anyway will be treated humanely—has had no effect on the current trend. Like other business owners, professional human traffickers, known as coyotes, rely on marketing—and federal intelligence suggests that perceived windows of opportunity have been responsible for some of their most profitable years.

For example, border crossings rose in the months before President Trump took office in part because coyotes encouraged people to hurry into the United States before the start of the



crackdown that Trump had promised during his campaign. With Trump out of office, some prospective migrants likely feel impelled to seek refuge now, before another election could restore his policies.

But placing blame for the recent increase in border crossings entirely on the current administration's policies ignores the reality that the federal government has held more children in custody in the past than it is holding right now, and that border crossings have soared and then dropped many times over the decades, seemingly irrespective of who is president.

Given, then, that the movement of unaccompanied minors has long ebbed and flowed—we are now experiencing the fourth so-called surge over the course of three administrations—why do border facilities still appear overwhelmed? The answer, in part, is that the current uptick is simply getting more media attention. When Trump took office, in 2017, 13,000 children were sitting in Health and Human Services facilities, about 1,000 more than are in federal custody today; [he did not receive any questions about the detention of migrants during his first press conference](#), and an online search did not turn up a single news story citing that statistic. The federal government, across multiple administrations, has also chosen not to meaningfully improve the conditions in border facilities: Children are still held in the same concrete cells that were used in the early 2000s, and the few larger facilities that the Department of Homeland Security has acquired since then to help expedite processing of children are just as austere as previous ones. [They became infamous almost as soon as they opened](#), known as the places where children are held in what are effectively cages.

As I've covered this issue over the years, federal authorities have often vented to me during cycle peaks, complaining that facilities built for law-enforcement purposes had been hijacked to shelter children. During one of the recent surges, a Customs and Border Protection commissioner lamented to me that offices at ports of entry along the border were being converted into nurseries with TVs playing cartoons, and that the agency was hemorrhaging money to keep up with the need for diapers, feminine products, and crackers and juice. When I asked him why CBP didn't just build additional, more family-appropriate facilities, he replied that such a project could send a message that would encourage even more people to migrate to the United States.

With his comment, the commissioner reiterated what many other officials I've talked with over the years have said: The issue is not that the federal government is *unable* to handle the large numbers of children crossing the border now—rather, that it has been *unwilling* to spend the money required to process children more safely and comfortably, because of a concern about optics. But if, as the Congressional Research Service report concluded, American policies are not the primary driver of migration, then the federal government may be needlessly avoiding changes that could improve how the United States treats the most vulnerable migrants.

The current backup at the border stems from more than insufficient infrastructure. Most Central Americans hoping to escape crushing poverty, gang and gender-based violence, and the increasing ravages of climate change are not eligible to apply for any existing American visa. Under current immigration law, which dates back to 1954 and was last updated in 1996, the only legal route into the United States for most of them is via obtaining asylum. This requires getting in line behind literally [more than 1 million](#) other people, and waiting on an arcane, individualized legal proceeding that requires multiple appearances before a judge and takes, on average, more than a year to complete.

American asylum protections were first established as part of an effort to atone for the rejection of Jewish migrants who'd fled Nazi Germany during World War II, [only to be turned away from American shores](#). The program was also seen as a tool for promoting democracy abroad, offering a haven to people escaping Communist governments during the Cold War. The messaging campaign worked. The United States became known, even more than before, as a place where people could find both freedom from persecution and material opportunity. The American economy has grown [more robust with the addition of foreign workers](#), a trend that shows no sign of changing.

But current immigration law does not, for the most part, acknowledge that many beneficiaries of humanitarian protections also become students and low-wage workers, who are a major portion of the American economy and are consistently in short supply. Because of the demand, [farmers in New York](#) and restaurateurs in Miami poach undocumented workers from one another; without new immigrants, they say, their businesses would tank. Yet the law treats people who migrate for educational or financial gain and those who seek humanitarian protections as if they are separate populations, when that is often not the case. And because the rules generally require that people who apply to migrate for work or school be relatively wealthy, the Central American migrants crossing the border today, who are not, pursue the only legal route available to them—asylum.

“The asylum system isn't the right path for most people, but it's the only path,” a career government official who has served in the past three administrations recently told me.

Many of these migrants are genuinely escaping harrowing circumstances. The Congressional Research Service report found that almost all unaccompanied minors have experienced some form of gang violence, much of which fits the definition of torture. And in recent years, immigration judges have declared that people fleeing attacks based on their gender or sexual orientation should also qualify for asylum status in the United States. Last summer, when I traveled to a working-class suburb of Guatemala City, the deep poverty was immediately evident in the crumbling homes I



## HZS C<sup>2</sup>BRNE DIARY – April 2021

entered, where multiple generations crammed together under only partial, if any, roofing. People I interviewed shared stories of recent murders in their neighborhoods as casually as if we were chatting about the weather.

But continuing to funnel hundreds of thousands of people a year through a broken, backlogged system does not appear to be working. The asylum process creates an incentive for people to exaggerate their stories, which harms the credibility of others', and has resulted in [people who needed protection being sent home to their death](#). The plodding asylum system, and the failure to acknowledge that its recipients are also part of the American economy, is the primary reason facilities along the border are full today, and will continue to get overloaded every time migration has one of its cyclical increases.

The Biden administration has begun to take steps to address this problem for young people by [reintroducing the Central American Minors Program](#), which allows parents who are lawfully present in the United States to petition for their children to join them. But that program, created by President Barack Obama in 2014 and eliminated three years later by President Trump, has resettled only about 5,000 children, slightly more than half of the number who crossed the border just in the last month. Many of the children crossing the border now may not qualify, because they don't have a parent already living in the United States.

The current fixation on whether the Biden administration will refer to what is happening at the border as a "crisis" reflects the general lack of perspective with which migration "surges" are generally treated. Moments at the border like this should by now be considered almost routine, but our collective short-term memory—sometimes exacerbated by media hyperbole—allows elected officials to capitalize on them for their own political gain. This misleading of the public also helps Congress dodge accountability for its role in retaining a system that has been outdated for decades. Every time migration spikes, federal officials must abandon their primary work to [demand billions of dollars in emergency funds, in order to respond to events that were foreseeable](#).

In the past decade, Americans have come to take for granted that Congress is too divided to pass any meaningful legislation—but that forgone conclusion could be revisited. Setting immigration policy is a congressional responsibility. In recent years, when Barack Obama and Donald Trump each attempted to take control of the issue from the legislative branch, they ended up in court, facing state governments accusing them of executive overreach. Such presidential efforts amount to mere stop-gap measures, which inevitably give way and allow the cycle to continue.

## Greater Training on Behavioral Cues Can Help Stop Mass Attacks, Say DHS Officials



By Bridget Johnson

Source: <https://www.hstoday.us/subject-matter-areas/infrastructure-security/greater-training-on-behavioral-cues-can-help-stop-mass-attacks-say-dhs-officials/>

Mar 30 – Acts of violence motivated by ideology or grievances can often be stopped with a multidimensional approach that couples monitoring extremist activity with training on behavioral indicators and counter-narratives, Department of Homeland Security officials told Congress.

John Cohen, tech coordinator for counterterrorism and assistant secretary for counterterrorism and emerging threats at DHS, told the House Appropriations Subcommittee on Homeland Security on Wednesday that while the motives behind this month's spree killings at massage parlors in the Atlanta area and last week's mass shooting at a Boulder, Colo., grocery store are still under investigation, "we do know already that there are striking similarities between both of those incidents and incidents that have been experienced across the country in the past."

"But we often hear from people after these types of incidents that they can't be prevented, they're difficult. I will tell you as somebody who has spent over 35 years in law enforcement and homeland security, that is just simply not true," Cohen said. "These types of attacks can be prevented. There are things that we can do to make them less frequent."

"There are actually examples around the country where targeted attacks directed at schools, houses of worship have been prevented. In some cases, they've been prevented by the actions of a joint terrorism task force or another law enforcement investigation and prosecution, but there are a growing number of incidents that have been prevented... by the actions of mental health professionals, community groups, faith leaders — and it's those types of prevention activities that through the Office for Targeted Violence and Terrorism Prevention we're seeking to expand upon."

Cohen noted that over the past several years "the United States has experienced a number of targeted attacks by angry, disaffected individuals," in some instances motivated by extremist ideologies or ideologies of foreign terrorist organizations and in others motivated by some form of personal grievance.



“In every case, these individuals have spent an inordinate amount of time online — viewing extremist violent materials, engaging with like-minded individuals and ultimately communicating online their intent to commit some type of violent act,” he said. “In many cases, these individuals are inspired by conspiracy theories or extremist narratives that are spread online by a variety of foreign adversaries or domestic thought leaders. These attacks have targeted a cross section of our society, people and facilities have been targeted because of their faith, their race, their gender or ethnicity. They have targeted government facilities, law enforcement, members of Congress... they’ve also targeted simply places where people gather. Addressing this threat is complicated, it requires a multidimensional approach and the department has taken a number of steps to expand our ability, working with the rest of the administration, our state and local partners in the private sector and non-government entities.”

The Office of the Director of National Intelligence, the Department of Justice, and the Department of Homeland Security said in a [joint intelligence assessment](#) this month that the likelihood and potential lethality of domestic extremist attacks are elevated this year, with racially motivated extremists “most likely to conduct mass-casualty attacks against civilians” and militia violent extremists “typically targeting law enforcement and government personnel and facilities.”

Cohen confirmed for lawmakers that “in that total population of those who have committed acts of violence motivated by extremist ideologies over the past several years, the most significant number of those attackers have been motivated by white supremacists, anti-government militia or a combination of both of those extremist ideologies.”

“What’s driving this in large part is two factors: the angry, polarized nature of our society coupled with the fact that social media and other online platforms provide the opportunity for these disaffected angry people to consume and come in contact with a large amount of information that ultimately serves as the source of inspiration for their act of violence,” he said.

John Picarelli, director of the Office for Targeted Violence and Terrorism Prevention at DHS, described how the office focuses on local prevention frameworks “rooted in the public health approach to violence prevention — these frameworks address societal conditions promoting targeted violence and terrorism while offering help to individuals before they commit a crime or violence.”

“Research shows time and again that these individuals often exhibit behavioral indicators that are best understood by those closest to the individual, such as peers, family and friends,” he said.

The Office for Targeted Violence and Terrorism Prevention consists of five teams supporting local prevention frameworks. “The regional prevention coordinators of our field operations team cultivate trusted partnerships among the many local stakeholders that are needed to build multidisciplinary teams that form the backbone of these local prevention frameworks,” Picarelli said.

Teams work alongside colleagues from federal agencies and numerous state and local partners to build frameworks, oversee the Targeted Violence and Terrorism Prevention grant program that invests in local prevention frameworks, offer prevention education, engage national representatives of prevention stakeholders, and draft comprehensive baseline capabilities that outline the recommended and necessary minimum functional requirements for effective local prevention frameworks. The office is also launching a nationwide public outreach campaign later this year designed to provide practical information on how to participate in local prevention efforts.

“My office understands that prevention efforts have the potential to impinge on protected speech or on other civil rights and civil liberties,” Picarelli told lawmakers. “We are now establishing an ongoing community engagement process to further address this topic with the CRCL community and we continue to work closely with the DHS Office for Civil Rights and Civil Liberties to ensure all programs consider the potential impact on such rights and liberties prior to implementation.”

Chairwoman Lucille Roybal-Allard (D-Calif.) asked whether “given the centrality of the Internet for spreading extremist ideology” DHS is “working with social media companies to reduce the amount of radicalizing content.”

“And what do you think they can — the role that they can play — in countering the extremist narrative?” she asked.

Cohen called it “a major part of our efforts... engaging with the tech industry, with academia, with other non-government organizations who are doing an extensive amount of research into narratives, the toxicity of these narratives, how those narratives influence violence.”

“And some of the analysis that we’re looking to be able to do more effectively at the department is to work with those outside entities, understand the narratives that are emerging — whether they are being introduced into the ecosystem by a foreign intelligence service, an international terrorist organization or a domestic extremist group,” he said. “And then assess which of those narratives are most likely to result in violent activity and then the potential targets of that violent activity so we can work with the communities to take steps to mitigate that risk.”

Asked later if extremists or those vulnerable to radicalization are increasingly taking their communications to the dark web, Cohen said yes.

“While there’s a large level of activity that occurs on public-facing sites, and that’s actually an element of the playbook that these extremist thought leaders and terrorist groups and foreign intelligence services use to incite violence by people,” he added. “What we have



found is that as more and more law enforcement activities have focused on scrutinizing that activity, these extremist groups who are engaging in operational planning are moving to encrypted sites in particular and using encrypted applications.”

Picarelli said the Office for Targeted Violence and Terrorism Prevention is about to launch new digital literacy campaign materials, and earlier this year launched a program “to fund a competitive approach among college-aged students at 25 universities and colleges across the country to tap their innovative spirit and have them help us think about new ways we might be able to address this online space.”

“Do you agree that this country has a problem with, or danger, if you will, from private unauthorized militia groups?” Rep. Rosa DeLauro (D-Conn.) asked the DHS officials. Both replied yes.

“Your question actually hits at a core issue because part of the challenge in addressing domestic violent extremism is being able to distinguish between behavior that may be constitutionally protected under free speech and assembly rights and that behavior which is tied to violence to illicit activity,” Cohen said. “And so simply joining a group may not be unconstitutional or illegal. But joining a group that has the intent to commit violent acts is. And what we have to do is make sure that we have the information, the intelligence capabilities, the investigative abilities to be able to distinguish between an individual or group’s actions that may be constitutionally protected speech and when that transition is to illegal or violent behavior.”

“And as it relates to militia groups, that’s exactly the point,” he added, stressing how critical it is that DHS is “providing our analysts the training so they can distinguish between speech that is simply somebody expressing their anger or their disagreement with the government or whether it is a threat-related activity is important.”

“If we had the looking at, the tools and the training, and what we need, should we have a law that prohibits unauthorized private militia groups?” DeLauro asked.

“Any group that engages in illegal activity and violent activity should be a group that is in violation of the law,” Cohen said. “Based on your question specifically, it very much would depend on what the language of the law is.”

“What we are most concerned about are behavioral indicators that we can provide to family and friends of individuals and they understand when someone may be radicalizing to violence,” Picarelli said.

Rep. Ashley Hinson (R-Iowa) asked how DHS is looking at targeting “specifically in rural areas where our law enforcement agencies may not have the major infrastructure in place as some of our major cities.”

“We need our prevention programs to scale just to that infrastructure,” Picarelli said. “So, we are working through our regional prevention coordinators in rural areas to understand and map out how our behavioral health service is provided. How are schools provided? And working within those infrastructures to have prevention overlay... we’re looking at how does this work in Indian country, which is yet another challenge from our perspective in terms of a different jurisdiction, a different sense of sovereignty and so forth.”

*Bridget Johnson is the Managing Editor for Homeland Security Today. A veteran journalist whose news articles and analyses have run in dozens of news outlets across the globe, Bridget first came to Washington to be online editor and a foreign policy writer at The Hill.*

## Eye tracking can reveal an unbelievable amount of information about you

By Loz Blain

Source: <https://newatlas.com/science/science/eye-tracking-privacy/>

Mar 29 – Eye tracking technology is starting to pop up more and more, keeping track of where you're looking and how your pupils and irises are reacting for a variety of different purposes. It doesn't require particularly complex technology; a HD video camera that can watch your face is enough to collect the data.

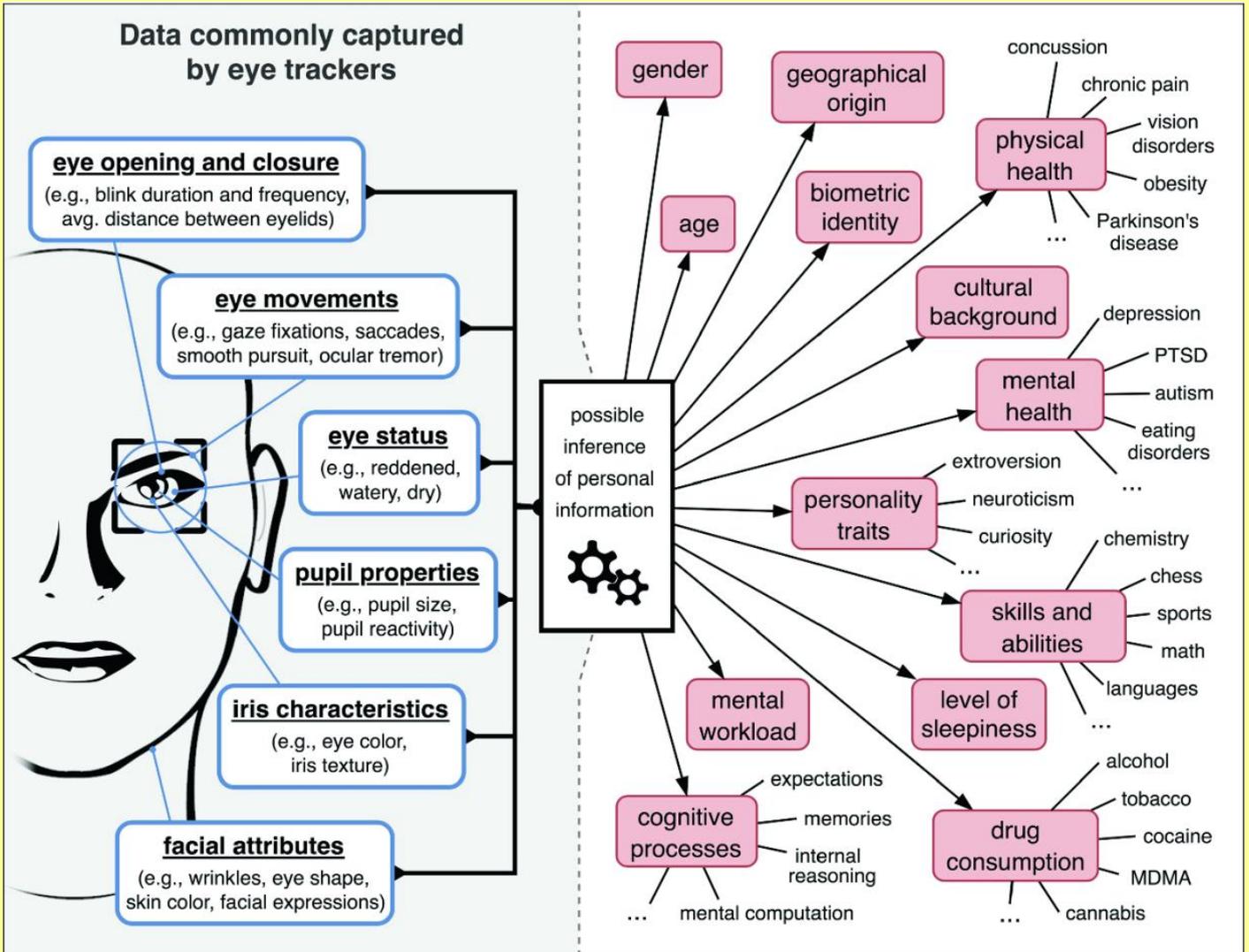
But according to a 2020 research review, this data can divulge an extraordinary amount of information about you when it's crunched through advanced data analysis systems. "Our analysis of the literature," reads the [paper's abstract](#), "shows that eye tracking data may implicitly contain information about a user's biometric identity, gender, age, ethnicity, body weight, personality traits, drug consumption habits, emotional state, skills and abilities, fears, interests, and sexual preferences."

That's not all; "Certain eye tracking measures," says the review, "may even reveal specific cognitive processes and can be used to diagnose various physical and mental health conditions." According to [Grandview Research](#), "the analyzed data is used to study a myriad of psychiatric and neurological conditions, such as autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD), Parkinson's, Alzheimer's, and Schizophrenia, among others."



What exactly are they looking at? Yes, eye tracking systems can see which way your eyes are pointing to infer what you're looking at, but that's far from the end of the story. They can also track the length of fixations, rapid eye motions between fixations, smooth pursuit movements and things like the acceleration and maximum speed of your eye movements.

They can analyze your eyelids, watching how far open your eyes are, how often you're blinking and how long your eyes are staying shut when you do. They can take note of redness and see how watery or dry your eyes are through reflections. They can measure the dilation of your pupils – famously an indication of sexual interest or arousal, but also linked to drug use, fear and certain types of brain damage. They can note your eye color and iris texture.



Eye tracking devices can see much more than just what you're choosing to look at, and infer a huge amount of sensitive information  
Jacob Leon Kröger, Otto Hans-Martin Lutz, Florian Müller

They can also note your facial expressions, eyebrow movements, number and depth of wrinkles around your eyes, your eye shape and skin color. There's a reason why the eyes are spoken of as "the windows of the soul" – they can tell us a ton about the person we're interacting with, and through evolution and pattern recognition, we each learn to glean a huge amount of information about people through their eyes.

Biometric identity can be established using a combination of things. The colors and patterns in your irises, for starters, can be used almost like a fingerprint. But so can your pupil reactivity, your gaze velocity and the trajectories your eyes take when following a moving object; mechanical and brain function differences make these things unique to you.



Then there's mental workload – an area in which eye tracking sometimes performs better than an EEG. Pupil dilation can be used as a measure of task difficulty and mental effort. Your blink rate correlates with dopamine levels, signifying learning and goal-directed behavior.

Some of this stuff might be apparent to a human viewer; we can tell when somebody's thinking, or accessing memories, or getting imaginative by watching the eye movements of others. But a lot of it involves the strangely opaque world of AI and deep learning.

The way our eyes move in everyday life turns out to be a surprisingly strong predictor of our personalities when crunched through these pattern-finding machine learning algorithms. [One fascinating study](#) found it could reliably predict what range a subject would score in on four out of the "big five" personality traits (neuroticism, extraversion, agreeableness, conscientiousness), as well as curiosity. Others have been able to identify your phobias, specific mating preferences, interests and areas of expertise.

Emotional data from the eyes is very detailed, moving far beyond just positive, neutral and negative into specifics like happiness, enthusiasm, stress, worry, humorous moods, disgust, curiosity, distress, nervousness, hostility, fear, anger, sadness and surprise. Emotional intensity can be measured, and interestingly, researchers have demonstrated that they can distinguish between instinctive emotional reactions and rational ones.

The list goes on and on, but you get the picture: under the right set of circumstances, any device that can watch your eyes carefully can learn a disconcerting amount of information about you – and while you can deliberately choose where you look, to an extent, there's other things you can't help giving away.

To mitigate these concerns, the researchers point out that many ocular cues can have confusing or contradictory meanings, and lot of the public research to date has been done in a lab, where it's cheap and well controlled, rather than in the chaos of the real world. On the other hand, this review covers only the publicly available research; "it may reasonably be assumed," write the study's authors, "that some of the companies with access to eye tracking data from consumer devices (e.g., device manufacturers, ecosystem providers) possess larger sets of training data, more technical expertise, and more financial resources than the researchers cited in this paper. Facebook, for example, a pioneer in virtual reality and eye tracking technology, is also one of the wealthiest and most profitable companies in the world with a multi-billion dollar budget for research and development and a user base of over 2.3 billion people."

The benefits of this kind of technology are clear, particularly when paired with virtual reality or augmented reality technology; devices and apps can become extremely personalized and responsive to your current state and interests. The tech offers extraordinary opportunities for marketers to target you, not only with the right products, but with the right approaches, messengers and timing to make you optimally receptive.

And of course, with so much real-time feedback coming in, the chances to surveil, manipulate and coerce you will be higher than ever. The privacy implications will be significantly worse than the world (or a prospective employer, or a prospective insurer) seeing your internet history.

In order to preserve the benefits while minimizing the risks, the researchers suggest measures like keeping raw data only for temporary use on the device itself, and only passing it on to app and device manufacturers in aggregated, pre-crunched forms or with random statistical noise added to "fuzz" the data.

But since this stuff fits into a broader picture, where we can be compromised by advanced analysis on all manner of data streams being collected on us 24/7, governments will need to get ahead of the curve on privacy. "Since it is unlikely," say the authors, "that companies will voluntarily refrain from using or selling personal information that can be extracted from already collected data, there should be strong regulatory incentives and controls."

It's certainly food for thought, particularly as we move toward the magical convenience of [nerve-tracking augmented reality](#) and Facebook pushes forward in developing [hyper-realistic VR avatars](#) that allow people to express themselves with ever-fuller ranges of facial and body language cues.

## **Pandemic: Developing Employee Loyalty in the Hope that Tourism Will Soon Return to Normal**

By Peter Tarlow

One of the things that the tourism and travel industry learned from the Covid-10 Pandemic is that the importance of good and loyal employees. Everyone seems to want loyal employees, yet few tourism businesses seem to know how to win this loyalty. In fact, tourism is known for high employee turnover, low pay, and often capricious management. It is a mistake to overlook the fact that employee-employer relations often impact the tourism



experience and may become a major form of positive or negative marketing. In fact good management inspires loyalty and often results in the type of customer service that produces repeat (loyal) customers. To help you create this employee loyalty Tourism Tidbits offers you some suggestions as to ways to increase your employees' loyalty and provide a better customer service experience.

- ❖ In an industry, such as tourism, where people plan on staying a few years, the employee experience is almost or as important as the customer experience. Some of the principal reasons that tourism employees often complain about their jobs are lack of clearly defined goals, lack of challenging work and lack of fair compensation. These are three areas in which tourism management has to ask itself profound questions. Employees cannot do their job if the job description changes daily. In a like manner dead-end positions without any chance for advancement tend to lead to a refusal to do one's job well. In a dynamic business such as tourism treat your employees as if they were your guests.
- ❖ Make sure that employees know that you are part of a single team. Often tourism management has been accused (and sometimes fairly) in compensating itself first and only worrying about employees afterward. Good employers understand that salary increases are much more important to those at the bottom of the ladder than to those at the top. Make sure that you lead your employees by example and not merely through words.
- ❖ Set out what you expect from your employees. Do not assume anything. Employers have a right to expect that propriety information stays private, that personal issues should not impact job performance, and that employees will listen before acting. Employers also have not only a right but also a duty to stop idle gossiping at a job, to enforce laws protecting other employees from a hostile workplace and issues of sexual, ethnic, and religious discrimination.
- ❖ Help employees to understand what type of customer service you want them to provide by treating them as customers. Tourists tend to define good customer service as providing reliability, responsiveness and value for time (money). Think how you can translate these basic ideals into the workplace environment. How reliable are you, do you fulfill promises or simply utter them? Are you responsive to special needs or merely quote company regulations, and do your employees enjoy (receive value) from their jobs or are they merely putting in time so as to receive a paycheck?
- ❖ Employees work best when they are rewarded for a job well done. Positive strokes often accomplish a great deal more than negativity. Be specific when complimenting your employees and remember that small rewards given frequently often do more than one big reward given only once or twice a year.
- ❖ The number one tourism complaint is that visitors feel they are not treated as individuals. How often have tourism managers reminded staff to treat each person as an individual? The best customer service training that you can give your employees is to treat them in the way that you want them to treat your guests. Show empathy to employees and react when a crisis occurs. When speaking to employees use their names and let them know that they are an important part of the business' structure.
- ❖ When loyalty is lost work at regaining it. That means that do not be afraid to apologize when you make a mistake and focus on fixing a problem rather than assigning blame for the problem. If possible, do something extra for the hurt employee as a demonstration of contrition.
- ❖ Recognize that most people have trouble with change. While most employees will criticize management for its refusal to change, most people are fearful of change. Often the first thought that goes through our minds is "what will I/we lose due to this change?" Remember that a loss may not be monetary but may also be loss of prestige or loss of respect. Remember that when introducing change there are limits to how much change an individual or group can accept. Lastly unless there is a reason to maintain the change, most people will revert back to the old ways, even when they say that they prefer the new.
- ❖ Remember that without a sense of personal loyalty to the group and to the person implementing the change your employees may not have the needed desire to "risk" the change. Often, we can overcome a lack of personal loyalty by diagnosing a problem and then offering a solution. For example, if your employees do not know what to do or why they are doing it, provide them with an overall picture of the value of the change given at the employees' level. If on the other hand employees are demonstrating that they simply do not know what to do, then provide additional training or education.
- ❖ You do need to be understanding or a personal problem, but employers are not psychologists and do not need to become psychologists. Each employer needs to set standards as to how many personal problems are acceptable in the workplace environment. In a service industry such as tourism, customers have a right to expect a smile, friendliness and good customer service no matter what the employee's personal problems may be. Set standards and then enforce these standards as fairly as possible.
- ❖ Learn to read body language. When speaking with an employee be aware of his or her body language. For example, if your employee is turning his/her head away from you are they telling you that they disagree with you or your policy and no matter what do not plan on implementing it? If the person turns his/her shoulders away, are you losing his/her



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attention and need to regain it by asking personal questions? Note that folded arms may indicate that your employee does not believe you and that wandering eyes may indicate a loss of interest in what you are saying.

*Dr. Peter E. Tarlow is the President of T&M, a founder of the Texas chapter of TTRA and a popular author and speaker on tourism. Tarlow is a specialist in the areas of sociology of tourism, economic development, tourism safety and security. Tarlow speaks at governors' and state conferences on tourism and conducts seminars throughout the world and for numerous agencies and universities. Peter is also member of the Editorial Team of C<sup>2</sup>BRNE Diary.*

### Yemen 2021 – Really?

**Are we sure that we all live in the same planet the same date?**



4 years old ...

### Food waste: Amount thrown away totals 900 million tonnes

By Victoria Gill (Science correspondent, BBC News)

Source: <https://www.bbc.com/news/science-environment-56271385>

Mar 04 – **More than 900 million tonnes of food is thrown away every year, according to a global report.**

The [UN Environment Programme](#)'s Food Waste Index revealed that 17% of the food available to consumers - in shops, households and restaurants - goes directly into the bin.

Some 60% of that waste is in the home.

The lockdown appears to have had a surprising impact - at least in the UK - by reducing domestic food waste.



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Sustainability charity [Wrap](#), the UN's partner organisation on this report, says people have been planning their shopping and their meals more carefully.

And in an effort to build on that, well-known chefs have been enlisted to inspire less wasteful kitchen habits.

### '23 million trucks of food'

The report has highlighted a global problem that is "much bigger than previously estimated," Richard Swannell from Wrap told BBC News.

"The 923 million tonnes of food being wasted each year would fill 23 million 40-tonne trucks. Bumper-to-bumper, enough to circle the Earth seven times."

It is an issue previously considered to be a problem almost exclusive to richer countries - with consumers simply buying more than they could eat - but this research found "substantial" food waste "everywhere it looked".

There are gaps in the findings that could reveal how the scale of the problem varies in low- and high-income countries. The report, for example, could not distinguish between "involuntary" and "voluntary" waste.

"We haven't looked deeper [at this issue] but in low-income countries, the cold chain is not fully assured because of lack of access to energy," Martina Otto from Unep told BBC News.

The data to distinguish between the waste of edible food and inedible parts - like bones and shells - was only available for high-income countries. Lower-income countries, Ms Otto pointed out, were likely to be wasting much less edible food.

But the end result, she said, was that the world was "just throwing away all the resources used to make that food".

Ahead of major global climate and biodiversity summits later this year, Unep executive director Inger Andersen is pushing for countries to commit to combatting waste - halving it by 2030.

"If we want to get serious about tackling climate change, nature and biodiversity loss, and pollution and waste, businesses, governments and citizens around the world have to do their part to reduce food waste," she said.

Richard Swannell pointed out: "Wasted food is responsible for 8-10% of greenhouse gas emissions, so if food waste was a country, it would be the third-biggest emitter of greenhouse gases on the planet."

### Tips to reduce food waste:

- Plan your portions and buy the right amount: a mug should hold the right amount of uncooked rice for four adults, and you can measure a single portion of spaghetti using a 1p or £1 coin;
- Cool your fridge down: the average UK fridge temperature is almost 7°C. It should be lower than 5°C;
- Understand date labels: a "use by" date is about food safety. If the use by date has passed, you **should not** eat or serve it, even if it looks and smells okay. If something is getting close to the use by date, you can freeze it. A "best before" date is about quality.

In the UK, the average household could save £700 per year, according to Wrap research, by buying only the food they ate.

### The lockdown effect

Where food waste is voluntary, the Covid-19 lockdown appears to have had the surprising effect of revealing precisely how it can be remedied.

According to research by Wrap, planning, careful storage and batch-cooking during the lockdown reduced people's reported levels of food waste by 22% compared with 2019.



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"Being confined to our homes has resulted in an increase in behaviours such as batch cooking and meal planning," the charity said. "But the latest insights suggest that food waste levels are likely to rise again as we emerge from lockdown."

In an effort to avoid that, well-known cooks and chefs have lent their names and social media profiles to the campaign against kitchen waste.

British TV cook Nadiya Hussain is working with Wrap and offering tips and leftovers recipes via Instagram. And Italian restaurateur Massimo Bottura, chef patron of Modena eatery Osteria Francescana, which has three Michelin stars, has been appointed Unep goodwill ambassador "in the fight against food waste and loss".

Throughout the lockdown in Italy, his family produced an online cooking show called Kitchen Quarantine, encouraging people to "see the invisible potential" in every ingredient.

media captionWhat's causing Britain's food waste?

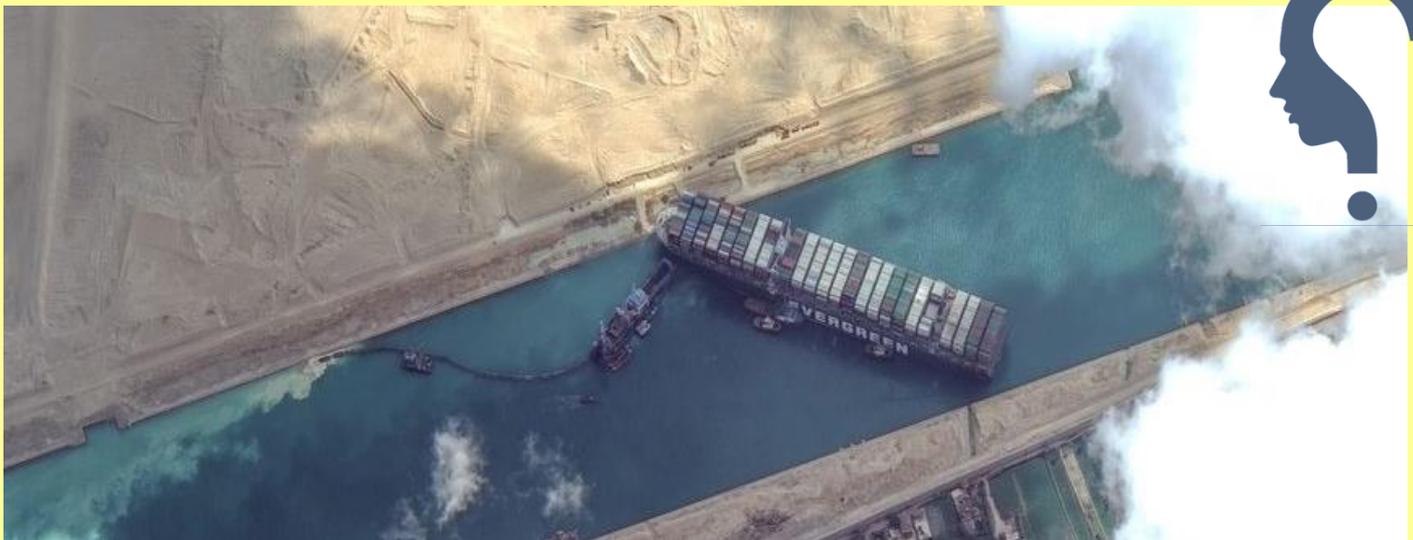
While millions of tonnes of food was thrown away, an estimated 690 million people were affected by hunger in 2019. That number is expected to rise sharply in the wake of the pandemic.

Ms Andersen pointed out that tackling waste "would cut greenhouse gas emissions, slow the destruction of nature through land conversion and pollution, enhance the availability of food and thus reduce hunger and save money at a time of global recession".

## Did US Navy SEALs Rescue Trafficked Children from Ever Given Ship?

A website with a history of publishing dubious content advanced a conspiracy theory about the formerly stuck Suez Canal ship.

Source: <https://www.snopes.com/fact-check/trafficked-children-suez-ship/>



Apr 03 – In early April 2021, a [seemingly endless number of social media users](#) copied and pasted a purported breaking news story about the ship that was famously stuck for days in the Suez Canal. Most of the posts began with the same sentence: "Over a thousand trafficked children and dead bodies have been rescued out of shipping containers in the Suez Canal by US Navy SEALs." The story referenced the Evergreen cargo ship Ever Given, which [became stuck](#) in the Suez Canal in March and caused a major maritime traffic jam that took days to [clear](#) after the ship was freed.

The source of the text appeared to be Before It's News, a dubious website that has consistently published content not rooted in facts. For example, the unreliable website once [falsely claimed](#) Pope Francis had been found guilty of child trafficking and murder.

Regarding the Ever Given ship and the purported U.S. Navy SEALs rescue, the [full story](#) on Before It's News bore the headline: "Trafficked Children, Bodies, Weapons Found on Evergreen Ship Blocking Suez Canal." In addition to being posted on Facebook, the misleading content was also shared on TikTok.

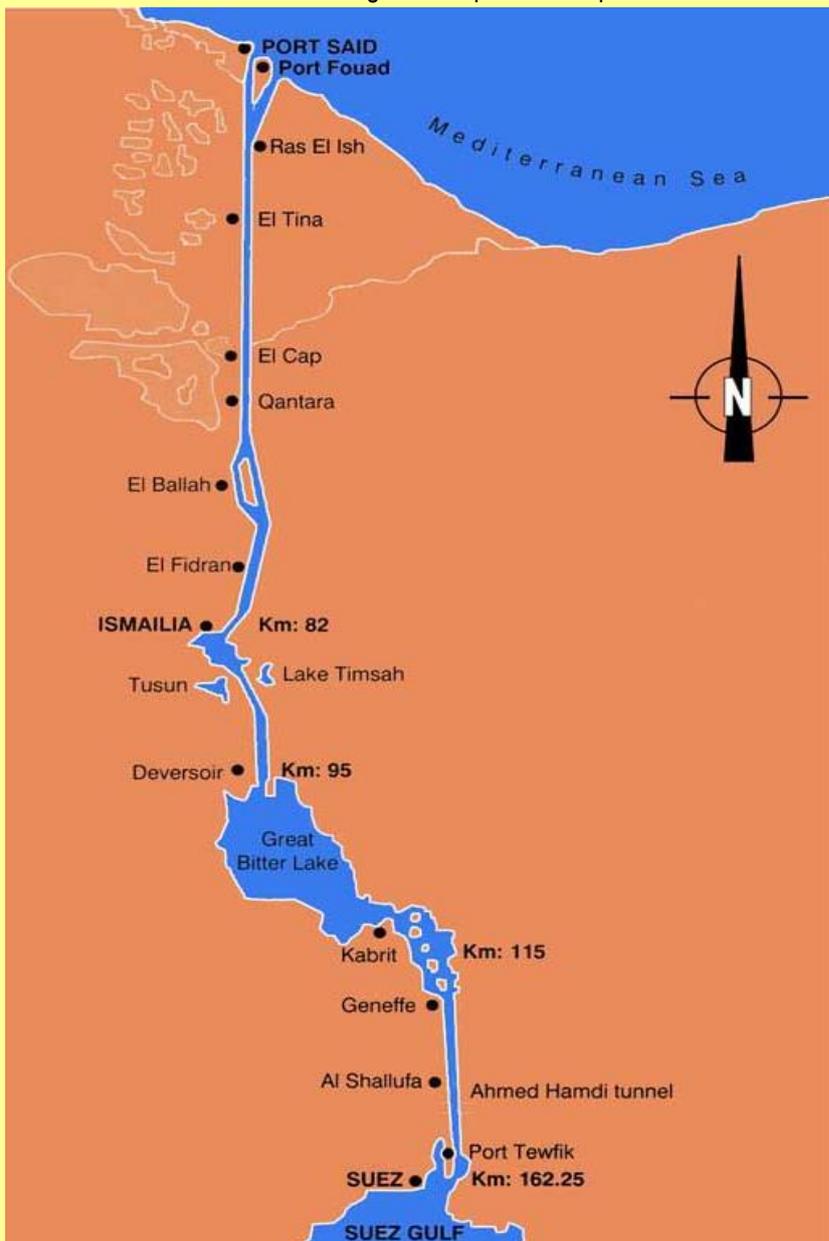
**The introduction of the article read as follows:**

Over a thousand trafficked children and dead bodies have been rescued out of shipping containers in the Suez Canal by US Navy SEALs. Sources say that as of this writing, children were still being rescued and bodies discovered in Evergreen's 18,000+ containers. The



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containers were on an Evergreen Corporation ship that blocked the Canal from Tues. 23 March to Mon 29 March, causing billions in lost revenue to shipping companies internationally.



The Seals also found Weapons of Mass Destruction on the six story high vessel – which were believed destined to start a war in the Middle East.

Finally by Tues. the Evergreen cargo ship was loosened and taken to Bitter Lake in Egypt. By order of the Egyptian President, the containers were taken off the ship and searched by US Navy Seals.

The Japanese-owned, Taiwanese-operated ship of Evergreen Corporation was actually co-owned by Walmart and the Clinton Foundation – known for it's international child trafficking ring. The children were said ordered out of magazines like Wayfair by pedophiles who paid big bucks for certain abused children.

The rest of the article mentioned “weapons of mass destruction” and included a purported “telegram” that read: “Ever Given has been boarded by the US Navy Seals and they have opened several cargo containers with live and dead inside. The vessel is in Bitter Lake and the Navy is performing unloading procedures. No images will be leaked, but I have been sent one.”

**The entire story was false.**

One Facebook user who shared the baseless article [posted](#): “YOU CAN’T MAKE THIS STUFF UP!!” That was also false.

Not one credible news publisher across the world reported anything similar. If such a story had any basis in fact, it is unlikely that coverage of the massive breaking news event would be limited to a single obscure website that had a history of publishing false and misleading content.

The mention of the Clinton Foundation in the story might remind readers of a somewhat similar, [debunked](#) claim involving former U.S. Secretary of State Hillary Clinton and the Ever Given cargo ship.

The baseless trafficking claims were also similar to those [covered in July 2020](#) when misleading social media posts were shared about the Wayfair online shopping website.

In sum, no credible news publisher or government entity reported that U.S. Navy SEALs rescued trafficked children and found dead bodies on Evergreen’s Ever Given cargo ship. For that reason, we have rated this story as **“False.”**

**EDITOR’S COMMENT:** In Greece we say “there is no smoke without a fire!” Although it looks like a usual fake story with conspiracy elements, it is not impossible to be true given the fact that this mega vessel was carrying hundreds of containers that could hide illegal cargo as well. Of course, we will never know the truth but it is a good idea to implement security sample inspections because the next vessel might carry a container with bad stuff. In addition, I was always wondering how strong is the ground defense on both sides of the canal and its ability to counter a malicious scenario similar to that of the Ever Given cargo ship (especially in the choking points of the canal).



## World First – External 3D-Printed Part Installed in Combat Aircraft

Source: <https://i-hls.com/archives/107868>

Apr 02 – A new production process of aircraft parts reduces the operational time lost in repairs and means that other jets do not have to be cannibalized for parts.

Swedish aerospace and defense company Saab has trialed battle damage repair of its Gripen combat aircraft using 3D-printed parts. As noted by the company, the purpose of the trial was to test how additive manufacturing could be used in battlefield damage repair.



A 3D-printed panel hatch was created and fitted to a Gripen D testbed, with a 30-minute test then flown over Saab's Linköping facility in southern Sweden. While 3D-printed parts have been flown internally, and included in the Gripen E, this test marked the first flight of an external section of the aircraft.

"A Gripen was fitted with a hatch that had been 3D printed using additive manufacturing, using a nylon polymer called PA2200. The spare part passed the test with flying colors," Saab said in a statement. As there was no 3D computer model of the hatch, the original was first removed from the aircraft and scanned.

"This work is a step towards 3D-printed spares being used for rapid repairs to fighter aircraft that



have sustained damage while deployed on remote operations, thereby gaining a vital time-saving advantage,” the company said. The next step is to look at alternative materials to PA2200, ones that are also flexible and can withstand the cold at high altitudes. The team will also progress a container solution so that printing equipment can be taken on deployments, according to defence-blog.com.

## The Gender Gap in Religion Around the World

Source: <https://www.pewforum.org/2016/03/22/the-gender-gap-in-religion-around-the-world/>

Mar 22 – Women are generally more religious than men, particularly among Christians

Standard lists of history’s most influential religious leaders – among them Abraham, Moses, Jesus, Muhammad, Siddhartha Gautama (the Buddha) – tend to be predominantly, if not exclusively, male. Many religious groups, including Roman Catholics and Orthodox Jews, [allow only men to be clergy](#), while others, including some denominations in the evangelical Protestant tradition, have lifted that restriction only in recent decades. Yet it often appears that the ranks of the faithful are dominated by women.

In the United States, for example, [women are more likely than men to say religion is “very important” in their lives \(60% vs. 47%\)](#), according to [a 2014 Pew Research Center survey](#). American women also are more likely than American men to say they pray daily (64% vs. 47%) and attend religious services at least once a week (40% vs. 32%).<sup>1</sup> According to media accounts, women so outnumber men in the pews of many U.S. churches that [some clergy have changed decor, music and worship styles](#) to try to bring [more men](#) into their congregations.

### Among Christians, women are more religious than men on all measures; gender gaps among Muslims are less consistent

Average percentage-point difference between men and women on measures of religious practice, commitment and belief

CHRISTIANS	Women	Men	% pt. difference	
			Men <	> Women
Weekly attendance	53%	46%		+7
Daily prayer	61	51		+10
Importance of religion	68	61		+7
Belief in heaven	91	89		+2
Belief in hell	78	76		+1
Belief in angels	88	84		+3
MUSLIMS	Women	Men	Men <	> Women
Weekly attendance	42%	70%	-28	
Daily prayer	72	71	+2	
Importance of religion	76	76	0	
Belief in heaven	94	93	0	
Belief in hell	88	88	0	
Belief in angels	86	85	+1	

Note: Values in difference column are calculated based on unrounded numbers.

Source: Pew Research Center surveys, 2008-2015

PEW RESEARCH CENTER

Noting similar gender differences in other countries, mainly in Europe, some social scientists have argued that women are universally more religious than men across all societies, cultures and faiths.<sup>2</sup> More controversially, a few sociologists have theorized that the gender gap in religion is biological in nature, possibly stemming from higher levels of testosterone in men or other physical and genetic differences between the sexes.<sup>3</sup>



How and why men and women differ in religious commitment has been a topic of scholarly debate for decades. Even today, it continues to inspire much academic research, as well as discussions among the general public. To contribute to this ongoing conversation, Pew Research Center has amassed extensive data on gender and religion in six different faith groups (Christians, Muslims, Buddhists, Hindus, Jews and the religiously unaffiliated) across scores of countries, including many with non-Christian majorities. Data on affiliation in 192 countries were collected from censuses, demographic surveys and general population surveys as part of the Center's multiyear study projecting the size and geographic distribution of the world's major religious groups from 2010 to 2050. <sup>4</sup> Data on religious beliefs and practices come from international Pew Research Center surveys of the general population in 84 countries conducted between 2008 and 2015. <sup>5</sup>

Based on these wide-ranging and comprehensive datasets, this study finds that, [globally, women are more devout than men by several standard measures of religious commitment](#). But the study also reveals a more complex relationship between religion and gender than has been commonly assumed. While women generally are more religious, men display higher levels of religious commitment in some countries and religious groups. And in other contexts, there are few, if any, discernable gender differences in religion. <sup>6</sup>

On all the standard measures of religious commitment examined in the study, Christian women are more religious than Christian men. By contrast, Muslim women and Muslim men show similar levels of religiousness on all measures of religious commitment except frequency of attendance at worship services. Because of religious norms, Muslim men attend services at a mosque much more often than Muslim women do.

►► [Read the rest of the article at source's URL.](#)

## Why You Should Expect More Suez-Like Supply Chain Disruptions and Shortages at Your Local Grocery Store

By **Nada R. Sanders**

Source: <http://www.homelandsecuritynewswire.com/dr20210408-why-you-should-expect-more-suezlike-supply-chain-disruptions-and-shortages-at-your-local-grocery-store>

Apr 08 – When the Ever Given container ship [choked off traffic](#) in the Suez Canal for almost a week in late March 2021, it [made big headlines around the world](#).

The price of oil rose, and companies fretted as hundreds of ships carrying everything from coffee and cattle to toys and furniture were delayed. Experts estimated that every hour traffic remained stuck [cost the global economy over US\\$400 million in lost trade](#).

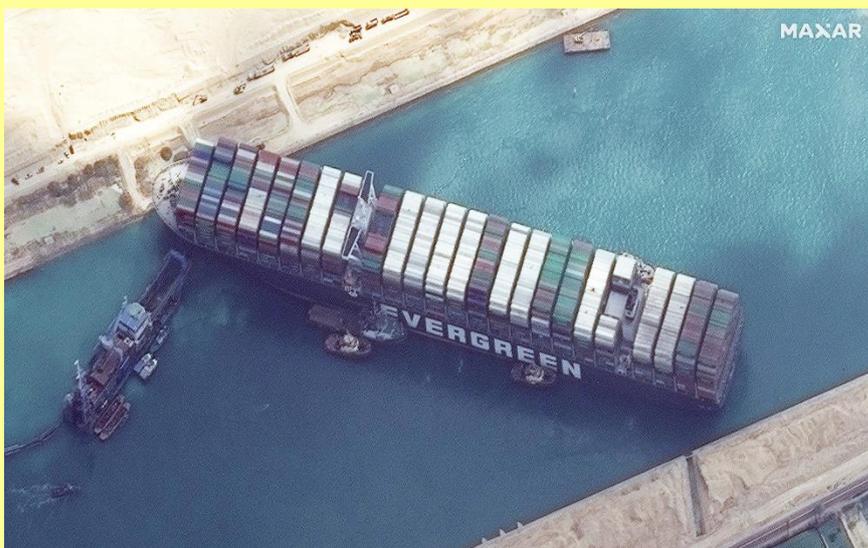
**Yet many people I spoke with, including students and professional colleagues, didn't seem to have a clue about what was happening, why it mattered or how it affects them.**

As a [supply chain expert](#), I was truly surprised. If nothing else, the COVID-19 pandemic should have made it abundantly clear [how easily a disruption in the supply chain](#) or a sudden increase in demand for a product can lead to empty grocery store shelves and other problems that might directly affect you.

Without a change of course, I expect this problem to only get worse.

### Supply Chain Strains

The pandemic revealed that even simple supply chains, such as that of toilet paper and [hand sanitizer](#), can easily break in the face of disruptions. The same was true with [food, personal protective equipment, pharmaceuticals](#) and ordinary household items, which all suffered from severe shortages that [lasted for months into the pandemic](#).



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Pandemic-strained supply chains are now [creating a global shortage](#) of semiconductors, a component used in a [wide variety of consumer goods](#), from Samsung smartphones and Apple laptops to Ford Explorers and Sony PlayStations. Virtually every piece of electronics needs a chip, and the supply chain is much more complex than for toilet paper.

The [Suez Canal blockage](#) that began on March 23, 2021, and lasted six days exacerbated these already stressed supply chains. Even though traffic is now running smoothly through the canal, the jam is still [causing massive ripple effects](#) and delivery delays – even toilet paper [could once again be in short supply](#).

It [may take up to 60 days](#) for the supply chain system to reset itself to where it is functioning close to normal.

That means consumers will continue to feel the impact of these problems for months to come as well.

### Lean and Mean

The fundamental problem behind each of these disruptions is simply the inability of modern supply chains to adjust when something goes wrong, even briefly.

A big problem early in the pandemic, for example, was simply a [lack of flexibility](#). While consumers were having trouble tracking down toilet paper because of panic buying and hoarding, [there were plenty of rolls](#) sitting in warehouses but intended for offices and restaurants. Companies had trouble diverting the toilet paper to the retailers, which kept only a very lean inventory of the product.

Supply chains for this and most every other product have been increasingly designed [to be as lean as possible in terms of cost and efficiency](#), rather than resiliency. As customers demand ever cheaper products delivered faster, supply chains have given up every bit of slack. As a result, a disruption of any magnitude [creates significant consequences](#) through product shortages and rising prices. It's easy to think of a [supply chain like it's a linear conveyor belt](#), as disparate parts turn into a product that is then shipped around the world to your door. But it is more like a massive intertwined highway system.

Consider the path and [massive disruption caused by shortages](#) of a simple chip, known as a display driver. Its only purpose is to convey instructions for illuminating a digital screen like the one on your phone, laptop monitor or navigation system in your car. There is a huge shortage of the chips – caused by supply problems and soaring demand. And this in turn has triggered a shortage of liquid crystal display panels, as well as a jump in prices, [forcing automakers, airplane manufacturers and refrigerator makers](#) to all scale back production. All because of a shortage of a \$1 chip, in part triggered by minor disasters like the [recent winter storm in Texas](#) and a fire in Japan.

And a problem like the Suez Canal traffic jam is even worse because it represents an intersection – and bottleneck – for so many supply chains, including oil, parts and finished products. As cargo is shipped, there is a complicated choreography of vessels, ports, distribution centers and other modes of transport.

### A Little More Slack

The obvious solution is to add resiliency or slack into supply chains – to expect the unexpected. This would require moving away from [aggressive “lean systems”](#) that have virtually no excess inventory.

It doesn't have to be terribly costly. As [my own research shows](#), companies need only selectively add extra inventory, suppliers and capacity for certain critical items or at key chokepoints, such as for products identified as being in short supply, where there are few suppliers or where lead times are extra long.

For example, coffee roasters generally [do not have inventory to handle a two- or three-week delay](#). Delays in shipping raw beans from Brazil and the Ivory Coast to Europe due to the Suez blockage mean consumers [will likely soon experience](#) the impact of a lack of coffee availability in stores and cafés.

This is not a recommendation to stock huge amounts of inventory. Rather, it is to say that there are advantages to being highly strategic – almost surgical – to ensure that the greatest resiliency can be achieved with only a small amount of additional slack.

Otherwise, the trends that led supply chains to become so lean and efficient will likely continue, leading to more and bigger disruptions for the global economy and more shortages and higher prices for consumers like you.

*Nada R. Sanders is Distinguished Professor of Supply Chain Management, Northeastern University.*

**EDITOR'S COMMENT (on the text in red):** It is not strange that people have no idea about the Ever Given incident. In general, despite the global spread of the Internet, American are less aware about what is happening in the world and sometimes in a State next to their own. I visited California for the first time in 1978 just after the big 6.5R earthquake in Thessaloniki (second biggest city in Greece) that was the epicenter of breaking news all over the world due to collapse of high buildings,



deaths etc. People I met in California had no idea about this plus a difficulty to locate Greece on the map. What a surprise for me at a very young age! I see now that few things have changed in 2021.

## Intelligence forecast sees a **post-coronavirus world** upended by climate change and splintering societies

By Shane Harris

Source: [https://www.washingtonpost.com/national-security/intelligence-globe-future-crises-/2021/04/08/303c350e-97df-11eb-962b-78c1d8228819\\_story.html](https://www.washingtonpost.com/national-security/intelligence-globe-future-crises-/2021/04/08/303c350e-97df-11eb-962b-78c1d8228819_story.html)

Apr 08 – U.S. intelligence officials have little comfort to offer a pandemic-weary planet about where the world is heading in the next 20 years. Short answer: It looks pretty bleak.

On Thursday, the National Intelligence Council, a center in the Office of the Director of National Intelligence that creates strategic forecasts and estimates, often based on material gathered by U.S. spy agencies, released its quadrennial [“Global Trends” report](#).

Looking over the time horizon, it finds a world unsettled by the [coronavirus](#) pandemic, the ravages of climate change — which will propel mass migration — and a widening gap between what people demand from their leaders and what they can actually deliver.

The intelligence community has long [warned](#) policymakers and the public that pandemic disease could profoundly reshape global politics and U.S. national security. The authors of the report, which does not represent official U.S. policy, describe the pandemic as a preview of crises to come. It has been a globally destabilizing event — the council called it “the most significant, singular global disruption since World War II — that “has reminded the world of its fragility” and “shaken long-held assumptions” about how well governments and institutions could respond to a catastrophe.

At the same time, the pandemic accelerated and exacerbated social and economic [fissures](#) that had already [emerged](#). And it underscored the risks from “more and cascading global challenges, ranging from disease to climate change to the disruptions from new technologies and financial crises,” the authors write.

In language that will resonate with just about anyone who has tread water in the past year, the authors write of a “looming disequilibrium between existing and future challenges and the ability of institutions and systems to respond.”

Within societies, fragmentation is increasing — political, cultural, economic — and “large segments of the global population are becoming wary of institutions and governments that they see as unwilling or unable to address their needs,” the report says.

The effects of the pandemic will linger, and could shape future generations’ expectations of their governments, particularly as a warming world leads to new human conflicts, including, in the most dire scenario, global food shortages that spawn mass violence.

Global power was contested long before the pandemic, and those trends haven’t abated.

The report sees the international stage as largely being shaped by a rivalry between China and the United States, along with its allies. No single state is poised to become the dominant global force, the authors write. And competing powers will jockey for position, leading to “a more conflict-prone and volatile geopolitical environment.”

Technology, with all its potential to boost economies and enhance communication, also may aggravate political tension — as it already has.

People “are likely to gravitate to information silos of people who share similar views, reinforcing beliefs and understanding of the truth,” the report concludes.

Prediction is an inherently risky business, and intelligence practitioners are quick to emphasize that they can’t see the future. But the National Intelligence Council imagines five scenarios on a kind of sliding scale that may help tell us where the world is turning as we approach 2040.

On the rosier end, a “Renaissance of democracies” ushers in a new era of U.S. global leadership, in which economic growth and technological achievements offer solutions to the world’s biggest problems and Russia and China are largely left in the dust, authoritarian vestiges whose brightest scientists and entrepreneurs have fled to the United States and Europe.

At the dark end of the future is “tragedy and mobilization,” when the United States is no longer the dominant player, and a global environmental catastrophe prompts food shortages and a “bottom-up” revolution, with younger people, scarred by their leaders’ failures during the coronavirus pandemic, embracing policies to repair the climate and tackle long-standing social inequality. In this scenario, a European Union dominated by green parties works with the United Nations to expand international aid and focus on sustainability, and China joins the effort in part to quell domestic unrest in its cities affected by famine.

In between those extremes, the report imagines three other possibilities: China becomes a leading state but not globally dominant; the United States and China prosper and compete



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as the two major powers; and globalization fails to create a single source of influence, and the world more or less devolves into competing blocs, preoccupied with threats to their prosperity and security.

The present has a lot of say over the future. And there, the authors find reason for alarm.

“The international system — including the organizations, alliances, rules, and norms — is poorly set up to address the compounding global challenges facing populations,” the authors write.

But the pandemic may offer lessons on how not to repeat recent history. The authors note that although European countries restricted travel and exports of medical supplies early in the crisis, the European Union has now rallied around an economic rescue package. That “could bolster the European integration projecting going forward.”

“Covid-19 could also lead to redirection of national budgets toward pandemic response and economic recovery,” they add, “diverting funds from defense expenditures, foreign aid, and infrastructure programs in some countries, at least in the near term.”

But overall, the pandemic leaves the authors with more questions than answers — and humbled.

“As researchers and analysts, we must be ever vigilant, asking better questions, frequently challenging our assumptions, checking our biases, and looking for weak signals of change,” they write.

Their work is not all doomsaying. The forces shaping the world “are not fixed in perpetuity,” the authors say. Countries that exploit technology and planning, particularly those that plan ahead for the seemingly inevitable consequences of [climate change](#), will be poised to best manage the crisis. And countries that harness artificial intelligence could boost productivity and expand their economies in ways that let government deliver more services, reduce debt and help cover the costs of caring for aging populations. Ultimately, the societies that succeed will be those that can adapt to change, but also forge social consensus around what should be done, the authors write. In a splintering world, that may be the hardest scenario to imagine.

*Shane Harris covers intelligence and national security for The Washington Post. He has been a writer at the Wall Street Journal, the Daily Beast and Foreign Policy, among other publications. He has written two books, "The Watchers" and "@War."*

## European Union Terrorism Situation and Trend report (TE-SAT) 2020

Source: [European Union Terrorism Situation and Trend report \(TE-SAT\) 2020](#)

June 2020 – Terrorists’ ultimate goal is to undermine our societies and our democratic political systems. Terrorism generates fear, empowers political extremes and polarises societies. Europol’s EU Terrorism Situation and Trend report (TE-SAT), pulls together facts and figures on terrorist attacks and arrests in the EU in 2019:

- A total of 119 foiled, failed and completed terrorist attacks were reported by a total of 13 EU Member States;
- 1 004 individuals were arrested on suspicion of terrorism-related offences in 19 EU Member States, with Belgium, France, Italy, Spain and the UK reporting the highest numbers;
- Ten people died because of terrorist attacks in the EU and 27 people were injured.

## Perfect storm of threats against human race

By Kim Won-soo

Source: [https://www.koreatimes.co.kr/www/opinion/2021/04/197\\_306888.html?gonw](https://www.koreatimes.co.kr/www/opinion/2021/04/197_306888.html?gonw)



Apr 11 – The human race is facing the biggest threat of an unprecedented self-destructive force created by people. Since last year, a group of world-renowned scientists called the Bulletin of the Atomic Scientists has set the doomsday clock at only 100 seconds to midnight, which denotes the biblical moment of self-destruction. This is the worst level seen over the last seven decades since the scientists started the clock in 1947.

**This worst threat can be attributed to an imminent perfect storm brewing from three different directions: 1) nuclear and other WMD (weapons of mass destruction); 2) climate change; and 3) disruptive new technologies.**

Coping with this perfect storm requires a new global compact in which all countries participate. Efforts involving the compact to deal with the second threat of climate change started with the Paris Climate Accords of 2015. Follow-up measures are now back on track with President Joe Biden of the United States returning to the agreement from which his predecessor, former U.S. President Donald Trump, withdrew earlier.



Regarding the first and third threats, however, the international community stands on much shakier ground. The existing compact for the first threat of WMD has regressed. The INF (Intermediate-Range Nuclear Forces) treaty was nullified during the Trump era and the New START (Strategic Arms Reduction Treaty) barely survived. No new arms control negotiations between the largest possessors of nuclear weapons, the U.S. and Russia, are on the horizon. Nor are any signs of arms control or confidence-building talks in sight vis-a-vis China, which is keen to catch up in terms of strategic parity.

On top of the weakening ground on the old WMD, the new threat of emerging disruptive technologies may add another layer of WMD, which denotes weapons of mass "disruption." Rapid technological evolution in both cyberspace and outer space brings enormous benefits through hyper-connectivity in our lives. But it also dramatically increases the risks of massive disruption that happens in an instant. Technological advances in artificial intelligence and synthetic bio-technology can be also abused for malevolent purposes to instigate fear threatening human security. The gap in mitigating these emerging risks is growing, as the technology is advancing faster than the normative work.

Furthermore, the nexus of these twin WMDs with terrorism is even more horrifying. It is no longer a fantasy to imagine a scenario in which a terrorist organization steals the first WMD material (chemical, biological, radiological and nuclear), using cyber-hacking with the help of an insider, and uses it as a terrible means of indiscriminate terror inflicted on an innocent civilian population. The Nuclear Security Summit process had been pursued by the Obama administration to mitigate this horrifying risk.

Northeast Asia is undoubtedly one of the world's hot spots where the danger of the twin WMDs is present and regional tensions remain unabated. Recently, the security dynamics have been displaying signs of volatility on the Korean peninsula as well as in the East and South China seas. The U.S. and China are at the front and center of this complex equation. The security climate looks likely to become more and more tense as the US and China are widely expected to intensify their strategic competition. Even their appetite for resuming bilateral strategic dialogue seems to be low due to frustration and fatigue with the previous efforts, which are largely perceived as formalistic and insubstantial.

It is evident that the global compact to cope with the twin WMD threats is unattainable without the U.S. and China working together. Their failure to do so would be dangerous, not only for them, but also for the whole region of Northeast Asia and beyond. Therefore, for their enlightened self-interest and collective global interest, the U.S. and China must find a way to start talking to each other for arms control. The longer it takes, the more they are likely to become the source of the problem pushing the doomsday clock even closer to midnight. This should not be an option. The US and China can pick up from where they left off before. Such examples include reviving the Nuclear Security Summit process and/or discussing ways to help the respective ratification process of the CTBT (Comprehensive Nuclear Test Ban Treaty). If the U.S. and China begin to talk to each other on arms control, it will serve to restore their working trust that may pave the way for them to manage their differences in other issues in a less confrontational mode.

Working for arms control and disarmament is like riding a bicycle uphill toward an eventual peak of a world free of nuclear and other weapons.

Reaching the peak may be nearly impossible in a zero-sum world composed of sovereign states with divergent interests and mutual suspicion.

On the way to the peak, however, we may reach a hilltop that is lower but replete with ensuing peace dividends, as has been the case with the past milestone instruments such as the NPT, INF and CTBT. Therefore, no matter how challenging it is, we should not stop pedaling for it. Otherwise our bicycle will fall down or slide off the slippery slopes. Efforts toward arms control must resume to prevent the perfect storm of threats from hitting the human race. The world now calls for global leadership more than ever. The U.S. and China must live up to that call.

*Kim Won-soo is the former under secretary-general of the United Nations and the high representative for disarmament. As a Korean diplomat, he served as secretary to the ROK president for foreign affairs. He is now the chair of the international advisory board of the Future Consensus Institute (Yeosijae) and a member of the Group of Eminent Persons for the Comprehensive Nuclear Test Ban Treaty (CTBTO).*

## Why NATO Destroyed Libya Ten Years Ago

By Manlio Dinucci

Source: <https://www.globalresearch.ca/why-nato-destroyed-libya-ten-years-ago/5742377>

Apr 12 - Ten years ago, on March 19, 2011, US/NATO forces began their bombardment of Libya by air and by sea. The war was initiated directly by the United States, first through Africa Command (AFRICOM), and then through NATO under US command. Over the course



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of seven months, US/NATO airplanes carried out 30,000 missions, including 10,000 strikes involving over 40,000 bombs and missiles. Italy – with the consensus of its multi-party Parliament (with the Democratic Party-Pd in the front row) – played a part in the war, providing seven air bases (Trapani, Gioia del Colle, Sigonella, Decimomannu, Aviano, Amendola and Pantelleria), fighter-bombers Tornado, Eurofighter and other warplanes, and the Garibaldi aircraft carrier and other warships. Even before the air-naval offensive, tribal and Islamist groups hostile to the government had already been financed and armed, and special forces were infiltrated, especially by Qatar, in order to spread armed conflict within the country.

And that's how an African country which, as documented by the World Bank in 2010, maintained "high levels of economic growth", where GDP rose 7.5% a year, which demonstrated "high human development indicators" such as universal access to primary and secondary education and a 40% university attendance rate, came to be destroyed.



Taking disparities into account, the average standard of living in Libya was higher than in other African countries. About two million immigrants, mostly African, found work there. The Libyan state, which possessed the largest oil reserves in Africa, in addition to natural gas, ceded limited profit margins to foreign companies. Thanks to energy exports, the Libyan balance of trade was in the black to the tune of \$27 billion USD per year.

Those resources enabled Libya to make about \$150 million USD in foreign investments. Libyan investments in Africa were decisive in the African Union's creation of three financial organizations: the African Monetary Fund, headquartered in Yaoundé, Cameroon; the African Central Bank, based in Abuja, Nigeria; and the African Investment Bank, headquartered in Tripoli. The mission of these organizations was to create a common market and common currency in Africa.

It's no coincidence that the NATO war to destroy the Libyan state was initiated barely two months after the rise of the African Union, which,

on January 31, 2011, led to the creation that year of the African Monetary Fund. This is proven by emails written by the Obama Administration's Secretary of State, Hillary Clinton, later released by WikiLeaks, showing how the United States and France wanted to eliminate Qaddafi before he used Libya's gold reserves to create a pan-African currency as an alternative to the dollar and the CFA franc, the currency France imposed on 14 former colonies.

It's also proven by the fact that the banks were released even before the bombers in 2011, ceasing \$150 million USD of Libya's foreign investments, most of which have disappeared. Goldman Sachs, the most powerful investment bank in the United States, whose vice president was Mario Draghi, played a leading role in the looting.

**In Libya today**, energy export revenues are hoarded by power groups and multinationals amidst the chaos of armed conflicts. The standard of living for most of the population has been decimated. African immigrants, accused of being "Qaddafi's mercenaries," have been imprisoned in zoo cages, tortured and killed. Libya has become the main transit route for human traffickers in a chaotic wave of migration towards Europe that has taken the lives of more victims than the 2011 war. In Tawergha, the NATO-supported Islamist militias of Misurata, who assassinated Qaddafi in October 2011, have truly carried out an ethnic cleansing, forcing around 50,000 Libyan citizens to flee with no hope of returning.

Also responsible for all of this is the Italian parliament, which on March 18, 2011 committed the Italian government to "adopt any and all initiatives (including the entrance of Italy into the war against Libya) to ensure the protection of the region's populations."

*Manlio Dinucci is a Research Associate of the Centre for Research on Globalization.*

## Denmark tells Syrian refugees to return to Damascus

Source: <https://www.dw.com/en/denmark-tells-syrian-refugees-to-return-to-damascus/a-57174584>

Apr 13 – **Aya Abo Daher** is preparing to graduate high school in the Danish town of Nyborg and was looking forward to celebrating the event with her friends at the end of June when she received an email from the Danish authorities that changed everything. The Syrian student and her parents received an email stating that their [residency permits](#) would not be renewed.



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"I was so sad, I felt so foreign, like everything in Denmark had been taken away from me," the 20-year old said. "I sat down and just cried. At midnight, a friend drove me home to my family because I couldn't sleep." Many Syrian refugees from the Damascus area got that same mail.

### 'The war is neither over nor forgotten'

Ever since Danish authorities reclassified the Syrian capital as safe last summer, the residency permits of several hundred Syrians from that region have been revoked or simply not renewed.

"Although [the war is neither over](#) nor forgotten, the Danish authorities think that conditions in Damascus are so good that Syrian refugees can now be sent back there," said Charlotte Slente, secretary-general of the Danish Refugee Council (DRC). Denmark is the only country in Europe to revoke Syrians' residency permits.

The decision is "irresponsible," Slente said, arguing that returnees face the "risk of serious attacks and persecution." She says, "The fact that there is no fighting in Damascus does not make the city a safe place for returning refugees."

### Denmark and Syria do not cooperate

Human rights organizations like DRC and Amnesty International are not the only ones to argue against the Danish stance. Left-wing parties that often cooperate with Prime Minister Mette Frederiksen's Social Democrat-led minority government in the Danish parliament are also protesting the move.

The decision to expel students like Aya Abo Daher is "heartless and senseless," said Kristian Hegaard, the integration policy spokesman for the Radikale Venstre or Social-Liberal Party. "How can Denmark consider Syria a safe country?" Hegaard wrote on Facebook, pointing out that Denmark "closed its embassy there because of the insecure situation."

Since Denmark does not cooperate with the regime of Syrian ruler Bashar Assad, deportations cannot be enforced at this time, leftist parties argue. Currently, Syrians who no longer have a residency permit and who refuse to leave the country voluntarily, end up in Danish deportation camps.

### 'Let them contribute, work and get an education'

They could sit around for years and go crazy while waiting for conditions in Syria to change, Hegaard said, suggesting that instead, they should "contribute, work and get an education. That benefits Denmark far more."

Aya Abo Daher's classmates wrote an open letter to Danish Integration Minister Mattias Tesfaye, urging him not to expel a girl who speaks fluent Danish and wants to give something back to Danish society. But their words fell on deaf ears — Tesfaye told Danish media he trusts the authorities' assessment of the situation and will not make exceptions simply because someone has appeared on television.

High school director Henrik Vestergaard Stokholm is also rooting for his student. He described Aya Abo Daher as a, "hardworking girl, hungry for knowledge, with clear-cut goals," and said he fears for her safety should she return to her home country. The girl's two brothers fled to Denmark a year before the rest of the family because they were about to be drafted into Assad's army, he said. They are not currently threatened with deportation because they have a greater protection status.

"Deportation would tear our family apart again after we built a life together here," said Aya Abo Daher, adding that nothing draws her back to Damascus. It is where she comes from but she experienced such [terrible things](#) there that she says it is not safe to return. Assad is still there, she added. "How can the authorities send me back to a place they know is dangerous for me?" she asked.

### Denmark is a 'sad example'

After the brothers originally fled, people were constantly asking Aya where they were, School Director Stokholm said. "When food rations were distributed, she and her parents were told they couldn't get them until the brothers came back." The young woman also took to the streets to demonstrate, he said. No other country in Europe has decided to send people like Aya back to [Syria under these circumstances](#), the high school director said, "Denmark is really setting a sad example."

The move to more quickly deport refugees is part of a 2019 immigration bill planned by the previous conservative government and followed through on by Social Democrats and right-



wing populists in parliament. The legislation makes clear that residency permits are issued for a limited period of time. According to the policy, as soon as the situation allows, refugees' residency permits are to be withdrawn or no longer extended and they are to return to their home countries.

### Discouraging asylum-seekers

Mette Frederiksen, who is left-leaning where most social policies are concerned, leans far to the right on migration and asylum policy. She also has a long-term goal of stopping asylum seekers from entering Denmark in the first place. The country offers financial support to refugees who leave Denmark voluntarily and the government consistently tries to dissuade refugees — also by using harsh rhetoric — from seeking protection in Denmark.

Aya Abo Daher fears deportation but hopes she will at least be able to celebrate her graduation with her classmates this summer. The young woman, who dreams of becoming a dentist, has filed a lawsuit against the deportation notice. It may take a few months before a decision is made, School Director Henrik Vestergaard Stokholm said, adding that he really hopes, "she can put on her graduate cap in June."

**EDITOR'S COMMENT:** Let us be logical and practical and do not use the case of this student to generalize a big problem. How many of the asylum seekers speak the language fluently? How many graduate from high school and lyceum? How many work to support their families? How many get benefits from the state? How many arrived directly to Denmark and how many did that via Turkey before EU member states closed their borders in Greece trapping all these people in a country that it was not their first choice. And a last note always forgotten on purpose: going from Syria to Turkey makes you a refugee. Going from Turkey to Greece makes you an immigrant and almost always an illegal immigrant. In addition, is Pakistan a nation at war? Bangladesh? China? Ethiopia? Puerto Rico? Colombia? Just to name a few of the origins of the illegal immigrants flooding Greece. In Greece we say "dry woods are burnt together with green woods"; it is not right to deport Aya but each and every case can be examined and evaluated separately because this the right thing to do.

## Will Afghanistan Become a Terrorism Safe Haven Once Again?

Source: <https://www.anandmarket.in/will-afghanistan-become-a-terrorism-safe-haven-once-again/>

Apr 14 – Adam B., a Democrat representative from California and chairman of the House Intelligence Committee. In an interview on Tuesday. "So the question is, can we" suppress the threat of terrorism from South-East Asia "without our troops on the ground in Afghanistan?"

If the United States withdraws from Afghanistan, it is [unclear](#) whether al Qaeda can rebuild a base there to carry out terrorist attacks against the United States, according to senior lawmakers with access to classified assessments. And even though Al Qaeda may rebound, some [officials](#) have asked if the [group](#) could choose a more chaotic region over Afghanistan.

"What exactly is that threat going to happen?" Adam [Smith](#), a Democrat representative for Washington and chairman of the House Armed [Services](#) Committee, said during a virtual conference on Afghanistan last month. "This is not the 1990s when al Qaeda set up camps, and they had the Taliban and nobody was paying attention to them."

After American troops leave, intelligence gathering will become much more difficult if accepted by current and former officers. Although some counter-terrorism operations against terrorists inside Afghanistan can be conducted from far-flung bases in the Persian Gulf and outside the country, they are risky and difficult to pull off. Mr. Biden or future presidents may be reluctant to approve them.

With some weak Afghan government facing Taliban pressure, conditions will be ripe for Qaeda cells to grow, some counter-terrorism officials said.

A former CIA official, Mark Marmaropoulos, said the United Nations let a known terrorist organization such as the Taliban as a nation-dominating terrorist organization, an ideal breeding ground for disparate terrorist groups, the United States Threatens to shelter and give asylum to America. Most of his career has been working on counter-terrorism work, including in Afghanistan.

Former Pentagon official and CIA officer serving in Afghanistan, Michael P. Mulroy said the threat from international terrorist groups operating from Afghanistan is low, but it cannot remain that way. Throughout the Afghanistan War, US counter-insurgency operations have put pressure on terrorist groups. Once the troops leave, he said that the pressure will be reduced and the ability to collect intelligence in the area will suffer.



## Afghanistan should never become 'safe-haven' for terrorism again

Source: <https://www.khaama.com/nato-afghanistan-should-never-become-safe-haven-for-terrorists-again-334433/>

Feb 2021 – In a pre-ministerial press conference, NATO Secretary-General Jens Stoltenberg stressed the presence of international troops in Afghanistan as condition-based, he said that NATO will not leave the country before the time is right.

“Our common goal is clear. Afghanistan should never again serve as a haven for terrorists to attack our homelands. So, our presence is conditions-based,” Stoltenberg said. While no ally wants to stay in Afghanistan longer than necessary, we will not leave before the time is right” said Stoltenberg.

“NATO has significantly adjusted our presence as part of the peace process,” he said.

Based on the unacceptably high level of violence in Afghanistan Stoltenberg said, “However, peace talks remain fragile and the level of violence remains unacceptably high, including the Taliban attacks on civilians. The Taliban must reduce violence, negotiate in good faith and live up to their commitment to stop cooperating with international terrorist groups,” he added, “No ally wants to stay in Afghanistan longer than necessary, but the threat of terrorism must be considered.”

Stoltenberg expressed that NATO strongly is in favor of the peace process in Afghanistan and that it is the best opportunity for “a lasting political solution”.

Situational assessment on the ground will continue and developments are closely monitored, Stoltenberg indicated that NATO “will continue to take more measures to ensure the safety of our troops and consider next steps in a deliberate and coordinated way,” he said.

Stoltenberg reiterated that NATO’s priority is that Afghanistan does not become a safe haven for terrorists once again.

NATO’s main and only priority is that Afghanistan should not be transformed into safe haven for terrorism again and to fight terrorists he added, “We also realize that one of the best weapons we have in the fight against terrorism is to train local forces.”

Most of the Afghans are concerned over losing the gains the country achieved in the past two decades, Stoltenberg reaffirmed that “I hear the calls from many Afghans on not jeopardizing the gains... That’s the reason we should take the decisions very seriously.”

## Biden gives Afghanistan its own 9/11

By Sulaiman Hakemy

Source: <https://www.thenationalnews.com/opinion/comment/biden-gives-afghanistan-its-own-9-11-1.1203806>

Apr 14 – September 11, 2001 was, for Americans, the day that started the “forever war” in Afghanistan. September 11, 2021 is the deadline their president, Joe Biden, has now set for an unconditional withdrawal from Afghan soil.

For Americans, the date is rife with symbolism – 9/11 can become a day of both catharsis as well as tragedy. For most Afghans, who fear a coming vacuum soon to be filled by an even more violent and complex war, it will be an insult. The insinuation will be that 9/11 was the day Afghanistan brought war to the US, and so it must also be the day the US consigned Afghanistan to another spiral of bloodshed.

Afghans have seen their country scarred by conflict for 40 years. They are likely to see more of that in the years to come. “Forever” is so much longer for them.

Washington will seek to compensate for this bleak future by intensifying peace negotiations between the Afghan government and the Taliban. But the damage is done. Withdrawing without conditions will allow the Taliban to wait things out. The militant group is winning the war. If it rejects peace between now and in September, it could feasibly attempt a takeover of Afghanistan afterwards. Its chances of success will be even higher.

This approach would still bear a cost. Looking self-interested and cynical could lose the Taliban what little respect it has gained as a legitimate voice in future Afghan politics. It could lose its political office in Doha.

And, although the group remains dangerous, strategically it is fractured. This week, it announced, to the surprise of many, that it may not even attend a peace summit hosted by Turkey later this month, because internal discussions are still incomplete. Hours after the US decision, a Qatar-based Taliban spokesman said the group will not turn up for talks until the withdrawal is complete.

The US paints the war as one between the government and the Taliban, but it is increasingly multidimensional. In parts of the country, the Taliban now vies with ISIS, and its links with Al Qaeda remain. And these terrorist groups are only the start.

The Turkey peace conference, should it take place, will include world powers as well as Afghanistan’s neighbours. Some of these countries have invested, financially or militarily (or



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both), in the Afghan war and, unlike the US, they are in no hurry to leave. And that will shape the battle to come. One neighbour, Iran, has a record of funding competing sides across the border. Some Taliban factions openly claim ties with Tehran, being supplied with weapons and money for operations against America. Meanwhile, Iran has long supported majority-Shia political parties, despite the fact that they are in the Taliban's crosshairs after Americans. In December, Mohamed Javad Zarif, Iran's foreign minister, alarmed Kabul when he boasted in an interview with an Afghan journalist that his country's military supports a brigade of thousands of Afghan citizens who have been fighting, essentially as mercenaries, in the Syrian civil war. Far beyond mere "support" from Tehran, the Fatemiyoun Brigade, as the force is known, is suspected of operating directly under the command of the Iranian military. Many of its members were recruited forcibly from Iran's Afghan refugee camps. When Mr Zarif, in the interview, offered their services to the Afghan government to fight ISIS (but, notably, not the Taliban), it was interpreted in Afghanistan as a veiled threat regarding the kind of force Iran could project in the Afghan war if it wanted to.



Afghan Army soldiers secure a military base that was previously in use by the US soldiers, in Haska Meyna district of Nangarhar province, Afghanistan, on April 14, 2021. EPA

This Janus-faced approach is a staple policy for Afghanistan's other large neighbour, Pakistan. It has supported the Taliban financially and militarily since the militant group's infancy in the 1990s, all the while participating as an ostensible ally in the US war on terror and claiming to be a security partner of the Afghan government.

The duplicity extends even further, all the way to the would-be host of the peace conference, Turkey. Ankara was chosen as the venue because Turkey is seen to command respect from most of Afghanistan's political class. The country has strong cultural links to Afghanistan, is a Muslim Nato member and is geographically distant enough that it has no political or territorial disputes with Kabul. But even it has Afghan blood on its hands. Since the 1990s, Turkey has been a primary financial sponsor of Abdul Rashid Dostum, a notorious Afghan militia leader-turned-Field Marshal who commands significant support in Afghanistan's Turkic northern areas. He has been investigated for multiple instances of murder and rape, in addition to being suspected of war crimes. In 2016, while serving as Afghanistan's vice president, he was accused of ordering the kidnapping of a provincial governor, and of building a private militia to challenge the central government. When the government opened a criminal inquiry, Dostum fled, as he has done many times in the past, to Turkey, where he remained in exile for two years.

Last week, Dostum reportedly gave a speech to lawmakers and students while he was in Turkey on a visit, in which he stated he was ready to fight once again in the event that peace talks fail.



Like Afghanistan's neighbours, Dostum uses the language of anti-terrorism, citing the dangers of Al Qaeda and ISIS, to threaten the Afghan government with more chaos and disunity. Meanwhile, across Afghanistan, other militia groups have arisen independently to fight those enemies, as well as the Taliban, in earnest, particularly in places where the national army has been unable to do so. But now they are becoming unwieldy, and also threaten Afghanistan's broader national security. Last month, one of them, a vigilante militia force in Wardak province led by Abdul Ghani Alipour, a former lorry driver, shot down a government helicopter. A standoff between Kabul and Alipour's men has only escalated since then.

Peace between the Taliban and the Afghan government is a necessary step to prevent a total breakdown of the situation in Afghanistan in the aftermath of the US's impending withdrawal. But it is not the only step towards which diplomats must target their efforts. A kaleidoscope of deadly forces is already positioning itself for a renewed conflict. That war could explode on September 11. If it does, for Afghans, "forever" continues.

*Sulaiman Hakemy is opinion editor at The National.*

**EDITOR'S COMMENT** (on the three articles above): A stupid question title (first article); a NATO Secretary General with black humor (second article) and a US President to be remembered (third article)! Rivers of blood from both sides for nothing! I just wonder what CPT Jason Jones – KIA 2014 will think of from high above ...(photo in article #3).

## Europol: Organized Crime the Biggest Security Challenge Facing the EU

Source: <https://www.hstoday.us/subject-matter-areas/cybersecurity/europol-organized-crime-the-biggest-security-challenge-facing-the-eu/>

Apr 12 – Europol has today published the European Union (EU) Serious and Organized Crime Threat Assessment, the [EU SOCTA 2021](#). The SOCTA, published by Europol every four years, presents a detailed analysis of the threat of serious and organized crime facing the EU.

The SOCTA 2021 reveals a concerning expansion and evolution of serious and organized crime in the EU. The document warns of the potential long-term implications of the COVID-19 pandemic and how these may create ideal conditions for crime to thrive in the future. The report clearly highlights serious and organized crime as the key internal security challenge currently facing the EU and its Member States.

Launched at the Portuguese Police's headquarters (Policia Judiciária) in Lisbon during the Portuguese Presidency of the Council of the European Union, the SOCTA 2021 is the most comprehensive and in-depth study of serious and organised crime in the EU ever undertaken.

The analysis presented in the SOCTA 2021 highlights key characteristics of serious and organized crime such as the widespread use of corruption, the infiltration and exploitation of legal business structures for all types of criminal activity, and the existence of a parallel underground financial system that allows criminals to move and invest their multi-billion euro profits.

Serious and organized crime encompasses a diverse range of criminal phenomena ranging from the trade in illegal drugs to crimes such as migrant smuggling and the trafficking in human beings, economic and financial crime and many more.

### Key findings of the SOCTA 2021:

- Serious and organized crime has never posed as high a threat to the EU and its citizens as it does today.
- The COVID-19 pandemic and the potential economic and social fallout expected to follow threaten to create ideal conditions for organized crime to spread and take hold in the EU and beyond. Once more confirmed by the pandemic, a key characteristic of criminal networks is their agility in adapting to and capitalising on changes in the environment in which they operate. Obstacles become criminal opportunities.



- Like a business environment, the core of a criminal network is composed of managerial layers and field operators. This core is surrounded by a range of actors linked to the crime infrastructure providing support services.
- With nearly 40 percent of the criminal networks active in drugs trafficking, the production and trafficking of drugs remains the largest criminal business in the EU.
- The trafficking and exploitation of human beings, migrant smuggling, online and offline frauds and property crime pose significant threats to EU citizens.
- Criminals employ corruption. Almost 60% of the criminal networks reported engage in corruption.
- Criminals make and launder billions of euros annually. The scale and complexity of money laundering activities in the EU have previously been underestimated. Professional money launderers have established a parallel underground financial system and use any means to infiltrate and undermine Europe’s economies and societies.
- Legal business structures are used to facilitate virtually all types of criminal activity with an impact on the EU. More than 80% of the criminal networks active in the EU use legal business structures for their criminal activities.
- The use of violence by criminals involved in serious and organized crime in the EU appears to have increased in terms of the frequency of use and its severity. The threat from violent incidents has been augmented by the frequent use of firearms or explosives in public spaces.
- Criminals are digital natives. Virtually all criminal activities now feature some online component and many crimes have fully migrated online. Criminals exploit encrypted communications to network among each other, use social media and instant messaging services to reach a larger audience to advertise illegal goods, or spread disinformation.

Ylva Johansson, European Commissioner for Home Affairs said the 2021 SOCTA report clearly shows that organized crime is a truly transnational threat. “70% of criminal groups are active in more than three Member States. The complexity of the modern criminal business models was exposed in 2020 when French and Dutch authorities supported by Europol and Eurojust dismantled EncroChat; an encrypted phone network used by criminal networks. Organized crime groups are professional and highly adaptable as shown during the COVID-19 pandemic. We must support law enforcement to keep up, offline and online, to follow the digital trail of criminals.”

►► [Download the full SOCTA at Europol](#)

Terrorism In Europe – Analysis

By Kristin Archick and Rachel L. Martin

Source: <https://www.eurasiareview.com/16042021-terrorism-in-europe-analysis/>

Apr 16 – European governments and the European Union (EU) have grappled with domestic and foreign terrorist groups for decades, but numerous attacks since 2014 have renewed concerns about terrorism and violent extremism in Europe. Despite variances in

how terrorist events are defined and tracked, studies indicate that terrorism poses a security threat in many European countries (see data from Europol, the EU’s agency for police cooperation, in Figure 1).

European countries and the EU are key U.S. partners in the fight against terrorism, and Members of Congress maybe interested in European counterterrorism efforts.

Of primary concern to Europe is “violent Islamist” terrorism. Such attacks, classified by Europol as “religious” or “jihadist” in motivation, have been much more lethal than other types of terrorism, accounting for nearly all recent fatalities and casualties (see Figure2).

Most jihadist attacks in Europe since 2014 have been linked to or motivated by the Islamic State organization (IS, also known as ISIS or ISIL). Despite the group’s territorial defeat in Syria and Iraq, it maintains a low-level insurgency in both countries and continues to inspire

**Figure 1. Terrorism-Related Attacks in the EU**

(includes failed, foiled, and completed attacks)

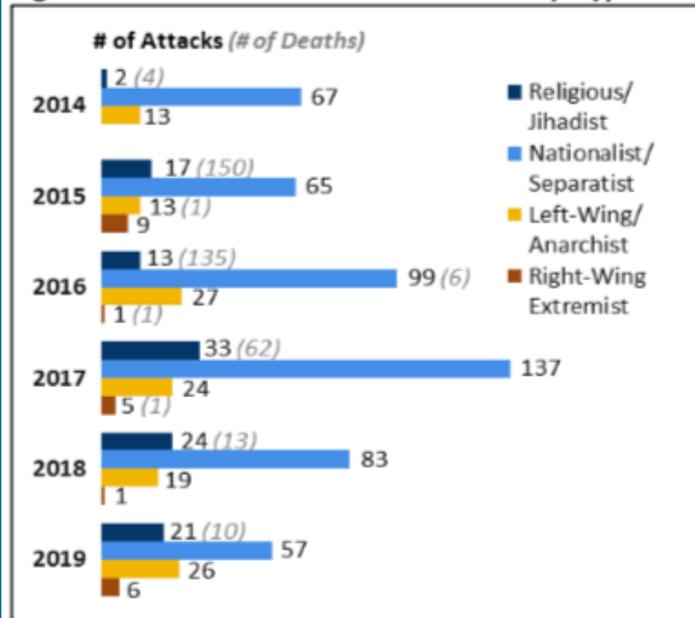
	# of Attacks (# of Countries)	Deaths	Injuries	Arrests
2014	201 (7)	4	6	774
2015	211 (6)	151	350+	1,077
2016	142 (8)	142	379	1,002
2017	205 (9)	68	844	1,219
2018	129 (9)	13	53	1,056
2019	119 (13)	10	27	1,004

Source: Europol’s *Terrorism Situation and Trend Report (TE-SAT)* publications, 2015-2020. Data include statistics from the United Kingdom (UK), which withdrew from the EU in January 2020.

followers in Europe. Concerns also persist about Al Qaeda and its affiliates, which remain committed to carrying out or inspiring attacks on European and other Western targets. Arrests connected to jihadist terrorism typically account for the largest number of terrorism-related arrests; 436 out of 1,004 terrorism arrests reported to Europol in 2019 were jihadist related.



Figure 2. Terrorist Attacks and Fatalities by Type



Source: Europol's TE-SAT publications, 2015-2020. Data include the UK; single-issue and non-specified attacks are excluded.

raising base. Some European authorities express alarm about alleged state-sponsored Iranian terrorist acts, including a thwarted 2018 bombing plot in France and two murders in the Netherlands in 2015 and 2017.



A photo that was tweeted by an Islamic State supporter holding the IS black flag of jihad in front of Aljafería Palace in Zaragoza, Spain.

### The Islamic State and Europe

Following the Islamic State's expansion to Syria in 2013, concerns grew about the group's ties to Europe. From 2011 to 2015, roughly 5,000 European citizens traveled to Syria or Iraq to become "foreign fighters."



## HZS C<sup>2</sup>BRNE DIARY – April 2021

Several perpetrators of the November 2015 terrorist attacks in Paris, France (which killed 130 people) and the March 2016 bombings in Brussels, Belgium (in which 32 died) were European citizens who had trained and/or fought with the Islamic State in Syria and/or Iraq. In these and other terrorist incidents in 2015 and 2016, the Islamic State may have provided remote support and guidance. The majority of IS-linked attacks in Europe, however, have been committed by individuals inspired by IS propaganda and radicalized in small like-minded groups, online, or in European prisons. In many instances, the Islamic State claims that those responsible for attacks are its “soldiers” and some assailants use methods promoted by the group to carry out attacks (including the use of large vehicles as weapons), but there is often little to suggest a direct connection. Despite the Islamic State’s diminished outreach capabilities amid its territorial losses since 2017, authorities remain alarmed by the group’s continued ideological influence in Europe. Some recent attacks in Europe have elevated concerns that migrants and refugees (especially youths) could be more vulnerable to Islamist radicalization and recruitment due to feeling marginalized or dislocated.

### Selected Terrorism Incidents

Several incidents over the last few years highlight ongoing concerns about Islamist terrorism in Europe. The selected events below are drawn from media reports.

#### 2018

**March 23, France:** A French-Moroccan man killed a police officer and three other people in southern France in a series of attacks (which included taking hostages at a market). The Islamic State subsequently took responsibility. The attacker was on a French extremist watch list.

**May 12, France:** A French citizen (of Chechen origin), on a French terrorist watchlist, killed one person and injured four in Paris. The Islamic State claimed responsibility.

**May 29, Belgium:** A Belgian convert to Islam, on leave from prison, killed three people in Liège (including two police officers) and attempted to take hostages at a school. The Islamic State claimed the assailant was its “soldier.” Authorities believe he was radicalized in prison.

**August 31, Netherlands:** A 19-year old Afghan national, living in Germany, injured two American tourists at an Amsterdam train station with a knife. Authorities assert the suspect had a “terrorist motive” linked to a belief that Islam was “repeatedly insulted” in the Netherlands.

**December 11, France:** A French citizen (of Algerian descent) attacked a Christmas market with guns and knives in Strasbourg, near the European Parliament. Five people died and 11 were injured. The Islamic State claimed the assailant was its “soldier.” He was reportedly on France’s terrorist watchlist and may have been radicalized in prison.

#### 2019

**March 18, Netherlands:** A Turkish-born man, raised in the Netherlands, killed four people and severely injured two in a shooting attack on a tram in Utrecht. The attacker appeared to want to avenge the death of Muslims. The Islamic State noted the attack in its weekly newsletter.

**May 24, France:** An Algerian national detonated a bomb outside a bakery in Lyon, injuring 13 people. The suspect reportedly pledged allegiance to the Islamic State.

**October 3, France:** A French convert to Islam employed by a police intelligence unit in Paris stabbed six colleagues, killing four (including three police officers). Co-workers previously reported concerns about the assailant’s extremist views. The Islamic State took note of the attack.

**November 29, UK:** A UK citizen (of Pakistani descent), with previous terrorism convictions, killed two people and wounded three in a knife attack near London Bridge. The Islamic State claimed responsibility.

#### 2020

**June 20, UK:** A Libyan asylum-seeker killed three people (including a U.S. citizen) and injured three in a stabbing attack in Reading. Known to UK security services, the attacker may have had ties to an Al Qaeda-linked group in Libya. Authorities also found IS material on his cellphone.

**September 25, France:** A Pakistani national wounded two people with a meat cleaver in Paris, outside the former office of the *Charlie Hebdo* satirical magazine, the target of a deadly 2015 Islamist terrorist attack. The suspect in the 2020 incident appeared motivated by the magazine’s decision to republish cartoons of the Prophet Muhammad.



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**October 4, Germany:** A 20-year-old rejected asylum seeker from Syria killed one person and injured another with a knife in Dresden. The attacker had ties to the Islamic State and previous terrorism-related convictions.

**October 16, France:** An 18-year old refugee of Chechen origin beheaded a middle school teacher outside of Paris, after the teacher showed students cartoons of the Prophet Muhammad during a lesson on freedom of expression.

**October 20, France:** A young Tunisian national stabbed and killed three people at a church in Nice. French officials consider the incident to be an Islamist terrorist attack.

**November 2, Austria:** A dual Austrian-North Macedonian citizen, convicted previously for attempting to join the Islamic State in Syria, killed 4 people and injured 13 in a gun attack in Vienna. The Islamic State subsequently claimed responsibility.

### European Responses and Challenges

For two decades, European countries and the EU have worked to bolster capabilities to combat terrorism and violent Islamist extremism. In recent years, European governments have prohibited travel to conflict zones, increased surveillance, and attempted to improve counter-radicalization efforts, especially online and in prisons. The EU has sought to enhance intelligence sharing among national and EU authorities, strengthen external border controls, and encourage social media companies to curb terrorist incitement on line.

European leaders and the EU also emphasize the importance of close cooperation with the United States. Nevertheless, challenges persist. At times, national sovereignty concerns or civil liberty protections have slowed certain EU anti-terrorism initiatives, while different data protection regimes have complicated the conclusion of U.S.-EU information-sharing accords. Many European governments are struggling with whether to repatriate captured European IS fighters and family members from Syria and Iraq, an issue that generated tensions with the former Trump Administration.

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## Advanced Materials – Technology Trends

Source: <https://www.army-technology.com/features/advanced-materials-technology-trends/>

Apr 15 – Advanced Materials can be used in a wide variety of areas from lighter, more agile aircraft and emerging hypersonic systems, to personal protection equipment and hostile environments where risks and damage can be reduced using protective solutions.

The most disruptive effects are expected to come from the integration of functions such as energy harvesting, camouflage, structural and personnel health monitoring.

### Technology Trends

Listed below are the key technology trends impacting the advanced materials in aerospace and defence theme, as identified by GlobalData.

#### Advanced Materials – Lithium-ion (Li-ion) dominance and introduction of graphene

Li-ion batteries (LIB) are emerging as crucial for energy storage. The increasing growth of LIB-powered electric vehicles resulted in advancements in lithium-ion technologies and a steady decline in the prices of lithium-based batteries.

While Li-ion batteries have gained more popularity than other battery energy storage technologies, when considering its wide-scale deployment in electric vehicles, unmanned underwater vehicles (UUVs) and on the electricity grid, the introduction of graphene could revolutionise the way energy storage technology is utilised.

Graphene is nothing but a carbon-based material, which is merely one atom thick and can be used to make batteries, which are lightweight, durable and applicable in high capacity energy storage, and they charge rapidly.

Recently, researchers from the Samsung Advanced Institute of Technology (SAIT) and Seoul National University's School of Chemical and Biological Engineering collaborated to design a graphene coating for Li-ion batteries to enhance charging speeds five-fold and increase battery capacity by making it 45% more energy dense.



### 3D printing

3D printing has been proven to be an excellent manufacturing solution for producing components and parts that contain significantly less material than other comparable, traditionally manufactured parts.

This is because a great deal less material can be used to create an item through additive manufacturing and extremely complex geometric shapes can be built that have great strength, despite the reduced density in material used.

Particularly in aerospace, but across the entire defence sector, weight saving is paramount to achieve high performance in aspects such as speed and capacity, but further elements such as payload, fuel consumption, emissions, speed, and safety too. This realisation is leading the aerospace and defence industry to look for applications in its newest products, from seat frameworks to air ducts.

A recent example of this trend is in the Airbus A350 XWB. Airbus has partnered with Stratasys to manufacture over 1,000 individual 3D printed items for the A350 XWB.

Using an extremely strong thermo-plastic called ULTEM 9085, Stratasys has been providing its machines to make components that are strong, FST (flame, smoke, and toxicity) compliant, and have an excellent strength-to-weight ratio.

### Fibre-reinforced polymer (FRPs)

Carbon fibre reinforced composites (FRPs) are successfully used in applications such as military aircraft, unmanned aerial vehicles (UAVs), naval ships and weapons.

These materials have started to be used in the construction of aircraft parts such as fuselage, doors, wings and tails, especially due to their light weight and durability and attract the aerospace industry.

Recently, advances have been made within the development of carbon fibre reinforcement polymers with self-healing properties that check the impacts of harm to composite materials, especially critical in airplane design and assembly.

Since carbon fibre is stronger, tougher and lighter than steel, it can help increase fuel efficiency due to its lighter weight. Indeed, as carbon fibre is ten times stronger than regular-grade steel yet only one quarter of the weight, carbon fibre composites used as automotive components are expected to reduce vehicle weight.

Consumers benefit from lighter-weight vehicles with better fuel economy and all the safety benefits that come with vehicles of greater mass.

### Artificial Intelligence (AI)

Material science is also benefiting from AI/machine and active learning in research and education. Machine learning offers the ability to gain new insights into materials by discovering new patterns and relations in the data.

For instance, in order to create the next generation of technology, researchers at the United States (US) Air Force Research Laboratory (AFRL) are using machine learning, AI and autonomous systems to exponentially increase the speed of materials discovery and lower the cost of technology.

Platforms such as AFRL's Autonomous Research System (ARES) use AI and machine learning to conduct autonomous experiments designed to optimise the synthesis of carbon nanotubes, which have tremendous potential for next-generation energy technology.

### Robotic systems

Next-generation robots are expected to provide manufacturing companies with new options to improve their efficiency and tackle challenges such as high costs and skilled workers.

In the years to come, it is expected that robots working directly and in collaboration with humans in a production environment will increase the use of soft robots that use pneumatics instead of mechanical power, reduce energy requirements and increase safety in general.

The use of robots in the Industry 4.0 environment, which focuses heavily on interconnectivity, automation, machine learning, and real-time data, will increasingly lead to a "turn off the lights" or "dark factory" production concept in which activities and material flows are handled entirely automatically.

### Lightweight structures

All aerospace systems need weight reduction to increase fuel efficiency and lower greenhouse gas emissions. Lightweight materials help increase aircraft and UAV's range and payloads, while reducing fuel consumption, both of which are key to reducing operating costs over the long-term.



Militaries are seeking new high-strength, very lightweight materials that can be integrated with primary structures and can defend combat vehicles against future weapons.

Moreover, the trend towards the development of lightweight ballistic material is one of the major factors propelling defence authorities towards procuring newer-generation personal protection equipment.

As such, countries are focusing on manufacturing better solutions such as ballistic inserts, lightweight under suits, combat helmets, anti-mine boots and flame-resistant uniforms that provide the benefits of comfort and enhanced protection to ground forces.

## Modernization, New Weapons and The Risks to International Security

By Sergio Duarte

Source: <https://www.indepthnews.net/index.php/opinion/4377-modernization-new-weapons-and-the-risks-to-international-security>

**“Reliance on nuclear weapons for [deterrence] is becoming increasingly hazardous and decreasingly effective.”**

George P. Shultz, William J. Perry, Henry A. Kissinger and Sam Nunn  
*Wall Street Journal* op-ed, January 4, 2007

**"It is becoming clearer that nuclear weapons are no longer a means of achieving security; in fact, with every passing year they make our security more precarious."**

Gorbachev, Mikhail  
*The Wall Street Journal*, January 31, 2007.

Along the decades following the advent of nuclear weapons, several bilateral and multilateral agreements in the field of arms control were concluded, all with the declared objective of increasing international security. Chief among those is the 1970 Treaty on the Non-proliferation of Nuclear Weapons (NPT)<sup>[1]</sup> which recognized five countries as possessors of such weapons. Later, four other nations that are not party to the NPT acquired atomic military capability.

Although important for limiting the dissemination of nuclear arms to an even larger number of countries, the NPT did not establish hindrances to the growth and technological improvement of existing nuclear arsenals. All states that had acquired those weapons, in particular the two larger powers—Russia and the United States—went on to increase the size and the might of their armament. The number of nuclear weapons in the world at the height of the Cold War reached the staggering figure of 70.000, 95% of which in the hands of those two nations.

### Bilateral instruments

Starting from the 1980's the United States and the former Soviet Union sought to cooperate to reduce their nuclear arsenals. In 1987 a treaty between both countries known as the INF<sup>[2]</sup> entered into force, by which they agreed to prohibit the deployment, production and testing of intermediate range ballistic and cruise missiles. However, after mutual accusations of non-compliance, the United States announced in 2019 the suspension of its obligations under it and were immediately followed by Russia. Washington proposed to include China in a future trilateral arrangement of limitations, but Beijing maintains its opposition to this initiative arguing that there is a great disparity in the size of its nuclear forces and those of the two other states. Thus, the production, testing and deployment of missiles of the kind described in the INF are not subject to any quantitative or qualitative restrictions.

In the beginning of the current century, developments such as the obsolescence of the armament and the cost of its maintenance, together with the lessening of tensions between the two largest nuclear powers contributed to the celebration of a historic agreement between Washington and Moscow to limit and reduce the number of strategic<sup>[3]</sup> warheads and vectors that each one could possess. Known as New START, this agreement was concluded in 2009.

Drastic reductions resulted in the destruction, dismantlement or retirement of a large number of nuclear weapons in both countries. Although there is no independent verification system, it is believed that the total number of such weapons in the two nations<sup>[4]</sup> is at present around 14.000. Atomic armaments in the other nuclear armed countries are estimated at 320 for China, 290 for France, 215 for the United Kingdom, 160 for India, 160 for Pakistan, 90 for Israel and 40 for The Democratic People's Republic of Korea<sup>[5]</sup>.

Upon announcing the decision of his administration to negotiate the New START agreement with Russia, President Barack Obama stated the intention of his country to “seek the security of a world without nuclear weapons”. However, in order to ratify the agreement, the American Senate demanded a significant increase in the financial resources aimed at enlarging and intensifying the ongoing programs of modernization of the existing nuclear arsenal. For its



part, Russia continued the implementation of programs for the improvement of its own arms while some of the other nuclear states kept adding new weapons to their stocks.

The upsurge of the climate of hostility, mistrust and competition among nuclear-armed states in the second half of the 2010-2020 decade almost caused the collapse of New START, which was ultimately extended for five years a few days before the deadline for its expiration in February 2021. The limits agreed in 2009 were maintained and new reductions are expected in the future, an outcome that still seems remote.

Such limits, however, apply only to strategic weapons. None of the existing international instruments in the field of arms control actually prevent “modernization”, a euphemism under which, despite the agreed quantitative reductions, the main powers engage in the refinement of the destructive power of their weapons, both nuclear and conventional. They also work to extend the life and reliability of the warheads without resorting to explosive tests. To justify this posture, each side points to the need to counter the efforts of their rivals<sup>[6]</sup>.



B-2 Stealth Bomber To Carry New Nuclear Cruise Missile. Source: Federation of American Scientists

### New Technologies

Based on such arguments, the armed nations have intensified in the last few years the development and application of new war-fighting technologies, especially those aimed at the improvement, testing and production of vectors able to carry both nuclear and conventional payloads. These technologies encompass hypersonic missiles, attack systems by nuclear propulsion and unmanned vehicles (drones). They also made possible, among other advancements, qualitative progress in the speed and precision of the weapons, miniaturization of components and remote sensing.

Hypersonic missiles operate at speeds above Mach 5. Their velocity and evasive capacity make defense by existing systems almost impossible. According to specialized publications, the Defense Advanced Research Projects Agency (DARPA) of the United States is developing a hypersonic missile and may very soon be able to deploy it.

Another possibility is a “long range strategic cannon” that can fire projectiles at speeds several times that of the sound. Russia, for its part, has been conducting operational tests of the hypersonic missile systems *Avangard*, *Tsirkon* and *Kinzhal*, based on land, sea and air, while China is experimenting with the *Xingkong* missile. These systems are able to operate with nuclear and conventional payloads.

Hypersonic vehicles armed with conventional explosives and using high precision guidance systems may, for instance, destroy or disable in a short span important elements of the military infrastructure of the enemy and prevent, by virtue of their speed, the timely setting off of the anti-missile systems.

Although an attack of this kind with conventional charges would probably not have a direct impact on land based strategic forces protected by reinforced underground silos, it would leave to the adversary the onus of deciding whether to respond with its nuclear forces and most certainly would provoke retaliation in kind. The possibility of quick escalation toward an all-out nuclear exchange shows the risks involved in the use of resources such as those<sup>[7]</sup>.



According to officials from the department of Defense, the United States are at a disadvantage in this field and need to step up the efforts to produce a new cruise missile to be launched from submarines, in response to the development of the Russian system *Poseidon*, which is already undergoing operational tests in Arctic waters. The *Poseidon* is a torpedo, or unmanned submarine drone, with a high stealth capability and armed with conventional or very powerful nuclear warheads.<sup>[8]</sup>

Powered by a mini nuclear reactor, it can operate at a depth of 1.000 meters with speed up to 100 knots. Russia is also completing the development of the *Burevstnik* system, a nuclear-powered cruise missile with a practically unlimited range and unpredictable trajectory. When mentioning the plans for the production of this new weapon, President Putin deemed it “invincible” against existing defensive systems<sup>[9]</sup>. However, American specialists have been skeptical about the operational worth of these new Russian weapons.

Cutting edge technologies of unmanned systems, both aerial and submarine, have allowed countries with different degrees of advancement to develop vehicles capable of transporting nuclear or conventional weapons with greater autonomy. Aerial vehicles of this kind, or drones, have been used in conventional conflicts in Syria, Irak, Lybia and Nagorno-Karabakh, to mention only a few. It is not known whether they have been used in tests to carry nuclear or launch nuclear weapons. According to some commentators, the United States is interested in an unmanned version of the new strategic bomber B-21, which should enter into service in the middle of the current decade. Drones could also be used to disseminate biological or chemical agents over enemy territory.

Usually, such vehicles travel at a lower speed and altitude than cruise missiles and carry lighter payloads, but new versions with features similar to those of missiles are said to be under development. Their main advantage is not to rely on human operators on board, thus reducing casualties among the attackers.

An emerging technology currently in the stage of research and development by the United States, Russia and China is the use of artificial intelligence to allow drones to coordinate their action in extended missions by using “swarms”,<sup>[10]</sup> with effects potentially similar to that of weapons of mass destruction. At the current stage of technology, it is not considered possible in the foreseeable future to program drones to distinguish between combatants and civilians. This has raised concern in several quarters, particularly in humanitarian non-governmental organizations which advocate the complete prohibition of fully autonomous lethal systems.

At the same time, there are ample opportunities for the commercial use of drones in a huge variety of civilian jobs as their range payload and speed increase, ensuring their continuing technological development alongside their military uses. The increase in the effectiveness of unmanned aerial vehicles is expected to bring advances in remote sensing technology by means of electromagnetic spectrum associated with the already frequent use of photographic reconnaissance and submarine acoustics in order to maximize resolution and penetrate different forms of camouflage.

The possibilities offered by the future development of systems that utilize the special properties of certain physical entities, or *quanta*, are also worth mentioning. Quantic computers are able to solve certain problems faster and with greater precision than traditional computers; quantic sensors are more reliable and accurate than GPS's and communication with quantic keys is safer than current digital systems, adding attractiveness to the weapons that relies on them.

Other areas of research such as nanotechnology and the weaponization of outer space, including the use of offensive satellites as well as cybernetics must also be recalled.



Offensive applications of cyber technology threaten to disable internal communication structures that are necessary for the smooth functioning of a vast array of national and international communications, banking, health and transportation networks, among others.

There are also fledgling technologies of “**additive manufacture**” (photo), that is, the production of objects with the use of a device similar to current printers through the addition of layer upon layer of materials, according to a computer-generated model.

Press accounts inform that American companies, such as Raytheon, have been able to produce missiles using this method and that others had similar success in creating spare parts and other components of missiles.



However, it would be harder for non-state actors to obtain weapon of mass destruction from computer program since some materials simply are not available for or amenable to 3D printing. It would thus be impossible to produce a complete nuclear, chemical or bacteriological weapon by plugging a computer to a printer, although such a procedure could be feasible with regard to some components.

### Conclusion

The current process of erosion of the main arms control instruments, both multilateral and bilateral and the apparent inability to establish a constructive dialogue aimed at disarmament, together with the ongoing qualitative and quantitative expansion of arsenals and of research and development laboratories and other facilities, has lowered the normative and practical barriers against the proliferation of weapons of mass destruction<sup>[11]</sup>.

At the same time, the increase in rivalry and mistrust among the armed countries spurred the competition for military applications of new technologies such as those described above. On the other hand, the emergence of state actors able to defy the military preeminence of the main powers has led others to explore more attentively their own possibilities and to examine—albeit timidly—alternatives to the dependence on American might to enhance their security<sup>[12]</sup>. This sparked fears of emergence of new nuclear-capable states.

It must also be taken into account that technological advancements, many of which are no longer exclusive to the most armed countries, are blurring the distinction between nuclear and conventional operations, while emerging technologies become more accessible. All those factors increase the risks of potential escalation toward the use of nuclear weapons in a future conflict.

In order to ensure the permanence and credibility of international arrangements aimed at maintaining stability and to allow for their evolution into formulations able to offer greater security to all members of the international community it will be necessary to stimulate dialogue and multilateral cooperation centered on the elimination of nuclear weapons.

This must be done with a view to negotiating and adopting instruments to regulate the military use of cutting-edge technologies. At the same time, new paradigms of peaceful coexistence among nations must be devised and developed. The constant effort of the five countries anointed by the NPT to seek to legitimize and perpetuate their exclusive standing as “nuclear states” intensifies the underlying danger of trivializing and accepting the current world nuclear status.

To a certain extent this has also been the case with the nuclear countries not recognized by the NPT, such as India, Pakistan Israel and North Korea. India enjoys the support of several counties for its inclusion in the Nuclear Suppliers Group (NSG), a condition also claimed by Pakistan. Few voices in the West question or criticize the possession of nuclear weapons by Israel<sup>[13]</sup>.

Moreover, some sectors of opinion in the United States do not seem as adamantly opposed as before to the prospect that North Korea keeps its place as a second-rate nuclear power as long as stabilization agreements in Northeast Asia can be adopted. As for Iran, at the time of the preparation of this article there were some indications that the JPCOA could be revived as an instrument of restraint of the nuclear program of the Islamic Republic, but developments in the last few days seem to point to further difficulties. It is however too soon for a realistic assessment. On this issue, it is useful to recall the explicit posture of Saudi Arabia with regard to the possibility of acquisition of nuclear weapons by Iran as well as the vehement condemnation by Turkey of the discriminatory regime imposed by the NPT, albeit implicitly and until now without a concrete consequence<sup>[14]</sup>.

The panorama of risks and uncertainties in the field of international security sketched above unfolds at a time when the Covid-19 pandemic impact is being felt on many aspects of the life and interaction among nations with a strength and magnitude hitherto unknown in recent history. Among its most negative consequences are the exacerbation of the trend to egocentrism and self-absorption on the part of those that enjoy better conditions and their reluctance to share scientific and financial resources with the remainder of the international community.

Just as the means to ensure security, the most powerful seek to appropriate the means that they believe can afford them protection from the virus. This protection, however, is illusory and will be short-lived if sought by way of excluding others. It is well known that in order to be effective measures such as vaccination must encompass the whole or the largest portion of the population in the shortest delay possible.

For this reason, and in spite of contrary political trends, evidence shows that effective control of the global health emergency to the benefit of the international community as a whole requires more coordinated management of the pandemic and more cooperative use of the world scientific and technical capabilities.

By the same token, the insecurity and instability fueled by the unbridled search of new means of destruction must be countered by greater cooperation among nations for the adoption of effective disarmament instruments and the strengthening of collective security. The ceaseless development of new, more powerful, faster and more lethal weapons does not ensure security. Weapons that seem to bring military superiority will be constantly



neutralized by rivals, in a stubborn competition in which there cannot be winners—and the losers will not be only those involved in the conflict, but the whole of humankind. [IDN-InDepthNews — 16 April 2021]

**Sergio Duarte** is Ambassador, former High Representative of the United Nations for Disarmament Affairs and current President of Pugwash Conferences on Science and World Affairs.

## Russia Tells Illegal Migrants from Post-Soviet Countries to Leave By June 15

Source: <https://www.themoscowtimes.com/2021/04/16/russia-tells-illegal-migrants-from-post-soviet-countries-to-leave-by-june-15-a73623>



Apr 16 – Russia has asked migrants from post-Soviet states living there illegally to leave the country by June 15, the state-run RIA Novosti news agency [reported](#) Friday.

In mid-December, President Vladimir Putin extended the residence status of foreign citizens living in Russia until June 15, 2021, due to the coronavirus pandemic. This covered migrants from Commonwealth of Independent States (CIS) countries living in Russia without proper documentation.

“These people will be punished by expulsion and closure of borders” if they don’t leave by the June 15 deadline, RIA Novosti quoted Deputy Interior Minister Alexander Gorovoy as saying at an Interparliamentary Assembly of the Commonwealth meeting.

According to Interior Ministry data, more than 332,000 illegal migrants from Uzbekistan currently reside in Russia, along with 247,000 from Tajikistan, 152,000 from Ukraine, 120,000 from Azerbaijan, 115,000 from Kyrgyzstan, 61,000 from Armenia, 56,000 from Moldova and 49,000 from Kazakhstan.

Russia is [experiencing](#) a labor shortage due to pandemic-related border closures and is looking to simplify entry requirements for migrant workers in industries like construction and agriculture. More than a year since the start of the pandemic, only a handful of countries' citizens are permitted to enter Russia.

The Interior Ministry [estimated](#) late last year that nearly half of all migrants living in Russia before the pandemic had since left the country.

**EDITOR’S COMMENT:** Next destination → Europe ? (I meant Greece via Turkey because EU borders are closed).

## Afghan women fear a new era of Taliban rule

Over the past 20 years, despite uneven progress, Afghan women have joined the [military and the police](#) force, [held political office](#), [become pop stars](#), competed on [Olympic](#) and [robotics](#) teams, and more.

Now, as U.S. and NATO forces there prepare to leave, [women in Afghanistan fear what a new era of Taliban rule](#) may mean for their freedoms and opportunities. The paramilitary group, poised to seize more territory, will very likely close schools for girls, limit women’s career options, and usher in a surge of gender-based violence.

A graduation ceremony in Kabul, Afghanistan, in 2019. Kiana Hayeri for The New York Times



**Quotable:** “All the time, women are the victims of men’s wars,” said Raihana Azad, a member of Afghanistan’s Parliament. “But they will be the victims of their peace, too.”

**U.S. context:** American officials and lawmakers frequently pointed to such gains of Afghan women and girls as proof of success over the past two decades. But when Pentagon officials pressed President Biden to maintain at least a modest troop presence, as they have with his predecessors, [he refused](#).



**Analysis:** In 2001, the U.S. [refused the Taliban's surrender](#), instead opting for total eradication and a highly centralized government, displacing a patchwork, but stable, state and turning each village and valley into a power struggle.

## Disturbing Signals from Afghanistan

By N.S.Venkataraman

Source: <http://www.slguardian.org/2021/04/disturbing-signals-from-afghanistan.html>

Apr 19 – The decision of the U S government to withdraw its forces from Afghanistan and subsequent announcement that NATO forces would also be withdrawn from Afghanistan, should be causing huge concern and uncertainty amongst the law-abiding citizens in Afghanistan, who are millions in number.

Apart from the fact that the decision of the U S government to withdraw forces from Afghanistan is a loss of face for the USA as well as the NATO countries, it is a definite victory for the Islamic terrorists who are entrenched not only in Afghanistan but in several other countries in the world including in Pakistan.



Obviously, the USA and NATO countries have washed off their hands in Afghanistan leaving the law abiding people at the mercy of the Islamic terrorists, particularly since the weak government in Afghanistan is not in a position to oppose and fight the extremists. Obviously, the government in Afghanistan, having been let down by USA, would try to buy peace with the Islamic extremists and this would be very costly for those running the government now.

The confidence of the Islamic extremists are now getting boosted around the world by the “surrender of the USA and NATO countries”.

It is well known that the Islamic extremists have the clear target of spreading the Islam religion around the world by fair or foul means. Their strategies are not defensive but clearly offensive to achieve their objectives.

The consequences of succumbing to the offences of the Islamic extremists in Afghanistan and the adverse impact would not be confined only to neighbouring countries such as Pakistan and India but it would cause severe adverse impact on the peaceful conditions around the world.



Many law abiding citizens in Pakistan, capable of a matured outlook, are clearly now realizing that Pakistan is now paying a big price by allowing Islamic extremists to get well entrenched in Pakistan and due to the policy of appeasement by Pakistan government and Pakistan military towards the extremists, who have their way.

As a result, Pakistan has lost its reputation as a peaceful country and gained notoriety as a terrorist ridden country. Caught between the vice like grip of Islamic extremists on the one hand and China on the other hand, law abiding and progressive citizens of Pakistan are facing an unenviable situation.

With Afghanistan going under the control of Islamic extremists, the future target of the extremists would be to achieve complete "Islamisation" of Pakistan, with Pakistan even being forced to shed whatever image it has as a progressive country.

India is already battling against Islamic extremists in Kashmir and the terrorists from Afghanistan and Pakistan soil would certainly increase the intensity of the terrorism. It remains to be seen as to how India would tackle this serious situation.

It is not as if USA and European countries can escape from the consequence of the panicky decision to withdraw forces from Afghanistan, after earlier having targeted to eliminate terrorism. The strengthened Islamic terrorists will continue their offensive in USA, Canada and European countries and they have positioned themselves well to do so, since millions of people owing allegiance to Islam (a few of whom could be militants) have migrated to these countries as refugees in the recent past. Certainly, the threat to peace in European countries, Canada and USA, which is already showing signs of disturbance, would seriously become more severe.

How to retrieve the situation now?

Possibly, the UN General Assembly should consider a proposal to send peace keeping forces to Afghanistan to maintain peaceful conditions to the extent possible and protect the lives of the law abiding citizens.

In many world forums, there have been loud talk by different countries that terrorism should be defeated at any cost but it has not happened.

The withdrawal of forces by USA and NATO countries from Afghanistan only make it very obvious that fight against terrorism would not yield results sooner or even later.

## The Washington Post's "Afghanistan Papers" and U.S. Policy: Main Points and Possible Questions for Congress

By Clayton Thomas

*Congressional Research Service | Paper R46197*

Source: <https://fas.org/sgp/crs/misc/R46197.pdf>

On December 9, 2019, the Washington Post published a series of documents termed "the Afghanistan Papers." The Papers comprise two sets of documents: about 1,900 pages of notes and transcripts of interviews with more than 400 U.S. and other policymakers that were carried out between 2014 and 2018 by the Special Inspector General for Afghanistan Reconstruction (SIGAR), and approximately 190 short memos (referred to as "snowflakes") from former Secretary of Defense Donald Rumsfeld, dating from 2001 to 2004. The documents, and the Washington Post stories that accompany them, suggest that U.S. policies in Afghanistan often were poorly planned, resourced, and/or executed. These apparent shortcomings contributed to several outcomes that either were difficult to assess or did not fulfill stated U.S. objectives. Key themes of the SIGAR interviews include:

- Negative effects of U.S. funding. The most frequently discussed subject in the SIGAR interviews was (a) the large sum of U.S. money (\$132 billion in development assistance since 2001) that poured into Afghanistan and (b) the extent to which much of it was reportedly wasted, stolen, exacerbated existing problems, or created new ones, particularly corruption.
- Unclear U.S. goals. Many of the interviewees argued that, from the beginning, the U.S. engagement in Afghanistan, supported by the money noted above, lacked a clear goal.
- Competing priorities. The proliferation of U.S. goals in Afghanistan led to another complication: U.S. actions to achieve some of these objectives seemed to undermine others.
- Organizational confusion and competition. While U.S. efforts in Afghanistan were dominated by the Department of Defense, given the wide array of U.S. interests in Afghanistan, U.S. policy formulation and execution required input from many federal departments and agencies. The problems associated with trying to coordinate among all of these entities was a consistent theme.
- Lack of expertise. Multiple SIGAR interviewees criticized U.S. policies that they claimed failed to generate relevant expertise within the U.S. government or even disincentivized the creation or application of that expertise in Afghanistan.



- Disorganized multinational coalition. Many of the SIGAR interviewees who worked on coordinating U.S. and international efforts discussed what they saw as a disorganized system.
- Iraq as a distraction. U.S. officials who were working on Afghanistan in the first decade of the war held a nearly universal judgment, in SIGAR interviews, that the U.S. invasion of Iraq in March 2003 distracted U.S. attention and diverted U.S. financial and other resources.
- Pakistan's support for the Taliban. A number of interviewees, particularly senior U.S. officials, attributed the Taliban's resurgence, and the failure of the U.S. to solidify gains in Afghanistan, to material support for the group from, and its safe havens in, Pakistan.
- Other voices: U.S. efforts as relatively successful. Some of the officials interviewed by SIGAR lauded arguable gains made and facilitated by the international community's work in Afghanistan since 2001, a perspective not generally included in the Washington Post stories.

The documents, released at a time when the United States is engaged in talks with the Taliban aimed at ending the 18-year U.S. military presence in the country, have attracted significant attention. Some Members of Congress have called for further investigation into U.S. policy in Afghanistan. However, there is debate over how revelatory the SIGAR interviews are: policymakers and outside analysts disagree about whether they contain new and relevant information and, if so, how the information should affect U.S. policy in Afghanistan going forward.

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since nobody is interested to do something about it ...**

## **Turkey Creates a Humanitarian Catastrophe in Occupied Syria**

Source: <https://www.meforum.org/62214/turkeys-ethnic-cleansing-in-afrin>

## **Remembering al-Qaida**

**By George Friedman**

Source: <https://geopoliticalfutures.com/remembering-al-qaida/>

Apr 20 – The United States invaded Afghanistan 20 years ago, soon after the attack on Sept. 11, 2001. By 2008, then-President Barack Obama made it a point to disengage from what has become known as the Forever Wars. He failed. His successor, President Donald Trump, pledged likewise but failed all the same. President Joe Biden, too, has said the U.S. would withdraw, this time by the anniversary of the 9/11 attack.

The war in Afghanistan can't be discussed without discussing al-Qaida, the Islamist group led by Osama bin Laden, the son of an extremely wealthy Yemeni who had moved his family to Saudi Arabia. His goal was to recreate an Islamic caliphate. As I wrote in "America's Secret War," his strategy was to unite the Islamic world against its common enemy, the United States. To that end, he would conduct an attack against the United States that generated massive casualties and electrified the world. If the U.S. could be attacked, it would prove the U.S. to be vulnerable. If the United States declined to respond, it would prove Washington to be weak or cowardly, or so the thinking went. Both cases would, bin Laden thought, achieve the same end: Islamic unity.

The attack against the United States was both simple and brilliant. Hijacked aircraft would strike American icons – the World Trade Center, the Pentagon and Congress (the latter of which failed). The Islamic world would know these buildings well and would see al-Qaida's power. What was remarkable was the detailed planning, the deployment of operatives and the movement of money, none of which was fully detected by U.S. intelligence. (There are always those who claim that they predicted such events. I have no idea what they said to whom before the attack, only what they claimed to have said after.) The fear that struck the United States was palpable.

Part of the fear was that Washington did not know what al-Qaida was planning next and what resources it had. The idea that 9/11 was the sum total of its capability was plausible, but there was no evidence for it, and the American public was thinking of all the worst-case scenarios. There was intelligence, necessarily uncertain in nature, that al-Qaida had acquired a single small nuclear device. All reasonable people scoff at such thoughts now, but in the days after the attack, nothing was being dismissed. Lenin said that the purpose of terror is to terrify. The country was terrified, because none of us knew what was next.

U.S. intelligence began connecting dots and acquiring intelligence from allies, and determined that al-Qaida was responsible for the attack. They also determined that bin



Laden and his command cell were located in Afghanistan under the protection of its leader, Taliban chief Mullah Mohammad Omar. The desire to lash out at everything was overpowering, but President George W. Bush elected instead to focus on the country that had given al-Qaida sanctuary. This was the beating heart of the movement, and it had to be destroyed or dispersed to prevent, to the extent possible, a follow-on attack on the U.S.

The ultimate objective of the invasion was to destroy al-Qaida's command. "Invasion" might not even be the right word; there was no invasion planned because one could not possibly be mounted in 30 days. The primary operation was carried out by CIA operatives with contacts in Afghanistan, along with special operations teams, who would carry out any attack mounted on al-Qaida. Occupation and regime change were incidental.

Most of the combat was meant to be carried out by U.S. allies such as the Northern Alliance, which had only recently discovered they were U.S. allies when the CIA delivered them a ton of cash. Among this group there were those who knew where bin Laden was and who claimed to be prepared to find him and turn him over to the Americans. Bin Laden was located in a complex of caves called Tora Bora near the Pakistani border. The allies located him but just missed capturing him (no surprise there). U.S. Special Operations Command moved toward a blocking position between Tora Bora and Pakistan, but the al-Qaida command cell and their families slipped across the border into Pakistan, where they seemed to be welcomed.

The initial operation was impressive for what it was. Though it did not succeed in capturing the enemy, it did disorganize the enemy enough to buy time for U.S. intelligence to gain some clarity, allowing continual harassment of the group and no further attacks on the U.S. Then came the original sin of U.S. military operations: mission creep. Until al-Qaida showed up in Afghanistan, the U.S. could tolerate Mullah Omar and had little interest in his country. The U.S. thought it would withdraw, then hunt down escaped al-Qaida operatives wherever else they went in the world. It was not to be. The idea that, of all the countries al-Qaida might be in, Afghanistan was uniquely important, requiring a multidivisional force to pacify, was unsound. The American force was never large enough or suitable to occupy Afghanistan, which had already broken the Soviets and the British. The Taliban declined to engage in combat head-on, retreated, dispersed and regrouped. They fought the U.S. to a standstill. If the U.S. withdraws, it leaves Afghanistan to the Taliban, the same situation that would have been the case in December 2001.

The argument against withdrawal is that Afghanistan could be used as a base for mounting terrorist attacks. That is true, but recall that 9/11 was mounted mostly inside the U.S. Transnational terrorism is just that – transnational – and even if Afghanistan were its hub, the U.S. simply cannot hold it.

Obama, Trump and Biden all reached a similar conclusion. Their critics on the matter confuse the desirable and the possible. They often argue that Afghanistan poses a unique danger. It doesn't. Even so, nothing is over so long as something is possible. And since few things are impossible, the people who want to stay tend to win. But it is important to remember what happened to understand the logic that led to a war that wanted to do what no one, not even Alexander the Great at the height of his power, could. You can isolate Afghanistan, but you cannot impose your will on it.

*George Friedman is an internationally recognized geopolitical forecaster and strategist on international affairs and the founder and chairman of Geopolitical Futures. Dr. Friedman is also a New York Times bestselling author. His most recent book, THE STORM BEFORE THE CALM: America's Discord, the Coming Crisis of the 2020s, and the Triumph Beyond, published February 25, 2020 describes how "the United States periodically reaches a point of crisis in which it appears to be at war with itself, yet after an extended period it reinvents itself, in a form both faithful to its founding and radically different from what it had been." The decade 2020-2030 is such a period that will bring dramatic upheaval and reshaping of American government, foreign policy, economics, and culture. His most popular book, The Next 100 Years, is kept alive by the prescience of its predictions. Other best-selling books include Flashpoints: The Emerging Crisis in Europe, The Next Decade, America's Secret War, The Future of War and The Intelligence Edge. His books have been translated into more than 20 languages. Dr. Friedman has briefed numerous military and government organizations in the United States and overseas and appears regularly as an expert on international affairs, foreign policy and intelligence in major media. For almost 20 years before resigning in May 2015, Dr. Friedman was CEO and then chairman of Stratfor, a company he founded in 1996. Friedman received his bachelor's degree from the City College of the City University of New York and holds a doctorate in government from Cornell University.*

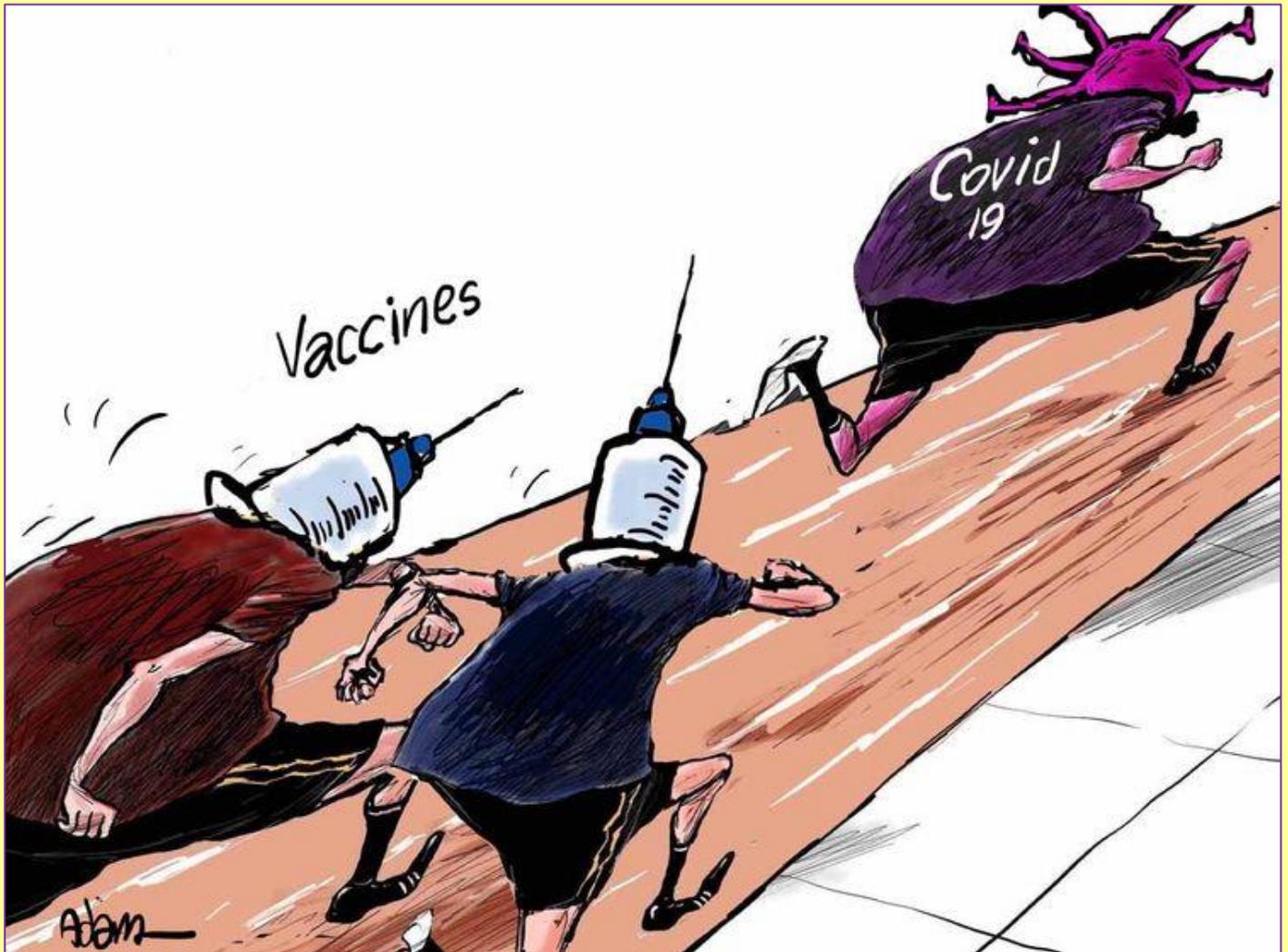
## Al-Qaeda Mag Tells Jihadists to Use Protests as Cover & Incite Riots

A pro-Al-Qaeda group is [telling jihadists](#) to infiltrate demonstrations and incite protestors to attack the police, such as by killing police officers engaged in a confrontation or hiring "militiamen" to carry out a vehicular attack on protestors and then blaming law enforcement for it.



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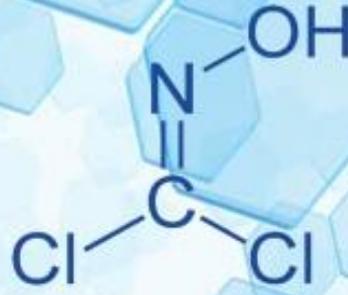
The magazine recommended that jihadists pretend to be protestors in order to receive lighter sentencing. The group is also offering a bitcoin worth \$60,000 to the first person who kills a police officer in a Western country. Non-Muslims are eligible for the reward.



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# CHEM NEWS



## Senate bill would reform VA approach to toxic substance exposure treatment

Source: <https://www.upi.com/Defense-News/2021/03/24/toxic-exposure-VA-Hassan-Tillis/8731616613074/>

Mar 24 – A bill to improve healthcare and benefits of military personnel exposed to toxic substances was reintroduced in the U.S. Senate this week.

The Toxic Exposure in the American Military, or TEAM, Act would create sweeping mandates for the Department of Veterans Affairs to track and care for eligible veterans, Sen. Thom Tillis, R-N.C., announced on Tuesday.

Co-sponsored by Tillis and Sen. Maggie Hassan, D-N.H., the bill was passed in the Senate Veterans Affairs Committee in 2020 but did not receive a Senate floor voter.



"Our brave veterans risked their lives to protect our country and it's our job to make sure they are supported back home, even years after they served," Tillis [said in a press release](#).

"The TEAM Act ensures that all veterans are given a fair and uniform process to receive the health care and benefits to which they are entitled following exposures to toxicants during their service," Tillis said.

The [proposed bill](#) expands health care for veterans exposed to toxic substances, and requires the VA to respond to new scientific evidence regarding diseases associated with toxic exposure.

The bill would also ensure that VA review scientific studies regarding toxic substances encountered during military service, establishes an independent scientific commission to assist the VA in determining the health effects of toxic

exposure and expands training of VA health care personnel.

The issue has gained attention as personnel serving in [Afghanistan](#) and Iraq returned home with cancers and respiratory and fertility issues.

The issue has also been noted because of lagging Pentagon action to remediate contamination by PFAS -- per- and polyfluoroalkyl substances -- at hundreds of military bases and other defense operations in the United States.

PFAS are regarded as "forever chemicals" because they do not break down in the environment.

Hassan's state, New Hampshire, is the site of the former Pease Air Force Base.

The base, which was closed in 1991, has since 1983 has been investigated and partially remediated after troops and their families were exposed to high levels of chemicals, including PFAS.

"We have an obligation to ensure that veterans who return home from war receive the care that they need and have earned," Hassan said [in a statement](#) on Tuesday.

"Our bipartisan bill would take long overdue steps to ensure that veterans can receive health care for diseases that they develop as a result of toxic substance exposure during their service," Hassan said.

## Philippines Contributes \$15,000 to Future OPCW Centre for Chemistry and Technology

Source: <https://www.miragenews.com/philippines-contributes-15000-to-future-opcw-542127/>

Apr 10 – The Government of the Philippines has contributed US\$15,000 to a special Organisation for the Prohibition of Chemical Weapons (OPCW) Trust Fund to support the construction of a new facility, the OPCW Centre for Chemistry and Technology ("ChemTech Centre").

The contribution was formalised during a ceremony between the Permanent Representative of the Philippines to the OPCW, H.E. Ambassador Jose Eduardo E. Malaya III, and OPCW Director-General, H.E. Mr Fernando Arias, which was held today at OPCW Headquarters in The Hague.



Ambassador Malaya stated: “The Philippines is committed to disarmament and non-proliferation of weapons of mass destruction, notably chemical weapons. I commend the work of the OPCW and its vision to establish the ChemTech Centre, which aims to strengthen the Organisation’s capability against new and emerging chemical weapons threats and support capacity building among OPCW Member States.”

The Director-General expressed his gratitude to the Government of the Philippines and noted: “The Philippine contribution advances the establishment of the ChemTech Centre which will be a centrepiece for research, analysis, and training for all Member States.” Director-General Arias also thanked all the OPCW States Parties and other donors who have supported the project. He emphasised the important role the new ChemTech Centre will play in strengthening the OPCW’s ability to address chemical weapon threats and enhance capacity building activities to the benefit of all 193 OPCW Member States.

**So far, 47 countries, the European Union, and four other donors have contributed or pledged to contribute financially to the ChemTech Centre project, and €33.6M has been raised.**

States Parties are encouraged to continue participating in this important project. Further voluntary contributions will also be used to finance equipment and activities related to International Cooperation and Assistance involving the ChemTech Centre.

### Background

The project to build the ChemTech Centre is on-going and seeks to strengthen the OPCW’s capabilities to fully address new and emerging chemical weapons threats, as well as to support capacity building in OPCW Member States. The current OPCW Laboratory and Equipment Store are central to the effectiveness and integrity of the verification regime of the Chemical Weapons Convention, and they also contribute to the OPCW’s capacity building and international cooperation activities. However, the current facility will soon no longer be fit-for-purpose due to its ageing infrastructure, space constraints, larger workloads, and new missions with new areas of work.

A new facility is required to meet the demands of OPCW Member States for enhanced verification tools, improved detection capabilities and response measures, as well as increased capacity building activities. The ChemTech Centre will also help the OPCW to keep pace with developments in science and technology and new chemical weapons threats. Construction of the ChemTech Centre is scheduled to begin in 2021 and the building is currently planned to be operational by the end of 2022.

**To date, the following Member States have contributed or pledged to contribute to the project:** Algeria, Andorra, Angola, Australia, Bangladesh, Belgium, Canada, Chile, China, Cyprus, the Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Indonesia, Ireland, Italy, Japan, Kazakhstan, Lithuania, Luxembourg, Malaysia, Malta, Morocco, the Netherlands, New Zealand, Pakistan, Peru, the Philippines, Poland, Portugal, the Republic of Korea, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Thailand, Turkey, the United Arab Emirates, the United Kingdom of Great Britain and Northern Ireland, and the United States of America. The European Union, Israel (a signatory state) and other donors have also contributed.

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 98% of all declared chemical weapon stockpiles have been destroyed under OPCW verification. For its extensive efforts in eliminating chemical weapons, the OPCW received the 2013 Nobel Peace Prize.

**EDITOR’S COMMENT:** With the exception of UAE, all GCC (rich) countries are absent (at least for the time being).

## Man Sentenced to 12 Years for Attempting to Purchase Chemical Weapon on the Dark Web

Source: <https://www.hstoday.us/subject-matter-areas/counterterrorism/man-sentenced-to-12-years-for-attempting-to-purchase-chemical-weapon-on-the-dark-web/>

Apr 07 – A Missouri man was sentenced to 12 years in federal prison without parole for attempting to purchase a chemical weapon, capable of killing hundreds of people, on the dark web with Bitcoin.

Jason William Siesser, 46, of Columbia, Mo., pleaded guilty to one count of attempting to acquire a chemical weapon and one count of aggravated identity theft on Aug. 4, 2020.

According to court documents, Siesser admitted that he attempted to acquire a chemical weapon on two occasions between June 14 and Aug. 23, 2018. He provided a shipping



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address in the name of a juvenile, whose identity he used without authorization, to place the orders for a highly toxic chemical in amounts capable of killing many people. Siesser paid for the chemical weapon with the digital cryptocurrency known as Bitcoin.

? Siesser ordered two 10 mL units of the chemical on July 4, 2018, and paid with Bitcoin. The seller did not ship the chemical weapon at that time. Siesser continued to contact the seller. On July 19, 2018, Siesser told the seller that, “I plan to use it soon after I receive it.”

Siesser ordered three 10 mL units of the chemical weapon on Aug. 5, 2018. Siesser again paid for the order with Bitcoin, the equivalent of \$150, and provided a shipping address in the name of a juvenile.

This quantity of the chemical weapon has the capacity to kill approximately 300 people.

A controlled delivery of a package that contained an inert substance was made to Siesser’s residence on Aug. 23, 2018. Siesser believed the package contained the chemical weapon he had ordered, signed for the package and took it inside the residence.

Law enforcement officers then executed a search warrant at Siesser’s residence. On top of a shelf in the garage, officers located the inert substance Siesser believed to be a chemical weapon. Officers also located two separate and seemingly unopened shipping boxes on the shelf next to it. They contained approximately 10 grams of **cadmium arsenide** (photo, right), a toxic compound, which can be deadly if ingested or inhaled; approximately 100 grams of cadmium metal; and approximately 500 mL of hydrochloric acid. An invoice for these products showed they had been ordered together on March 30, 2018.

Writings located within the home articulated Siesser’s heartache, anger and resentment over a breakup, and a desire for the person who caused the heartache to die.



## NAFDAC: Kano Poisoned Drink Contained Chemical Used for Terrorism

Source: <https://www.thisdaylive.com/index.php/2021/04/11/nafdac-kano-poisoned-drink-contained-chemical-used-for-terrorism/>

Apr 11 – The National Agency for Food, Drug Administration and Control (NAFDAC) has said that investigations showed that the chemical added to the killer flavoured drink that led to the death of three persons in Kano contained “**Hydroxylamine**” used for terrorism.

It said all the merchants of the deadly chemicals and additives have been apprehended, while further investigation continues.

The Director General of NAFDAC, Prof. Mojisola Adeyeye, in a statement on Sunday, signed by NAFDAC’s Resident Media Consultant, Sayo Akintola, warned Nigerians against adding chemicals and additives to food and drinks to enhance taste, stressing that such practices could result in severe illness and even death.

On the recent Kano incident where three people reportedly died as a result of their consumption of dangerous chemicals used as additives, Adeyeye explained that a preliminary result of the Agency’s investigation indicated that the additive chemical was Hydroxylamine.

“Having tested the additive chemical, it was discovered to be Hydroxylamine. It’s a poison. Sometimes its used for terrorism. This is very sad because it involved people dying,” she said.

Adeyeye said that shortly after the news about the Kano incident was received by NAFDAC, six directorates of the Agency immediately swung into action to unravel the mystery behind the sad event.

She added that internal checks revealed that only two of the five flavoured drinks identified in the incidence were registered by NAFDAC, while three were not on the agency’s data base.

According to her, samples of the chemicals and additives that were added while preparing the flavoured drinks for consumption were collected and taken to NAFDACs laboratory in Kaduna for testing.

She said that further testing was conducted at the Agency’s central laboratory in Lagos for confirmation.

“We have five flavoured drinks. Two were registered, while three were not. Any food that is unregistered are not guaranteed by NAFDAC and could be unwholesome.

“It’s fake food. It was most likely smuggled into the country,” she explained.

Adeyeye said that the agency tested all the food samples, and that there was E-Coli bacteria in some, adding that it is surprising how E-Coli bacteria would get into powder.



The DG said that the preliminary report of the agency has been submitted to the Kano State Governor, Alhaji Abdullahi Umar Ganduje.

She said that the Pharmacovigilance directorate of the Agency has sent an alert to all its 36 state offices of NAFDAC and the Federal Capital Territory (FCT) to mount surveillance on the unregistered products and mop up the killer chemical.

She emphasised that the chemical did not pass through NAFDAC as there are no records at the Chemical Evaluation and Research Directorate to suggest that permission was given to anyone to import the chemical into the country.



She added that internal checks at the Ports Inspection Directorate revealed that the chemical was not imported through the ports.

“Definitely, it was smuggled into the country,” she said, noting that before any chemical can be legally imported into Nigeria, full authorisation and permit must be obtained from NAFDAC to ensure that no dangerous chemicals are brought into the country and used to the detriment of the Nigerian people.

“For safety and security concerns, NAFDAC does end-to-end monitoring for all chemicals. We request for distribution and utilisation patterns before we give importers permits to import chemicals. We must know who you have sold the chemicals to in your report. These are the things you must clarify to us before we give approval for permit to clear chemical consignments,” she said. Adeyeye regretted that three fatalities were recorded from the Kano incident with many people having their health compromised.

She said that it’s heartwarming to note that all the merchants of the deadly chemicals and additives have been apprehended while further investigation continues.

She pointed out that food contamination and poisoning could occur through consuming expired food.

The NAFDAC boss also explained that food poisoning could occur by preparing food with poorly sourced water and putting cooked food on the shelf for several days or months: or in the refrigerator for too long amongst others.

“We are very particular about food additives, about the temperature at which a food can be kept, or about the expiration date of food. If all of these are violated, then there could be food poisoning,” she said, adding: “Whether it’s food or water, adding chemicals and other substances either to enhance the food or change its form can be dangerous especially when we can’t verify the source and content of such additives.”

Adeyeye said that NAFDAC is now working assiduously in partnership with the Kano State Government with a view to preventing the reoccurrence of the March 11, 2021 incident.

She said that her Agency will be working with the Kano State Taskforce under the Federal Taskforce on Counterfeit and Fake Drugs and Unwholesome Processed Foods, which is domiciled in NAFDAC, and the Nigeria Consumers Protection Agency in Kano.

While giving more explanation on the Kano incident, Adeyeye said that the investigators found an additive that was kept in a transparent freezer bag.

She said that there is another unknown chemical that is sold as food additive.

“This chemical for 25 Kg bag was supposed to be sold for N30,000. One of the merchants got it for N3,000 and sold it to another merchant for N7,000. The merchant that got it for N7,000 thought it was Dantsami (Hausa for ‘something sour’) that they normally use and tasted it to confirm that truly it was Dantsami. Dantsami is what is used in some parts of northern Nigeria to make drinks sour. 25 Kg kilo bag of the unknown chemical was also sent to the Agency’s laboratory in Kaduna for testing,” she said.

The NAFDAC DG said there are measures being put in place by the agency to ensure safe foods, chemicals and other regulated products, but regretted that some people still find ways to smuggle these chemicals into the country.

## OPCW Releases Second Report by Investigation and Identification Team

Source: <https://www.opcw.org/media-centre/news/2021/04/opcw-releases-second-report-investigation-and-identification-team>

Apr 12 —The Organisation for the Prohibition of Chemical Weapons (OPCW) released today the findings of the [second report](#) by the OPCW Investigation and Identification Team (IIT). The IIT is responsible for identifying the perpetrators of the use of chemical weapons in the



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Syrian Arab Republic where the OPCW Fact-Finding Mission (FFM) has determined that chemical weapons have been used or likely used in Syria. The IIT released its [first report](#) on 8 April 2020.

The IIT's second report reiterates its mandate, the legal and practical challenges of its work, and the findings of the investigation focusing on the incident in Saraqib, Syrian Arab Republic, on 4 February 2018. The IIT's investigation and analysis included a comprehensive review of all the information obtained including: interviews with persons who were present in the relevant places at the time of the incidents, analysis of samples and remnants collected at the sites of the incidents, review of the symptomatology reported by casualties and medical staff, examination of imagery, including satellite images, and extensive consultation of experts. The IIT also obtained topographic analysis of the area in question and gas dispersion modelling to corroborate accounts from witnesses and victims. The investigation relied on relevant FFM report as well as on samples and other material obtained by the Technical Secretariat.

The report reached the conclusion that there are reasonable grounds to believe that, at approximately 21:22 on 4 February 2018, a military helicopter of the Syrian Arab Air Force under the control of the Tiger Forces hit eastern Saraqib by dropping at least one cylinder. The cylinder ruptured and released chlorine over a large area, affecting 12 named individuals.

### Background

The Organisation for the Prohibition of Chemical Weapons' (OPCW) Investigation and Identification Team (IIT) is responsible for identifying the perpetrators of the use of chemical weapons in the Syrian Arab Republic. The IIT identifies and reports on all information potentially relevant to the origin of those chemical weapons in those instances in which the OPCW's Fact-Finding Mission (FFM) determines or has determined that use or likely use occurred, and cases for which the OPCW-UN Joint Investigative Mechanism (JIM) has not identified the perpetrators of chemical weapons use in Syria.

The IIT is comprised of a multi-disciplinary team of staff, which includes experienced investigators, analysts and a legal adviser who are led by a Coordinator. The team conducts its activities in an impartial and objective manner. The IIT is part of the OPCW Technical Secretariat and functions under the authority of the OPCW Director-General. The Technical Secretariat provides regular reports on its investigations to the OPCW's Executive Council and to the United Nations Secretary-General for their consideration.

The OPCW Technical Secretariat established the IIT as mandated by the decision of the [Conference of the States Parties](#) titled [Addressing the Threat from Chemical Weapons Use \(C-SS-4/DEC.3\)](#) dated 27 June 2018.

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 98% of all declared chemical weapon stockpiles have been destroyed under OPCW verification. For its extensive efforts in eliminating chemical weapons, the OPCW received the 2013 Nobel Peace Prize.

## FLIR Wins DARPA Contract Worth Up to \$20.5M to Develop Revolutionary New Protective Fabrics for Chem-Bio Defense

Source: [https://www.flir.eu/news-center/military/flir-wins-darpa-contract-worth-up-to-\\$20.5m-to-develop-revolutionary-new-protective-fabrics-for-chem-bio-defense/](https://www.flir.eu/news-center/military/flir-wins-darpa-contract-worth-up-to-$20.5m-to-develop-revolutionary-new-protective-fabrics-for-chem-bio-defense/)

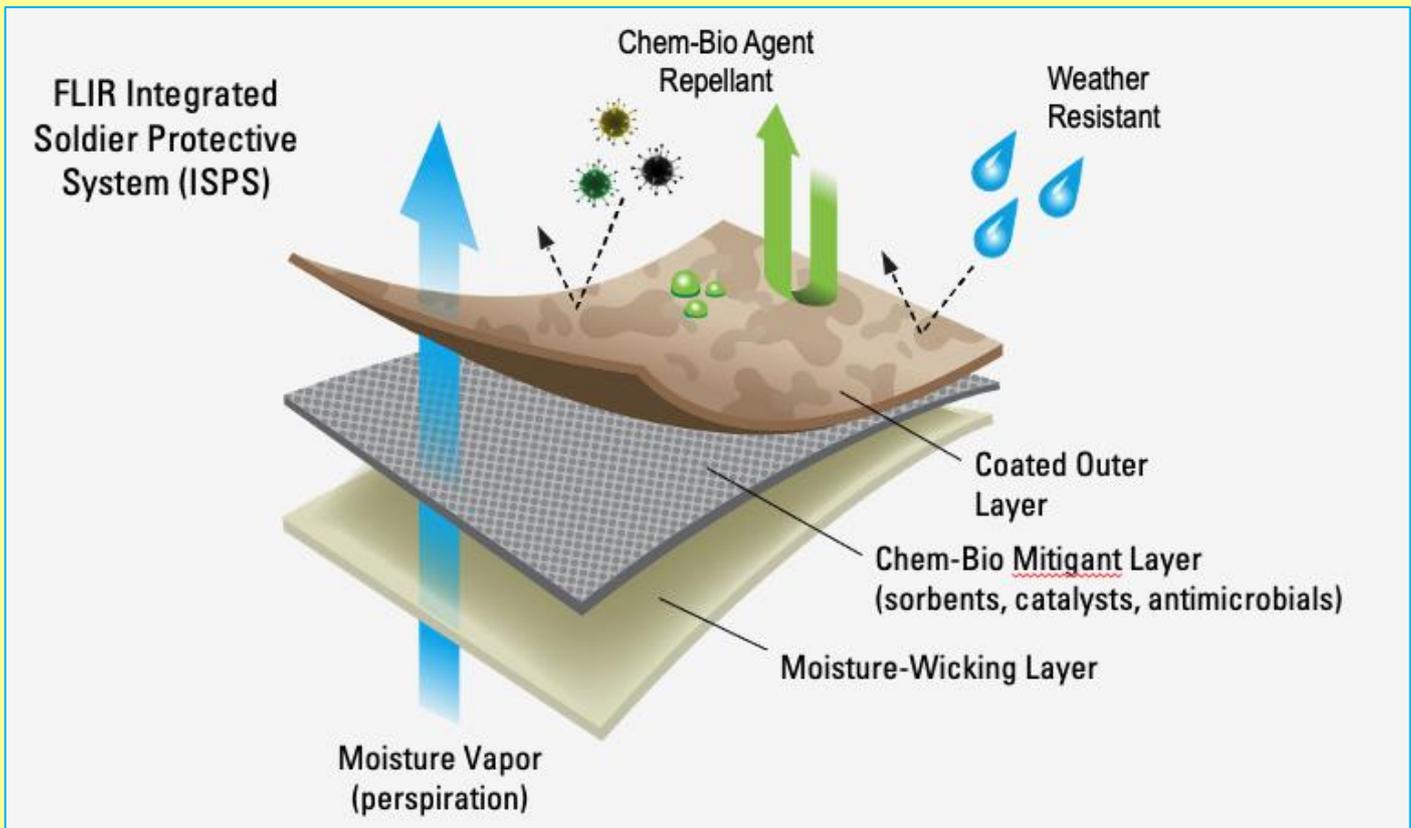
Apr 12 – FLIR Systems, Inc. (NASDAQ: FLIR) announced it has won a contract with the Defense Advanced Research Projects Agency (DARPA) to rapidly develop novel fabrics with embedded catalysts and chemistries that can fight and reduce chemical and biological threats upon contact. The revolutionary fabrics will be incorporated into protective suits and other equipment such as boots, gloves, and eye protection that can be worn by troops on the battlefield, medical experts, healthcare workers, and more. FLIR received \$11.2 million in initial funding for the potential five-year effort worth up to \$20.5 million, including options.

The goal of DARPA's Personalized Protective Biosystems (PPB) program is to reduce the substantial weight and physiological burden of current Personal Protective Equipment (PPE) so soldiers and other specialists can better perform their tasks. PPB will combine novel, lightweight protective materials with new prophylactic medical technologies that mitigate chemical and biological threats at vulnerable tissue barriers, notably the eyes, skin and lungs. The complete system will enable troops and first responders to operate without the burden of carrying and wearing PPE, which can cause heat stress and reduce time spent completing the mission.

"With lives at stake, future operators wearing PPB suits will gain a major edge in staying protected from toxic chemicals and emerging biological threats such as dangerous viruses," said Mark Stock, VP and general manager of the Sensor Systems business at FLIR. "We're



honored DARPA has chosen us to lead this extraordinary and highly innovative effort to develop first-of-its-kind protective fabrics for our nation's warfighters, health and public safety officials."



FLIR and its teaming partners will develop a prototype fabric material, the Integrated Soldier Protective System (ISPS), for testing by government laboratories. Work will be performed at FLIR facilities in Pittsburgh. The ISPS award consists of a two-year base period, two-year first option, and one-year final option. The result after five years will be a suite of prototype protective fabrics and garments ready for transition to a program of record with the U.S. Department of Defense.

FLIR safeguards people and property by providing tools that see and sense harmful Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) substances. For more on FLIR Systems' threat detection products, visit [www.flir.com/threat-detection/](http://www.flir.com/threat-detection/).

## Assad's Long Reach

By Tobias Schneider, Emma Bapt and Karam Shoumali

Source: <https://chemicalweapons.gppi.net/analysis/assads-long-reach-syaaf-pt-1/>

April 2021 – In the early hours of 7 April 2017, a senior pilot and squadron commander of the Syrian Arab Air Force (SyAAF) prepared to take off from Shayrat Air Base in central Syria. This flight marked his third mission carrying lethal Sarin in just over two weeks. The pilot's precise routine set off alarm bells for the opposition activists who had tuned into Syria's radio towers in anticipation of the near daily air-raids:

"Su-22 took off [from Shayrat Air Base], [code-named] Quds 1, known to be the squadron commander. The situation is calm. [This pilot] does not conduct these raids unless he is carrying something dangerous – unless he has toxic materials. The aircraft took off at 6:26."

A few hours later, at least 89 civilians had been killed in Khan Shaykhun. As images of civilians gasping for air raced around the world, the United States prepared to respond with military force.

Over the course of the war, the Syrian air force has served as the Syrian government's primary means of inflicting violence and suffering on civilians in opposition-held communities. While the attack on Khan Shaykhun was the war's most deadly chemical bombing to date, it



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is far from the only time chemical weapons were deployed by the air wing of the Syrian military, which has served as a principal pillar of Syria's chemical deterrent for decades. In our research, we have identified [at least 336 chemical attacks](#) carried out by Syrian government forces. Only a few of these incidents involved nerve agents such as Sarin – the vast majority involve crude, chlorine-filled barrels dropped from helicopters onto settlements in opposition-held areas.

According to the Violations Documentation Center, at least 34,000 Syrians have perished in air attacks involving conventional munitions, including barrel bombs containing high explosives. Hundreds of thousands more have been injured, driven from their homes and psychologically scarred from the years of near-constant bombardment. As frontlines hardened across the country, the SyAAF grew into the strong arm of the Assad government's military campaign.

Despite its centrality to the Syrian war effort, the SyAAF has received little public attention or research into its operations, largely owing to its tight internal controls. Our work attempts to shed light on the SyAAF as a military institution at the heart of one of the most devastating and consequential conflicts in the last decades. Our research outlines the Syrian air force's transformation as a military organization, and offers a thorough account of its current state and operational patterns. Understanding the SyAAF's structure and protocol is essential for efforts to hold the Syrian government accountable, as well as for drafting effective policy. In no other aspect of the Syrian conflict are so few people responsible for so much destruction.

►► [Read the full text at source's URL.](#)

### The Syrian Air Force Today

By Tobias Schneider, Emma Bapt and Karam Shoumali

Source: <https://chemicalweapons.gppi.net/analysis/assads-long-reach-syaaf-pt-2/>

April 2021 – The SyAAF's doctrinal order of battle offers a comprehensive overview of the structure and composition of Syria's remaining active air bases, as well as the evolving makeup of air force divisions, brigades and squadrons over the course of the war. Reconstructing the SyAAF in its current form is essential not only for mitigating its destruction going forward, but also for holding the institution accountable for past crimes. The order of battle provides a useful reference for retracing the functions and positioning of the Syrian air force – and paints a clear picture of its remaining capabilities.

►► [Read the full text at source's URL.](#)

## NCT Virtual Novichoks and Pharmaceutical Based Agents



May 04, 2021 – Online

After a successful year of the NCT Virtual events series, we are pleased to announce that the NCT Virtual Platform will keep its doors open for a whole new program of monthly events. The monthly editions of NCT Virtual will enable the CBRNe and EOD community to remain up to date on the latest and most crucial topics in the world of CBRNe and EOD, while maintaining the CBRNe community connected. One week before each NCT Virtual event, the NCT Magazine will offer you a foretaste of the NCT Virtual event, by sharing articles and interviews from our panelists but also from our industry partners.

Based on the model of its famous NCT Events, the **CBRNe Society** will give the floor to high-level panelists during a virtual panel discussion moderated by BG (Ret.) William King, former commander of the US Army 20th CBRNE Command, and Ms. Anna Paternosto, Vice President, CBRNe Society, addressing the topic of Novichoks and Pharmaceutical Based Agents. In addition to the panel discussions, the virtual industry exhibition will showcase the newest technologies available to counter these threats and the networking areas will provide the opportunity to attendees to interact with each other.

►► [Other NCT events: https://nct-events.com/](https://nct-events.com/)



## Revolutionary Tech to Help Deal with Hazardous Materials

Source: <https://i-hls.com/archives/108094>



Apr 16 – The cumbersome protective equipment used by troops and first responders dealing with hazardous materials often hinders the rapid accomplishment of missions. A new development could help solve this problem.

Revolutionary fabrics will be incorporated into protective suits and other equipment such as boots, gloves, and eye protection that can be worn by troops on the battlefield, medical experts, healthcare workers, and more. FLIR Systems has won a contract with the Defense Advanced Research Projects Agency (DARPA) to rapidly **develop novel fabrics with embedded catalysts and chemistries that can fight and reduce chemical and biological threats upon contact.**

The goal of DARPA's Personalized Protective Biosystems (PPB) program is to reduce the substantial weight and physiological burden of current Personal Protective Equipment (PPE) so soldiers and other specialists can better perform their tasks. The program will combine novel, lightweight protective materials with new prophylactic medical technologies that mitigate chemical and biological threats at vulnerable tissue barriers, notably the eyes, skin and lungs.

The complete system will enable troops and first responders to operate without the burden of carrying and wearing PPE, which can cause heat stress and reduce time spent completing the mission.

FLIR received \$11.2 million in initial funding for the potential five-year effort worth up to \$20.5 million, including options.

FLIR and its teaming partners will develop a prototype fabric material, the Integrated Soldier Protective System (ISPS), for testing by government laboratories. The result after five years will be a suite of prototype protective fabrics and garments ready for transition to a program of record with the U.S. Department of Defense, according to the company's announcement.

## The Last Straw

### How Chemical Weapons Impact Women and Break Communities

By Inji El Bakry and Tobias Schneider

Source: <https://chemicalweapons.qppi.net/analysis/the-last-straw-gender/>

February 2021 – The Syrian regime has repeatedly and systematically deployed chemical weapons against civilian populations as a part of its military campaign – a strategy that disproportionately affects women and children. While existing research demonstrates the vital role Syrian women play in the resilience and survival of their communities, little evidence is available on the damaging impact of chemical attacks on women and what that means – both immediately and enduringly – for their larger Syrian communities.

Our research reveals that the effects women and children suffer after a chemical attack are not only devastating in their immediate and direct implications, but also have far-reaching, long-term communal and societal consequences. In addition to constituting an egregious



violation of international human rights, the use of banned chemical weapons against civilian populations in Syria and their direct effects on women and children have broader ramifications that exhaust community resilience, social cohesion and eventually force migration.

For women in opposition-held areas, chemical weapons have only been the worst form among a barrage of indiscriminate violence unleashed by government forces against communities in Syria. As a final bid for survival, many ultimately chose to leave their homes and move their families to a different location to escape the looming threat of a chemical attack. Our previous report [Nowhere to Hide](#) illustrated how the displacement caused by the use of chemical and other indiscriminate munitions has bolstered the Syrian military's strategy of depriving rebel forces of civilian support and resources as it emptied and impoverished the communities under opposition control.<sup>1</sup>

The international community could have taken – and could still take – many steps toward supporting and strengthening the resilience of Syrian communities to lessen the direct and indirect effects of these attacks and other forms of indiscriminate violence against civilian populations in Syria, which range from psychological distress to the erosion of social cohesion. Building up the capacity to mitigate the impact of chemical attacks on local communities will require strengthening response capabilities, including maternal and mental health provisions. Additionally, certain women-centered initiatives should be prioritized, primarily those focused on strengthening support networks for women. These programs help to sustain communal resilience and close the gender information gap by capturing the experiences of women who are affected by indiscriminate violence and chemical attacks for future research, policy and accountability efforts.

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

## Syria: Illegitimate OPCW resolution promotes terrorism

Source: <https://www.presstv.com/Detail/2021/04/22/650021/Syria-OPCW-resolution->

Apr 22 – Syria has condemned a Western-backed resolution passed by the Organization for the Prohibition of Chemical Weapons (OPCW) over the country's alleged use of toxic arms, saying the illegitimate move encourages foreign-sponsored terrorists to go ahead with their crimes in the Arab country.

On Wednesday, the 25th session of the Conference of the States Parties to the Chemical Weapons Convention (CWC) suspended the voting rights and privileges of the Syrian Arab Republic, accusing Damascus of failing to comply with the treaty, which prohibits the use of all chemicals on the battlefield.

The resolution was passed by 87 votes in favor to 15 against, including Syria, Iran, Russia and China. There were also 34 abstentions out of 136 countries taking part.

France had introduced the anti-Syria motion on behalf of 46 countries also including Britain and the United States.

The Syrian Foreign Ministry said in a statement that only 45 percent of CWC's 193 member states, not the majority, voted in favor of "the illegitimate decision," which is inconsistent with the OPCW's usual procedures.

"The Syrian Arab Republic condemns, in the strongest terms, the hostile approach embodied today in the work of the 25th session of the Conference of the States Parties in the Chemical Weapons Convention, as Western countries, especially the US, Britain and France practiced the most heinous methods of blackmail, threats and pressure to pass a Western decision against Syria in a dangerous precedent in the history of the organization," it added.

The ministry also complained that the countries behind the resolution have "deliberately ignored the great efforts exerted by Syria during eight years, since its voluntary access to CWC, and the unprecedented cooperation it has showed with the Organization teams."

"The decision is a message that comes in the context of the western direct support for the terrorist groups in Syria, and it is an encouragement to terrorists to go ahead in their crimes, including the chemical crimes, perpetrated by these groups in all incidents witnessed in Syria against civilians," it said.

Separately, Syria's OPCW Representative Rania Al-Rifai stressed that the resolution is a manifestation of support for terrorists by the states that proposed the measure.

"The decision was made based on false reports that contain fabricated and misconceived conclusions," she said. "There is no doubt that this decision will encourage terrorists in their actions so that they continue to commit their crimes against innocent civilians particularly with the use of chemicals."



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Syria surrendered its entire chemical stockpile in 2013 to a mission led by the United Nations and the OPCW. It believes that false-flag chemical attacks on the country's soil have been staged by foreign-backed terrorists in a bid to pressure the government amid army advances.



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# BIO NEWS



## China's CanSino Biologics COVID-19 vaccine receives emergency use approval in Hungary

Source: <https://www.reuters.com/article/health-coronavirus-cansinobio-hungary/update-1-chinas-cansino-biologics-covid-19-vaccine-receives-emergency-use-approval-in-hungary-idUSL1N2LK00K>



Mar 22 – China's CanSino Biologics Inc (CanSinoBIO) said on Monday its COVID-19 vaccine has been authorised for emergency use in Hungary, the second Chinese vaccine to receive approval in that nation.

The Hungarian National Institute of Pharmacy and Nutrition granted the approval for its vaccine, with the **trade name Convidecia**, based on the interim results of its phase III trial, the company said in a statement.

It was the first EU nation to buy and use Chinese or Russian shots and initially came under fire for its separate approval process and negotiations for the vaccines.

More recently, several European countries have also expressed interest in buying those vaccines as shipments from Western suppliers lagged.

**Hungary has also approved a COVID-19 vaccine developed by China National Pharmaceutical Group's (Sinopharm) for use in the country.**

CanSinoBIO's vaccine is a **single-dose vaccine** that is currently also approved in China, Pakistan and Mexico.



Hungary's daily coronavirus infections on Friday surpassed 10,000, hitting a record of 10,759, while the daily death toll also hit a record at 213 in the central European country of 10 million.

## CLINITEST® Rapid COVID-19 Antigen Test

Source: <https://www.siemens-healthineers.com/fr-be/point-of-care-testing/covid-19-testing/covid-19-tests/clinitest-covid-19-antigen-test>

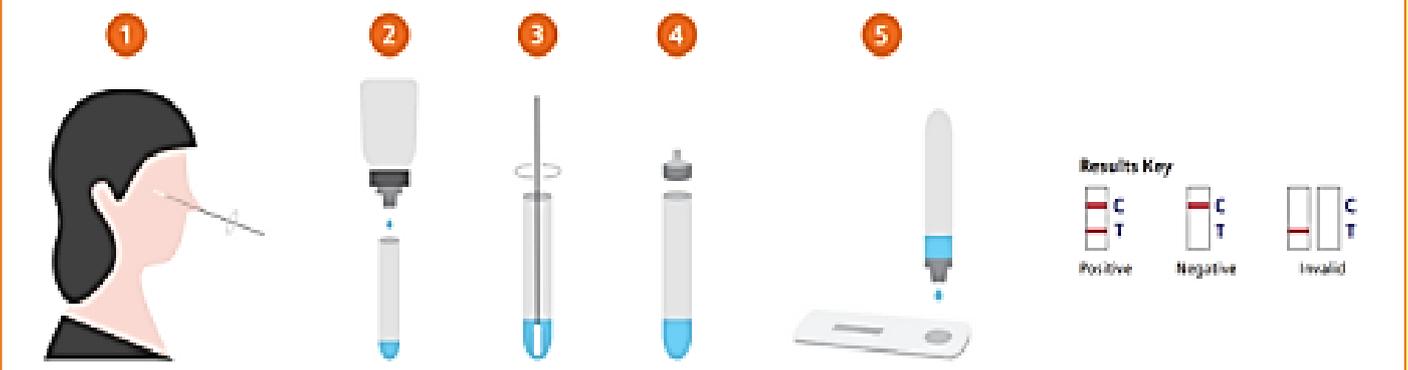
The CLINITEST® Rapid COVID-19 Antigen Test (by Siemens), is an easy-to-use visual read test that does not require laboratory instruments or specialized lab personnel to administer, and it delivers results in 15 minutes.

When used as part of a comprehensive mitigation strategy, the CLINITEST Rapid COVID-19 antigen test can serve as an effective tool to help communities identify infected individuals and isolate outbreaks.

The CLINITEST Rapid COVID-19 Antigen Test is easy to administer and delivers results quickly using either the nasopharyngeal swab or nasal swab method. Once a sample is



### Simple-to-follow procedure for trained professionals



collected, the swab is inserted into a tube with special liquid to extract the target molecule. This liquid is then dispensed onto a test cartridge and, in 15 minutes, a positive or negative result is clearly indicated.

## Parosmia Is a Post-COVID Side Effect That Distorts Your Sense of Smell—and More People Are Experiencing It

Source: <https://www.health.com/condition/infectious-diseases/coronavirus/parosmia-covid>

Mar 15 – Loss of sense of smell is a well-established symptom of COVID-19, so much so that it can be used to diagnose the illness. While most people who suffer from smell loss due to COVID recover it quickly (within four weeks for 89% of people, per a [July 2020 study](#)), the remaining 11% report ongoing smell loss or something equally troubling: smell distortion, which is medically known as parosmia.

"While anosmia is a complete loss of smell and hyposmia is a decreased sense of smell, parosmia is an alteration of the sense of smell," [Seth Lieberman](#), MD, assistant professor in the department of otolaryngology at NYU Langone Health, tells *Health*.

### How does parosmia change your sense of smell?

The smell distortion is not a change for the better. People with parosmia say that everything smells unpleasant, even rotten or disgusting. "A piece of fruit may smell like chemicals, or even worse, like fecal matter," Dr. Lieberman says.



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Carol Pitz, from Chanhassen, Minnesota, told [Smithsonian Magazine](#) that she experienced parosmia for the first time in August 2020, months after testing positive for COVID-19. "It's a unique smell," she said. "I don't even know what it is. It's like a combination of burnt toast, and something just icky enough to make me sick to my stomach."

Another parosmia sufferer is 11-year-old Lorelai from North Carolina, whose mom Danielle Meskunas spoke to local TV station [WNCT](#) last week. Meskunas said Lorelai had COVID-19 back in November and lost her sense of taste and smell. She'd started to regain her ability to smell by late January, but a couple of weeks later something strange happened.

"She could smell a little bit, but things didn't smell like she thought they should," Meskunas said. "She was basically saying things smelled like rotten food, like something that had been sitting in the fridge."

### Anybody with COVID-19 can get parosmia

Parosmia is affecting a growing number of people with COVID-19. It's not a symptom of the early stage of the illness; it appears to be a—very unpleasant—side effect.

Parosmia seems to arise in only some of those suffering COVID-19-related anosmia and "occurs later on in the course of the disease or during recovery," [Charles Bailey](#), MD, medical director for infection prevention at Providence Mission Hospital and Providence St. Joseph Hospital in Orange County, California, tells *Health*. "It is believed to be due to an impact of the infection on the olfactory nerves' ability to interpret odors and aromas, and it can be seen in the aftermath of other types of viral infections."

So far, there's not a huge amount of research on parosmia in COVID-19 patients. But an international study of people with recent smell loss, published in [Chemical Senses](#) in June 2020, found that 7% of more than 4,000 respondents reported experiencing parosmia.

While most people recover within two to four weeks, a considerable percentage (estimated at around 10%) develop long-term olfactory dysfunction lasting for several months—and it's permanent for some people, Dr. Lieberman says. "The long-term data is lacking, so we do not know the prevalence of permanent dysfunction yet," he adds.

### Can parosmia be treated?

Recovery of sense of smell seems to depend to some extent on nerve regrowth, Dr. Bailey says. That means there may be little that can be done to accelerate the process.

"There's no significant data at this point on any treatments for COVID-19 specific olfactory loss," Dr. Liberman says. The only level 1 evidence (meaning a randomized controlled trial) that has shown an effective treatment is something called olfactory training, he says.

This exposes the nose to a variety of odors and aromas, typically rose, lemon, cloves, and eucalyptus. According to Dr. Lieberman, patients sniff each odorant twice a day for about 15 seconds, for a period of three to six months.

Often, intranasal corticosteroids are also recommended, and a range of other treatments, such as omega-3 supplements and oral steroids, may be prescribed—but Dr. Lieberman says there's not good evidence for their effectiveness.



## FDA Grants EUA to COVID-19 Screening Device for Asymptomatic People

Source: <https://www.medscape.com/viewarticle/947894>

Mar 22 – The US Food and Drug Administration (FDA) has issued an emergency use authorization (EUA) for a screening device that identifies biomarkers that may indicate asymptomatic SARS-CoV-2 infection in people ages 5 and older.

The [Tiger Tech COVID Plus Monitor](#) (Tiger Tech Solutions, Inc) is designed for use after a temperature reading indicates no fever in settings where temperature checks are being performed in accordance with federal and local infection prevention and control guidelines, the FDA said.

"Combining use of this new screening device, which can indicate the presence of certain biomarkers, with temperature checks could help identify individuals who may be infected with the virus, thus helping to reduce the spread of COVID-19 in a wide variety of public settings, including healthcare facilities, schools, workplaces, theme parks, stadiums, and airports," Jeff Shuren, MD, director of the FDA Center for Devices and Radiological Health, said in a [statement](#).



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This device is for use by trained personnel, is not a substitute for a COVID-19 diagnostic test, and is not for use in people with symptoms of COVID-19, the agency said.

The armband device has embedded light sensors that obtain biometric signals from the body over 3 to 5 minutes. Once complete, a small computer processor extracts key features of the signals, such as pulse rate.

This information is fed into a probabilistic machine-learning model trained to predict whether the person is showing potential signs of infection, such as hypercoagulable state (which is often seen in COVID-19 patients) or hyperinflammatory states (such as severe allergic reactions).

The results are given in color-coded lights used to indicate if an individual is demonstrating certain biomarkers, or if the result is inconclusive.

The clinical performance of the device was validated in a hospital setting of 467 asymptomatic individuals, including 69 confirmed positive SARS-CoV-2 cases.

In this study, the device achieved 98.6% positive percent agreement (proportion of COVID-19 positive individuals correctly identified to have certain biomarkers) and 94.5% negative percent agreement (proportion of COVID-19 negative individuals correctly identified not to have the biomarkers).

A confirmatory study conducted in school settings showed similar performance.



## What Did the U.S. Military Learn in the First Year of the Pandemic?

March 23, 2021

[Download the Report](#)

Military metaphors suffuse discussions of the Covid-19 pandemic. It is a “wartime effort.” Many commentators, particularly at the beginning of the pandemic, wanted to “send in the military” and appoint a “military czar.” This report considers two questions. First, how has the military coped with ensuring its own readiness during the pandemic? Second, how do militaries best support the civilian response to the pandemic? Answers to these questions will not just help the United States prepare for the next public health emergency—natural, accidental, or intentional—but they will have global applications as well.

*This report is a product of the CSIS Commission on Strengthening America's Health Security, generously supported by the Bill & Melinda Gates Foundation.*

## Five-Day Course of Oral Antiviral Appears to Stop SARS-CoV-2 in Its Tracks

Source: <https://www.medscape.com/viewarticle/947061>

Mar 08 – A single pill of the investigational drug **molnupiravir taken twice a day for 5 days** eliminated SARS-CoV-2 from the nasopharynx of 49 participants.

That led Carlos del Rio, MD, distinguished professor of medicine at Emory University in Atlanta, Georgia, to suggest a future in which a drug like molnupiravir could be taken in the first few days of symptoms to prevent severe disease, similar to Tamiflu for [influenza](#).

"I think it's critically important," he told *Medscape Medical News* of the data. Emory University was involved in the trial of molnupiravir but del Rio was not part of that team. "This drug offers the first antiviral oral drug that then could be used in an outpatient setting."



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Still, del Rio said it's too soon to call this particular drug the breakthrough clinicians need to keep people out of the ICU.

"It has the *potential* to be practice-changing; it's not practice-changing at the moment."

Wendy Painter, MD, of Ridgeback Biotherapeutics, who presented the data at the virtual Conference on Retroviruses and Opportunistic Infections, agreed. While the data are promising, "We will need to see if people get better from actual illness" to assess the real value of the drug in clinical care.

"That's a phase 3 objective we'll need to prove," she told *Medscape Medical News*.

Phase 2/3 efficacy and safety studies of the drug are now underway in hospitalized and nonhospitalized patients.

In a brief pre-recorded presentation of the data, Painter laid out what researchers know so far: preclinical studies suggest that molnupiravir is effective against a number of viruses, including coronaviruses and specifically SARS-CoV-2. It prevents a virus from replicating by inducing [viral error catastrophe](#) — essentially overloading the virus with replication and mutation until the virus burns itself out and can't produce replicable copies.

In this [phase 2a, randomized, double-blind control trial](#), researchers recruited 202 adults who were treated at an outpatient clinic with fever or other symptoms of a respiratory virus and confirmed SARS-CoV-2 infection by day 4. Participants were randomly assigned to three different groups: 200 mg of molnupiravir, 400 mg; or 800 mg. The 200 mg arm was matched one-to-one with a placebo-controlled group, and the other two groups had three participants in the active group for every one control.

Participants took the pills twice daily for 5 days, and then were followed for a total of 28 days to monitor for complications or adverse events. At days 3, 5, 7, 14, and 28, researchers also took nasopharyngeal swabs for PCR tests, to sequence the virus, and to grow cultures of SARS-CoV-2 to see if the virus that's present is actually capable of infecting others.

Notably, the pills do not have to be refrigerated at any point in the process, alleviating the cold-chain challenges that have plagued vaccines.

"There's an urgent need for an easily produced, transported, stored, and administered antiviral drug against SARS-CoV-2," Painter said.

Of the 202 people recruited, 182 had swabs that could be evaluated, of which 78 showed infection at baseline. The results are based on labs of those 78 participants.

By day 3, 28% of patients in the placebo arm had SARS-CoV-2 in their nasopharynx, compared to 20.4% of patients receiving any dose of molnupiravir. But by day 5, none of the participants receiving the active drug had evidence of SARS-CoV-2 in their nasopharynx. In comparison, 24% of people in the placebo arm still had detectable virus.

Halfway through the treatment course, differences in the presence of infectious virus were already evident. By day 3 of the 5-day course, 36.4% of participants in the 200 mg group had detectable virus in the nasopharynx, compared with 21% in the 400 mg group and just 12.5% in the 800 mg group. And although the reduction in SARS-CoV-2 was noticeable in the 200 mg and the 400 mg arms, it was only statistically significant in the 800 mg arm.

In contrast, by the end of the 5 days in the placebo groups, infectious virus varied from 18.2% in the 200 mg placebo group to 30% in the 800 mg group. This points out the variability of the disease course of SARS-CoV-2.

"You just don't know" which infections will lead to serious disease, Painter told *Medscape Medical News*. "And don't you wish we did?"

Seven participants discontinued treatment, though only four experienced adverse events. Three of those discontinued the trial due to adverse events. The study is still blinded, so it's unclear what those events were, but Painter said that they were not thought to be related to the study drug.

The bottom line, said Painter, was that people treated with molnupiravir had starkly different outcomes in lab measures during the study.

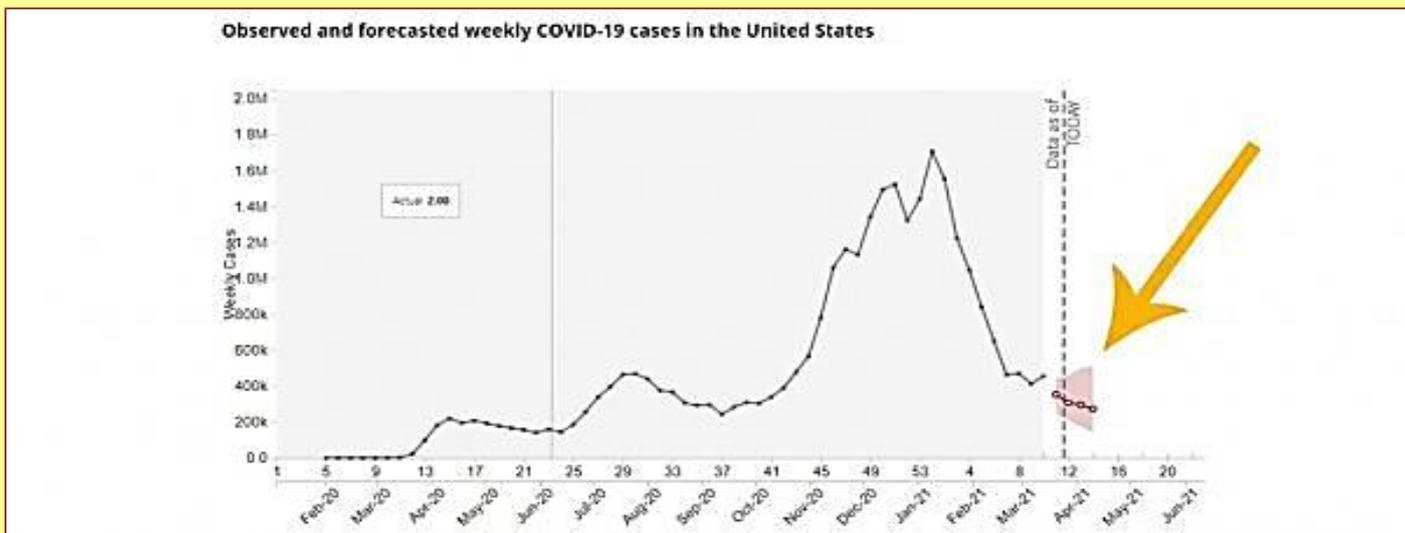
"An average of 10 days after symptom onset, 24% of placebo patients remained culture positive" for SARS-CoV-2 — meaning there wasn't just virus in the nasopharynx, but it was capable of replicating, Painter said. "In contrast, no infectious virus could be recovered at study day 5 in any molnupiravir-treated patients."

## A 4th Coronavirus Surge Is Threatening the US Due to a List of Reasons

Source: <https://www.sciencealert.com/cdc-chief-warns-us-might-be-headed-towards-a-variant-fueled-4th-surge>

Mar 24 – Plateauing [COVID-19](#) case rates, and the discovery of [coronavirus](#) variants in several states, could mean an "avoidable" fourth surge in COVID-19 cases is on the way in the US, the director of the Centers for Disease Control and Prevention said Monday.





Dr. Rochelle Walensky said the US was at a "fork in the road" in the [pandemic](#), as more people get vaccinated. She noted several indicators pointed to a concerning trend, including:

- The number of new COVID-19 cases reported each day is hovering at a high level of 50,000 to 60,000.
- New hospital admissions have also plateaued at 4,500 to 5,000 admissions a day.
- Deaths from COVID-19 are declining but remain high, and the rate of decline is slowing.
- Some states and regions, such as the Northeast and the upper Midwest, are seeing "a significant rise in cases," Walensky said.
- Coronavirus variants are "spreading rapidly," she said. The [B.1.427 and B.1.429](#) variant, first identified in California, accounts for 52 percent of cases in California, 41 percent in Nevada, and 25 percent in Arizona, Walensky said.
- The B.1.1.7 variant, first identified in the UK, is estimated to be causing 9 percent of cases in New Jersey and 8 percent in Florida, she said.

"Taken together, these statistics should serve as a warning sign for the American people," Walensky said.

Referring to the leveling of COVID-19 cases and hospital admissions seen in the past two weeks, she said she considered them "very concerning".

She said there would be "another avoidable surge" without immediate action.

Experts have said the rise in cases is most likely due to the "tension" between the desire to open up the country and the risk associated with variants, [as STAT reported Saturday](#).

According to [John Hopkins University data](#), as of Sunday more than half of US states had experienced a growth in new cases in the past two weeks, while 24 states saw a decrease.

The US could be going the way of Europe, she said, where [cases are surging](#) after having plateaued, led by the B.1.1.7 variant.

Walensky's warning comes as the US ramps up its vaccination rollout.

Some 24.9 percent of the US population have received at least one dose of a COVID-19 vaccine, while 13.5 percent were fully vaccinated as of Monday, [according to CDC data](#).

President Joe Biden has said all US adults should be eligible for a COVID-19 vaccine by [May 1](#), and some states are expected to start vaccinating all adults by April, [Insider's Aria Bendix reported](#) earlier this month.

But experts warn that while vaccination rates rise, the [virus](#) can continue to circulate.

Uncontrolled spread of the virus "increases the risk that an even more dangerous variant may emerge," Dr. Tom Frieden, a former CDC director, [told CNN on Monday](#).

The B.1.1.7 variant is of particular concern, as it has been estimated that people infected with this strain are up to 64 percent more likely to die from COVID-19, Insider's [Aylin Woodward reported](#).

"I'm calling the American people to action, whether they're vaccinated or not, to recommit to doing the right thing," Walensky said on Monday.

"Take the steps we know work to stop COVID-19. Wear a well-fitting mask, socially distance, avoid crowds and travel, and be ready to roll up your sleeve to get vaccinated when the vaccine is available to you."



## Flu Shots Are Linked to a Drop in COVID-19 Infections, And Scientists Aren't Sure Why

Source: <https://www.sciencealert.com/flu-shots-linked-to-drop-in-covid-19-infections-and-scientists-aren-t-sure-why>

Mar 24 – Getting a flu shot is not the same thing as getting a [COVID-19](#) vaccination. If it were, the world would be in a very different place right now.

Still, a new study released by health researchers in Michigan has arrived at an intriguing finding, and it's one the scientists can't as yet fully explain.

In an [analysis](#) of medical records from over 27,000 patients in Michigan who got tested for COVID-19 by July 2020, patients who had received an influenza vaccine within the previous year were significantly less likely to test positive for the [coronavirus](#) than those who hadn't.

Significantly, yes – but not by a large amount.

All up, of the 27,201 patients in the study who got tested for COVID-19, 1,218 tested positive, representing 4.5 percent of the cohort. It's worth bearing in mind that's an average figure, accounting for both the patients who had and hadn't gotten a flu shot.

When you break the numbers down further, though, a small but significant contrast emerges in the data, in terms of the chance of getting a positive COVID-19 test, and that's after controlling for variables like ethnicity, race, gender, age, and other health-related factors.

In the Michigan cohort, only 4 percent of those who had received a flu vaccine tested positive for COVID-19; meanwhile, amongst those who hadn't received a flu shot, the share of positive COVID-19 cases was 4.9 percent.

That doesn't sound like much, but the researchers also [summarize the data thus](#): the odds of testing positive for COVID-19 were reduced in patients who received a flu shot by about 24 percent compared to those who didn't get vaccinated against influenza in the previous year.

That sounds notable, even if the overall effect is relatively small compared to the amount of protection an actual COVID-19 vaccine delivers.

Still, why does it happen at all? It might not actually reflect a mechanism of the flu vaccine, researchers say, so much as an effect of bias in the data, due to the behavior of people who choose to get vaccinated. But in truth we just don't know for sure.

"It is possible that patients who receive their flu vaccine are also people who are practicing more social distancing and following CDC guidelines," [says](#) cardiologist Marion Hofmann Bowman from the University of Michigan.

"However, it is also plausible that there could be a direct biological effect of the flu vaccine on the immune system relevant for the fight against [SARS-CoV-2 virus](#)."

What is certain is that this isn't the first time we've seen this [apparent protective effect](#) against COVID-19 in retrospective data. A number of studies worldwide have found [evidence of the same link](#), and the effect seems to go beyond just whether or not people test positive.

In the Michigan study, patients who had a flu shot were also less likely to require hospitalization and the assistance of ventilators. In other studies, having or not having a flu vaccination [appears to affect mortality risk too](#), although that wasn't seen here.

If an actual mechanism of the flu shot is somehow protecting people – and again, there's no evidence of that here – what might it be?

The researchers speculate a plausible immunologic mechanism could be a process called [trained immunity](#), in which exposure to pathogens (in this case, in vaccine form) hypothetically primes the immune system to respond to other threats.

"This 'heterologous immunity' could explain the nonspecific cross-reactivity that vaccines have against unrelated pathogens," [the researchers explain](#), emphasizing that further research is needed to discern whether such a phenomenon is occurring here.

In any case, while we don't yet fully understand why this is happening (and need to keep looking into it), this is nonetheless another good thing about flu shots – especially in a time of [pandemic](#), no less.

"While the largest benefit to health from the influenza vaccine comes from prevention of influenza, the ancillary potential benefit of COVID-19 protection may provide enough impetus for hesitant patients to get vaccinated," [the authors write](#).

"Even if the direct link between the prevention of COVID-19 and the influenza vaccine is minimal, through an overall reduction in the number of patients presenting ... or requiring hospitalization for complications of influenza, vaccination will preserve healthcare resources for those with COVID-19."

►► The findings are reported in the [American Journal of Infection Control](#).



## “Zombie genes” increase activity in the brain after death

Source: <https://newatlas.com/biology/brain-activity-after-death-gene-expression/>



Mar 23 – A striking new study has found gene expression can dramatically increase in some brain cells hours after a person dies. These “zombie genes” are primarily related to inflammatory activity and the researchers suggest scientists studying post-mortem brain tissue must take into account these significant changes.

We generally mark a person’s moment of death as when their heart stops beating. Many scientific studies investigating post-mortem tissue work on the assumption that everything stops when we die. However, a small but growing body of research is revealing plenty of cell activity and gene expression going on in the hours and days after a person’s death.

Fascinating recent research has discovered that a large volume of [genes can switch on](#) after an organism dies. But, much of this research has focused on animal tissue across a variety of organs. This new research focused specifically on human brain tissue and it arose out of some unusually discordant observations.

Jeffrey Loeb, corresponding author on the new research, is director of the UI Neurorepository at University of Illinois at Chicago, and his team manages a library of human brain tissue collected from consenting patients with neurological diseases.

The research team has the advantage of being able to analyze brain tissue incredibly quickly after collection. Looking at patterns of gene expression in fresh human brain tissue they noticed big differences between what they were seeing and published brain tissue gene expression data.

"We decided to run a simulated death experiment by looking at the expression of all human genes, at time points from 0 to 24 hours, from a large block of recently collected brain tissues, which were allowed to sit at room temperature to replicate the postmortem interval," explains Loeb.

The tissue Loeb and his team used in the new study came from patients with epilepsy undergoing surgery to reduce seizures. This allowed the researchers to investigate temporal changes to brain tissue gene expression from the moment of collection.



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The majority of genes in the analyzed brain tissue didn't change much over the 24-hour study period. But, a small volume of "zombie genes" actually increased activity in these post-mortem hours. These genes increasing in activity were directly linked with glial cells, a particular type of immune cell in the brain.

Loeb suggests it isn't particularly surprising to see this kind of immune gene activity in the brain following death. After all, these cells respond directly to brain injury. But what is notable is the sheer volume of activity occurring in those hours after death. The study notes the patterns of gene expression peak around 12 hours after death but activity was observed at least 24 hours after tissue resection.

The big takeaway from this novel study is for researchers investigating human brain tissue. Loeb says these findings demand postmortem brain tissue studies take into account the significant changes that can occur in tissue after death, and researchers must try to study brain tissue closer to a person's time of death.

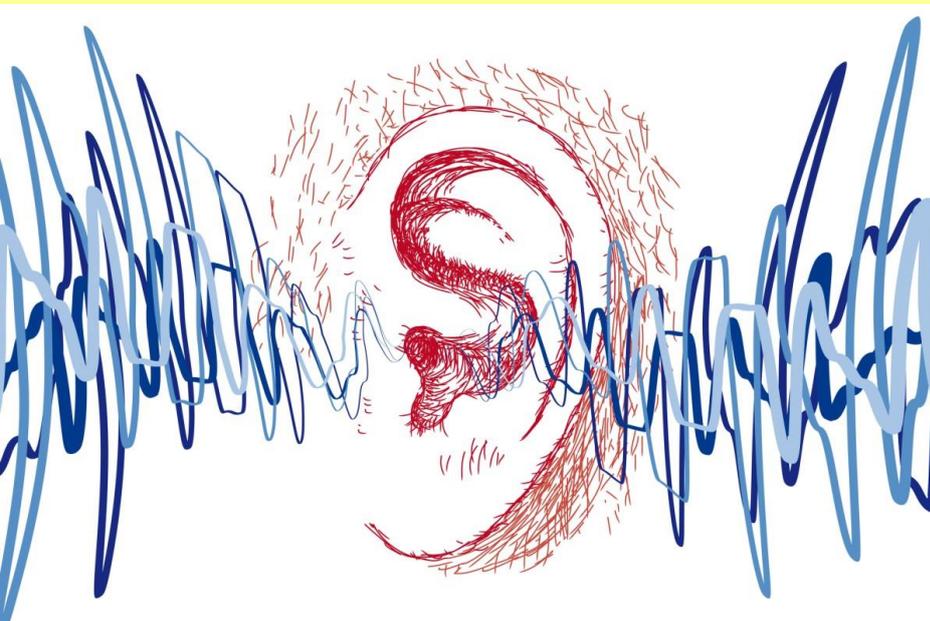
"Our findings don't mean that we should throw away human tissue research programs, it just means that researchers need to take into account these genetic and cellular changes, and reduce the post-mortem interval as much as possible to reduce the magnitude of these changes," says Loeb. "The good news from our findings is that we now know which genes and cell types are stable, which degrade, and which increase over time so that results from postmortem brain studies can be better understood."

►► The new study was published in the journal [Scientific Reports](#).

## Emerging evidence links COVID-19 with tinnitus and hearing problems

Source: <https://newatlas.com/health-wellbeing/covid19-tinnitus-hearing-loss-coronavirus-study-manchester/>

Mar 23 – A new systematic review investigating published research on the relationship between COVID-19 and hearing problems is suggesting a number of audio-vestibular symptoms can be associated with the disease. The review found hearing loss, tinnitus and vertigo can all be associated with COVID-19 and the researchers are currently conducting a year-long study to better understand the



long-term effects of the disease on hearing.

Kevin Munro and Ibrahim Almuftarij, audiologists from the University of Manchester, [first conducted a rapid systematic review](#) into the links between COVID-19 and hearing problems last year. The rapid review looked at the first few months of research and case reports emerging in the early days of the pandemic.

The initial review found audio-vestibular symptoms were rarely reported in early COVID-19 cases, but the researchers did note it was potentially too soon to uncover hearing problems that may only arise over longer periods of time. Now, a year later, the researchers have updated their systematic review finding multiple cases of hearing problems have now been reported.

The new systematic review encompasses 28 case reports and 28 cross-sectional studies. A pooled data analysis revealed 7.6 percent of COVID-19

cases report hearing loss, 7.2 percent report vertigo and 14.8 percent report tinnitus.

Both Munro and Almuftarij are clear in noting the evidence evaluated in their latest review is based on anecdotal reports and self-reported symptoms. So it is not at all clear if this burgeoning association is causally connected.

"It is important not to diagnose audio-vestibular symptoms where they do not exist or where they are coincidental, given the high rates of COVID-19 in the population," notes Munro in a recent piece for [The Conversation](#). "However, the findings of the review might simply reflect the start of our understanding of this emergent health condition."



Tinnitus, for example, is a symptom increasingly [linked to long COVID](#). As well as patients reporting COVID-19 exacerbating their pre-existing tinnitus, some believe the disease could initiate the appearance of tinnitus.

Munro suggests tinnitus is a condition that can appear for a number of reasons, from actual ear damage caused by noise or infection, to psychological triggers such as stress and anxiety. So although there may be reasonable hypotheses demonstrating how SARS-CoV-2 could directly damage one's hearing, he says the current evidence is not of a good enough quality to prove causality.

"It is possible the virus attacks and damages the auditory system," suggests Munro. "On the other hand, the mental and emotional stress of the pandemic may be the trigger. But we need to be careful when interpreting these findings as it's not always clear if studies are reporting existing or new symptoms. What is lacking are good-quality studies that compare tinnitus in people with and without COVID-19."

Hoping to fill that gap in the knowledge, a year-long study is underway tracking COVID-19 patients after discharge from hospital. Munro is leading the study and hopes the work will offer robust insight into the relationship between hearing problems and COVID-19.

▶▶ The new study was published in the [International Journal of Audiology](#).

## Flu Vaccines Based on a Convenient Nanoparticle Platform Offer Broader Protection

A new nanoparticle flu vaccine platform simplifies construction of multivalent immunogens and offers broad protection, blocking seasonal and pandemic strains. A well-ordered mosaic immunogen that has been generated with the platform is to be assessed in a Phase I trial. If the trial succeeds, it would signal progress toward a universal flu vaccine. [+ MORE](#)

## Humans, Not Animals, Likely Took the COVID Virus to Wuhan, Contrary to China's Claims

By Rowan Jacobsen

Source: <https://www.newsweek.com/humans-not-animals-likely-took-covid-virus-wuhan-contrary-chinas-claims-1578861>

Mar 25 – By the time three of the scientists investigating the origins of SARS-CoV-2 in the Chinese city of Wuhan convened on March 10 for a virtual press conference, more than a year had passed since the World Health Organization asked Beijing for permission to admit them. During this time, as more than 2.6 million people died of COVID-19 and millions more suffered lasting effects of the illness, the mystery of the coronavirus' origins has loomed.

There is broad agreement that the coronavirus is part of a lineage of viruses found in horseshoe bats in South China. The mystery centers on how the virus came to cause an outbreak in Wuhan, a thousand miles away, without leaving any trace of its journey.

That is essentially the question Peter Daszak, an expert on disease zoology and a member of the [WHO](#) team, attempted to address in the press conference. Daszak, who is head of EcoHealth Alliance, a non-profit that funded research into bat coronaviruses in China and elsewhere, is a vocal critic of the notion that the pandemic's origin involved some kind of laboratory accident; instead, he favors natural zoonosis as an explanation, which holds that the pandemic jumped from animals to people without human intervention. In guessing how this might have happened, Daszak suggested frozen food imports, and mentioned animal carcasses as a potential ["conduit from Wuhan to the provinces in South China, where the closest relative viruses to \[the coronavirus\] are found in bats](#). This was a telling admission for Daszak because it highlights a weakness in the random-zoonosis theory and points toward a more logical—and often overlooked—culprit.

Daszak and many other scientists have pointed out that, as a general rule, a new pandemic is more likely to be triggered by a random zoonosis than by a virus escaping a lab. What happens generally, though, does not necessarily explain what happened in this particular instance. The important question is, what is the most likely way that this particular virus could have caused this particular outbreak in Wuhan? As an explanation, random zoonosis does not seem to fit the facts. It has a vector problem.

For the virus to have jumped from a South China horseshoe bat to another animal, and then to have followed a chain of transmission through an unknown series of hosts, possibly as



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part of the wildlife trade, until it reached Wuhan, where it then exploded into the population and got noticed at last, requires a series of low-probability events.

The Wuhan Institute of Virology scientist at the heart of the controversy, Shi Zhengli, told Scientific American that she herself "[never expected this kind of thing to happen in Wuhan](#)." She'd have expected it to happen in South China, where these viruses are naturally found. In addition, South China has a much stronger [tradition of wildlife consumption](#) than other parts of China. One [survey](#) found that 83 percent of the residents of the South China megacity of Guangzhou had eaten wildlife in the past year, while only 5 percent of Beijing residents had. The wildlife trade flows in that direction, and major wet markets are found there. A South China virus would have been vastly more likely to trigger an outbreak in South China, which is [exactly what happened with the first SARS in 2002](#).



Horseshoe bats in South China are thought to be a source of coronaviruses. (These bats were found in an abandoned Israeli army outpost next to the Jordan River.) MENAHEM KAHANA/AFP via Getty Images

With almost no data, we can't be certain of any theory. We could concoct a theoretical game of hopscotch in which the virus randomly transmits from host to host, accumulating mutations along the way, threading the needle of cities and villages and South China wet markets, and landing in downtown Wuhan ready for its coming-out party. It's not impossible. It's just getting-struck-by-lightning-while-being-eaten-by-a-shark unlikely.

And if it did happen, it should have been part of a noticeable pattern. In a long, meandering chain of transmissions, each node branching into new infections, Wuhan would have been just one twig of a full-fledged tree—the [kind of tree](#) epidemiologists use to trace viral evolution. Even if most other branches eventually died out, the entire tree could not have disappeared without leaving a trace. And yet it doesn't exist. Most of [the scientific evidence points toward COVID-19 beginning in Wuhan in October or November 2019](#). Despite a year of intense searching, not a single close ancestor of the virus has been found. As a group of 26 scientists stated in a recent [letter](#) calling for a new, objective investigation into the origins of SARS-CoV-2, "There is as yet no evidence demonstrating a fully natural origin of this virus." It's as if it just teleported from South China to Wuhan.



Daszak is hoping frozen food can explain this teleportation. The theory is that wild animals being farmed in South China picked up the virus from bats, were killed, frozen, and shipped to Wuhan, and somehow managed to spread the virus through the environs of the market. If the idea had merit, it would at least provide a possible direct line to Wuhan. Unfortunately, it's both bad science and bad math.

The theory has its roots in a case last fall in the Chinese port city of Qingdao, when two dock workers tested positive for COVID-19. An exhaustive search found traces of the virus on frozen packages of cod; the Chinese government seized on the case as evidence that the virus could be imported in frozen food and may have started elsewhere. The notion has been [widely derided by experts](#), who point out that there has never been a documented case of the virus having been transmitted through frozen food. The U.S. Food and Drug Administration says there is ["no credible evidence"](#) to support it. The Chinese government has promoted it heavily, perhaps as a way of deflecting responsibility.

Under normal circumstances, it might be surprising for WHO scientists to peddle a discredited theory. But the origins investigation is a joint exercise with China, which closely negotiated every step of the process, retained [veto power over the selection of team members](#), and required that conclusions in the final report be [a consensus between the Chinese and international delegations](#). The WHO had limited options.

The science is also bad because it isn't based on any on-the-ground evidence. There were many cases of COVID-19 in Wuhan before the market outbreak. In addition, the only live animals in the market seem to have been snakes, turtles, and frogs, none of whom are potential carriers, and they [all tested negative](#). Peter Daszak himself has admitted that [all of the carcasses examined tested negative for SARS-CoV-2](#). Yes, you read that right: the theory is based on the fact that they didn't find any infected animals in Wuhan.

In any case, the director of China's Center for Disease Control [dismissed the market theory](#) last May, explaining that there was no connection and that the virus "existed long before" it was found in the market, which makes it rather extraordinary that the WHO team chose to spend its limited time poking around the empty building (which had been closed, cleared and disinfected more than a year ago).

In light of these challenging details, Daszak has floated the idea that perhaps another market in Wuhan that was selling frozen farmed wildlife triggered the outbreak, and has implied that some vendors in Wuhan were supplied from South China, but this still doesn't dig the WHO team out of its statistical hole. Any South China farm whose animals were infected with the coronavirus would have contaminated its own workers, as well as other vendors it was supplying, and again, most of those would most likely have been in South Asia. The only way the theory would make any sense (assuming it could be proved to be scientifically feasible) is if a farm in South China was exclusively supplying Wuhan with all its animals, which seems unlikely. In any case, the WHO team's Chinese investigators pretty much scuttled Daszak's theory by [announcing](#) that they had tested tens of thousands of wild and farmed animals across China without finding a single trace of SARS-CoV-2.

**Can the frozen-food theory be a credible explanation of the conduit conundrum?** No. But it's good the WHO brought it up, because it takes the investigation in an important direction: the need to find conduits that could have delivered the virus to Wuhan. These conduits would need to meet the WHO's criteria: they'd have to be animals that make good hosts for the virus, they'd need to have had opportunities to interact with the bats known to carry these particular coronaviruses, and they'd need to have traveled directly to Wuhan from the rural areas of the region without ping-ponging all over South China.

That sounds like a tall order. What are the chances of finding documented proof of such vectors? Remarkably, however, we actually have a wealth of evidence that fits this description perfectly: human beings—the best SARS-CoV-2 hosts of all—who had extremely close contact with horseshoe bats in South China. We know they made repeated visits over many years to the exact caves where SARS-related viruses were found. There, they handled bats directly, spent extensive time inside the caves breathing the air, and brought thousands of samples of guano, blood, and other bits of bat ([possibly even live bats](#)) back to Wuhan with them.

Those were researchers from the Wuhan Institute of Virology, who had been scouring South China caves for coronaviruses with the ability to infect humans. They did this as part of [a massive virus-hunting project](#)—a collaboration between Peter Daszak's EcoHealth Alliance, the USAID's Predict program, a new organization called the Global Virome Project, and other groups—to track down the world's viruses in their lairs, bring them back to the lab, and study them. They would pay special attention to the ones with the ability to infect humans, learning how they enter cells, how they mutate, how they jump from host to host, and how they escape the immune system and persist in individuals.

The project has been criticized by the world's top virologists as being [useless at best](#) and [extremely dangerous](#) at worst. COVID-19 certainly hasn't weighed in its favor: Despite 15 years of coronavirus hunting and testing by the WIV, it was helpless to prevent a pandemic in its own backyard. If that's a coincidence, it's one of the great ironies of history.



Over that period, the WIV accumulated one of the largest collections of coronaviruses in the world. According to the [Washington Post](#), it contained the records of 22,000 samples, including the sequences for more than 100 coronaviruses known only to the WIV. But we don't know exactly which viruses, because in the earliest days of the pandemic the WIV [took the databases](#) containing this information offline and has declined to share them. (When [asked about the database at the press conference](#), Daszak said, "We did not ask to see the data" but said he was familiar with it from his close collaboration with the WIV.) From the research papers [published in the scientific literature by WIV scientists, we know](#) that the lab held many dangerous ones.

The WIV had spent years identifying the caves where the scary ones lurked. Over a four-year period, [it visited one cave in Yunnan repeatedly and brought back 1,322 samples](#), including at least nine of SARS-CoV-2's close relatives. Overall, the effort brought [more than 15,000 bat samples](#) back to Wuhan, which included more than 400 coronaviruses new to science and at least 50 of the variety that can infect people. And we know almost nothing about this cache.

We do know, from online photos, videos, and accounts, that the virus hunters [didn't always wear adequate protective gear, and were bitten by bats with some regularity](#). And this is what they did while the cameras were rolling.

The WIV also had a reputation for shoddy safety. U.S. diplomats who evaluated the institute in 2017 were so alarmed that they sent [an urgent cable](#) back to Washington warning that the institute suffered from "a serious shortage of appropriately trained technicians and investigators needed to safely operate this high-containment laboratory."

In other words, you could not build a better conduit for channeling viruses straight from rural South China to downtown Wuhan. Whether or not the virus made it into the lab and later escaped, this was its best transport option. This viral monorail ran between [a number of caves in South China and the WIV multiple times every year](#), with a different mix of students and scientists.

And it wasn't limited to the Wuhan Institute of Virology. The Wuhan [CDC](#) also [extensively collected bat samples](#) and has been accused of inadequate precautions. One Wuhan University post about a sampling trip to Yunnan in the summer of 2019 (a few months before the pandemic started) shows researchers [entering bat caves in street clothes and handling bats with their bare hands](#), a shocking violation of safety protocols. The bats collected included horseshoe bats, the kind most likely to carry SARS-like diseases. If you're looking for potential carriers, there's no need for hypothetical frozen ferret badgers. Start with the motherlode of cases right in the scientific record.

Even in tightly controlled lab settings, [viruses infect researchers all too often](#). The first SARS [escaped labs in Singapore, Taiwan, and China six times](#), and it wasn't nearly as infectious as SARS-CoV-2. As Alison Young has [extensively documented in the USA Today](#), "lab accidents aren't rare." Over a five-year period, U.S. labs reported [more than 450 accidents](#) involving dangerous pathogens—nearly one hundred per year. Those include only the ones in the U.S. that were reported. As Harvard's Marc Lipsitch points out, [lab accidents are often shrouded in secrecy](#). Worldwide, the number each year must be staggering.

In the chaotic environment of fieldwork, the risk of infection must be even larger. The close air of a bat cave is the ideal place to pick up a bat virus. Accidents are inevitable. Collectors may have suffered flu-like symptoms (as has been documented for [some WIV researchers](#), three of whom were hospitalized with pneumonia in the fall of 2019, exactly when the outbreak started) and shaken it off without much thought. But considering how often COVID-19 is asymptomatic, they may never have known.

Technically, of course, this would count as a "natural origin," because the virus would have evolved naturally and jumped to humans of its own accord. (It's only "unnatural" if the virus was altered by scientists in the lab.) This may even be one of the scenarios experts quietly have in mind when they carefully use phrases like that.

Obviously, the proximity was anything but natural, and there's the rub. Having seen up close how much damage one virus can do, we want to do everything in our power to reduce the chance of the next one. That means choking off as many conduits as possible. Clamping down on the world wildlife trade (as China has already begun to do) is an obvious step that can be taken. [Animal farming probably needs to be rethought in its entirety](#).

Lab experimentation on dangerous pathogens is another no-brainer, regardless of its role in this pandemic. There are thousands of labs around the planet doing this research, much of it of limited value. And as Filippa Lentzos, one of the world's leading biosecurity experts, recently told the Washington Post, [there is zero international regulation of their activities](#). "There's no set international law that they have to follow. There's nobody checking what they're doing. There are no inspectors, no regulators. There's none of that."

The same is true of virus collection. That's a concern, because [a titanic amount of it is planned for the coming years](#). Proponents of the Global Virome Project want to [collect more than a million](#) of the world's unknown viruses over the next ten years, including hundreds of thousands with the potential to infect humans, and bring them back to labs for research.

If this project moves forward, the flow of unknown viruses from remote locations to population centers will be like nothing in history. That will certainly increase our knowledge about these viruses and how they work, which is useful information. But it will also give many of them a crack at us for the first time.



Is it worth it? That discussion will be important in the coming years. Now that the WHO team has brought up the vector question, this would be an excellent time to begin. Rigorous regulation of biolabs can certainly reduce civilization's exposure to emerging viruses, but merely regulating what happens within the labs will not be enough if we keep sending so many vulnerable collectors into the hottest of viral hotspots.

*Rowan Jacobsen writes about science and sustainability for Scientific American, Smithsonian, Outside, Orion, Mother Jones and other magazines and is a frequent contributor to Best American Science & Nature Writing.*

## Virolens

Source: <https://virolens.keyoptions.com/>

Identifying and screening COVID-19 patients quickly and effectively is key to getting the world moving again. Virolens is a rapid screening system that can be used at almost any location - airports, sporting events, schools, theatres, retail and offices. Virolens allows people to get on with their everyday lives safe in the knowledge they are in a COVID-free environment.

The Virolens system is a screening device that combines holographic microscopy with artificial intelligence (AI) to detect SARS-CoV-2, the virus that causes COVID-19 disease. Virolens is constructed to the highest standards, designed and manufactured in the UK.

### How it works

#### STEP 1

The Virolens® system uses a mouth swab, which is placed inside a cartridge and inserted into the system. The Virolens system is a portable floor-standing device.

#### Step 2

Inside the Virolens® system is a holographic microscope designed to look at nano-scale structures. Light is projected onto the slide creating identifiable diffraction patterns.

#### Step 3

The holographic image data is analysed using AI to identify the unique pattern of the virus from other cells very quickly.

#### Step 4

The Virolens® system is completely self-contained and can give a yes/no result in around 20 seconds with the whole process taking about 1 minute.

### Advantages

#### A new application of existing technologies

This is a brand-new screening device which combines microscopic holographic imaging and artificial intelligence (AI) software technology.

#### Quick and easy

The system does not require a trained biologist to determine the results. It takes around 20 seconds to get a yes/no result.

#### Accurate

Virolens has a 100% sensitivity and 99.4% specificity.

#### Safe

The samples from the screening process are collected and sanitised prior to recycling.



### Able to collect anonymised data

The system collects anonymised data which can be interrogated to understand the spread of SARS-Cov-2. (COVID-19) in screening areas.

### Future proof software

The system can detect virus patterns as they evolve and change, meaning it will remain effective. Providing the emerging variants of the virus maintain the macro structure of the SARS-Cov-2 pathogen including the external protein signature, the Virolens system will continue to detect the virus. The AI technology deployed in the Virolens system can be trained to detect virus patterns as they evolve and change, including the detection of other diseases. iAbra maintains close monitoring of SARS-CoV-2 variants. Software updates will be provided as appropriate.

### Applicable to other diseases

Currently the system is only trained to look for and recognise COVID-19 but iAbra is working to extend it to other diseases by using the same AI technology.

### Affordable

Tests will be low cost compared to existing testing solutions.

## U.S. COVID response could have **avoided** hundreds of thousands of deaths: research

Source: <https://www.reuters.com/article/health-coronavirus-usa-economy/u-s-covid-response-could-have-avoided-hundreds-of-thousands-of-deaths-research-idINKBN2BH2S3>

Mar 25 – **The United States squandered both money and lives in its response to the coronavirus pandemic, and it could have avoided nearly 400,000 deaths with a more effective health strategy and trimmed federal spending by hundreds of billions of dollars while still supporting those who needed it.**

That is the conclusion of a group of research papers released at a Brookings Institution conference this week, offering an early and broad start to what will likely be an intense effort in coming years to assess the response to the worst pandemic in a century.

U.S. COVID-19 fatalities could have stayed under 300,000, versus a death toll of 540,000 and rising, if by last May the country had adopted widespread mask, social distancing, and testing protocols while awaiting a vaccine, estimated Andrew Atkeson, economics professor at University of California, Los Angeles.

He likened the state-by-state, patchwork response to a car's cruise control. As the virus worsened people hunkered down, but when the situation improved restrictions were dropped and people were less careful, with the result that "the equilibrium level of daily deaths ... remains in a relatively narrow band" until the vaccine arrived.

Atkeson projected a final fatality level of around 670,000 as vaccines spread and the crisis subsides. The outcome, had no vaccine been developed, would have been a far-worse 1.27 million, Atkeson estimated.

The economic response, while mammoth, also could have been better tailored, argued University of California, Berkeley economics professor Christine Romer. She joins former Treasury Secretary Lawrence Summers and several others from the last two Democratic administrations in criticizing the spending authorized since last spring, including the Biden team's \$1.9 trillion American Rescue Plan. While she said the federal government's more than \$5 trillion in pandemic-related spending won't likely trigger a fiscal crisis, she worries that higher-priority investments will be deferred because of allocations to initiatives like the Paycheck Protection Program.

Those forgivable small business loans were "an interesting and noble experiment," but were also "problematic on many levels," including an apparent cost of hundreds of thousands of dollars for each job saved, she said.

"Spending on programs such as unemployment compensation and public health was exactly what was called for," she wrote, but other aspects, particularly the generous one-time payments to families, were "largely ineffective and wasteful."

"If something like the \$1 trillion spent on stimulus payments that did little to help those most affected by the pandemic ends up precluding spending \$1 trillion on infrastructure or climate change in the next few years, the United States will have made a very bad bargain indeed," Romer wrote.

Biden administration officials, including Treasury Secretary Janet Yellen, argue the full package was needed to be sure all workers and families are kept economically intact until the job market recovers.

In a separate paper, Minneapolis Federal Reserve researchers Krista Ruffini and Abigail Wozniak concluded the federal programs largely did what they intended by supporting income and spending, with the impact seen in how consumption changed in response to the approval and lapse of different government payments.



But they also found room for improvement.

Evidence of the PPP's effectiveness in job retention, for example, was "mixed," they found, and increases in food assistance didn't account for things like higher grocery prices.

"Food insecurity remained elevated throughout 2020," they noted.

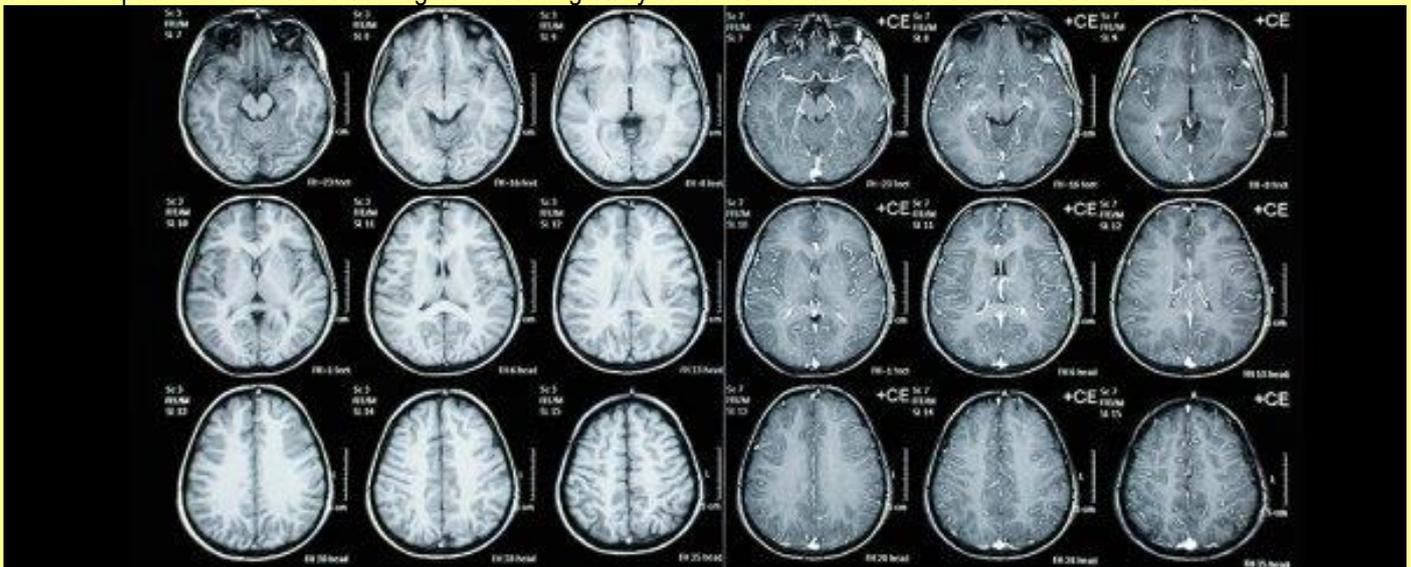
The aim now, they said, should be on determining what worked in order to make the response to any similar crisis more effective.

"The 2020 social insurance system response had many successes," they said. "Given the scope and scale of the pandemic response, it is critical we continue to evaluate these efforts to understand the full extent of their reach, which populations were helped, who was left out."

## Groundbreaking Study Reveals the Extent of Brain Abnormalities in American Children



Source: <https://www.sciencealert.com/groundbreaking-study-reveals-the-extent-of-brain-abnormalities-in-american-children>



Mar 26 – Early results from a landmark research program designed to observe the brain development and health of American children have just been released, revealing a first glimpse at a dataset both invaluable and, in many ways, disquieting.

The [Adolescent Brain Cognitive Development \(ABCD\) Study](#) is the largest long-term study of its kind in the United States, involving almost 11,700 healthy children aged between nine and ten who are being studied at over 20 research sites across the country.

At the outset of the ABCD Study, this huge, demographically diverse cohort of children had their brains scanned by high-resolution structural [magnetic resonance imaging](#) (MRI) machines.

This was to provide a baseline measurement of their developing brains, which will be rescanned at two-year intervals for the duration of the 10-year longitudinal study – helping scientists to understand how the children's brain development might be linked to a huge range of factors, from sleep levels to sport, substance use, time spent playing video games, academic results, and much more.

Yet even before researchers can start to fathom whatever links and associations might lie ahead for the ABCD cohort, those baseline measurements of their brains, taken between 2016 and 2018, are already providing new insights about their brain health – and by extension, that of American children as a whole, given the cohort was selected to reflect the general sociodemographic diversity of the US population.

In a [new analysis](#) of the results led by first author and neuroradiologist Yi Li from UC San Francisco (UCSF), researchers used the dataset to measure rates of what are called '[incidental findings](#)' (IFs).

In this context, IFs are unexpected brain abnormalities discovered during the imaging process, ranging from healthy and benign anatomical variants in brain structures to serious anomalies such as cysts and tumors that may require urgent medical intervention.

**Within the ABCD cohort, approximately 3.9 percent of the scans – representing almost one in every 25 children – showed IFs for which non-urgent or urgent clinical referral was recommended, the researchers found, whereas approximately 21 percent of the children overall had some kind of IF.**



## HZS C<sup>2</sup>BRNE DIARY – April 2021

Discovering clinically significant brain abnormalities in almost 4 percent of a sample taken to be representative of the general US population sounds alarming, but it's important to note that only about one in 500 children demonstrated abnormalities serious enough to be deemed a potentially life-threatening condition, for which immediate clinical referral was recommended.

Going forward, the ABCD Study will provide an unprecedented opportunity to continually monitor the brain and physical health and development of these children, as well as track the IFs so far discovered.

"The study is unique in its magnitude, participant diversity, and standardization of protocols," [the authors write](#). "To our knowledge, an observational study of this size and scope has never been performed in this field."

Perhaps most crucially, the cohort is now entering its teenage years, a phase in their lives in which their brain development will undergo significant and sometimes serious changes, with many adolescents potentially revealing mental health disorders as they age.

"Brain changes during this period are suspected to influence risk for disorders such as [schizophrenia](#), [depression](#), attention-deficit/hyperactivity disorder, and addiction," [explains](#) senior author and UCSF neuroradiologist Leo Sugrue.

"To date, our understanding of those relationships has been limited by a lack of high-quality longitudinal data, a gap that the ABCD Study aims to fill."

While many of the findings lie years into the future, for some of these young people and their families, their involvement with this pioneering research has already paid off in ways they could not have imagined.

The case of one boy in particular – whose brain scans revealed a brain tumor that was ultimately successfully removed – foreshadows just how important this science is.

As his mother [later said](#): "I'm forever grateful because his participation in this study probably saved his life."

►► The findings are reported in [JAMA Neurology](#).

## Researchers in Mexico unveil nose-only COVID-19 mask for use while eating, drinking

Source ([+video](#)): <https://cbsaustin.com/news/nation-world/researchers-in-mexico-unveil-nose-only-covid-19-mask-for-use-while-eating-drinking-pandemic-coronavirus>

Mar 25 – Researchers in Mexico have made a nose-only COVID mask, which they say reduces the risk of infection of coronavirus during eating and talking.

The people behind this nose-only mask say taking off the face mask to eat or drink leaves one exposed to the virus, while this nose-only mask



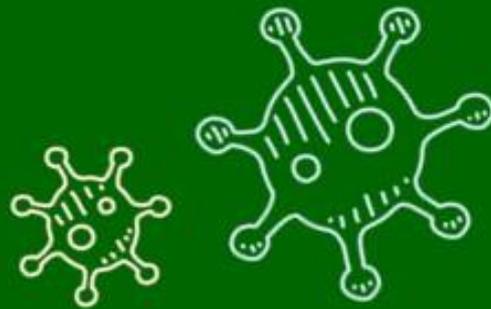
still provides some sort of protection. "It (coronavirus) is very contagious. It (infection) can occur through any of these three passages (eyes, nose, mouth)," said immunologist Gustavo Acosta. "Obviously, we cannot be

infected by tears but we can be infected if an infected person sneezes or coughs. If there is no physical barrier, we can get infected through respiratory dropped expelled from (COVID) patients or infected individuals. And with these infected individuals who have not been identified as having the infection." According to Johns Hopkins University, cells that give people a sense of smell are a key entry point for coronavirus, making nose coverings like these important.

However, the World Health Organisation (WHO) recommends people wear a face mask that covers the nose, mouth and chin.



**One spokesperson  
Single language**



**Crisis communication**

**The biggest  
the problem,  
the biggest  
the truth should be!**

## There's One Really Shameful Aspect of The Global Vaccine Rollout, Says UN Chief

Source: <https://www.sciencealert.com/un-chief-criticizes-wealthy-countries-for-selfishly-stockpiling-vaccines-to-everyone-s-detriment>

Mar 28 – UN Secretary-General Antonio Guterres criticized developed countries for creating a "stockpile" of [COVID-19](#) vaccines, and called on them to share with the rest of the world [to help end the pandemic](#).

"I'm very concerned with this very unfair distribution of vaccines in the world," Guterres said [in an interview](#) broadcast Sunday by the Canadian channel CBC.

"It's in the interest of everybody to make sure that as soon as possible and in a fair way, everybody gets vaccinated everywhere and that vaccines are considered to be a truly global public good," [he said](#).

The UN chief criticized the "self interest" of rich countries for building up vaccine supplies beyond the needs of their populations.

"First, don't stockpile vaccines," he said, adding that it "doesn't make sense."

"We have been appealing to developed countries to share some of the vaccines that they have bought and in many situations they have bought more than what they need."

The secretary-general lamented that the [Covax international system of vaccine aid to disadvantaged countries](#) is having "difficulties" because "there's been a lot of hoarding."

[He said](#) that ending the [pandemic](#) "depends a lot on having the possibility to vaccinate as quickly as possible the population all over the world," and he pleaded in favor of a mechanism powered by the G20 to put in place a global vaccination plan.

Asked about the possible adoption of vaccination passports, Guterres was cautious, saying that before any decision is taken, there must be serious discussion to ensure fairness and to make sure that there is effective global cooperation.

"The worst is for some countries to have it and for other countries not have it... it will be devastating if this would mean that people could move within the developed world but not within the developing world," [he warned](#).

## Far-right extremists in the US move from 'stop the steal' to stop the vaccine

Source: <https://www.sbs.com.au/news/far-right-extremists-in-the-us-move-from-stop-the-steal-to-stop-the-vaccine>



Mar 29 - Adherents of US far-right groups who cluster online have turned repeatedly to one particular website in recent weeks — the federal database showing deaths and adverse reactions nationwide among people who have received COVID-19 vaccinations.

[People protesting against the coronavirus vaccines outside the Raymond James Stadium in Tampa, Florida, 7 February, 2021 – New York Times](#)

Although negative reactions have been relatively rare, the numbers are used by many extremist groups to try to bolster a rash of false and alarmist disinformation in articles and videos with titles like "COVID-19 Vaccines Are Weapons of Mass Destruction — and Could Wipe out the Human Race" or "Doctors and Nurses Giving the COVID-19 Vaccine Will be Tried as War Criminals." If the so-

called "Stop the Steal" movement appeared to be chasing a lost cause once President Joe Biden was inaugurated, its supporters among extremist organisations are now adopting a new agenda from the anti-vaccination campaign to try to undermine the government.



Bashing of the safety and efficacy of vaccines is occurring in chat rooms frequented by all manner of right-wing groups including the Proud Boys; the Boogaloo movement, a loose affiliation known for wanting to spark a second Civil War; and various paramilitary organisations.

These groups tend to portray vaccines as a symbol of excessive government control. “If less people get vaccinated then the system will have to use more aggressive force on the rest of us to make us get the shot,” read a recent post on the Telegram social media platform, in a channel linked to members of the Proud Boys charged in storming the Capitol.

The marked focus on vaccines is particularly striking on discussion channels populated by followers of QAnon, who had falsely prophesied that Donald Trump would continue as president while his political opponents were marched off to jail.

“They rode the shift in the national conversation away from Mr Trump to what was happening with the massive ramp up in vaccines,” said Devin Burghart, the head of the Seattle-based Institute for Research and Education on Human Rights, which monitors far-right movements, referring to followers of QAnon. “It allowed them to pivot away from the failure of their previous prophecy to focus on something else.”

Apocalyptic warnings about the vaccine feed into the far-right narrative that the government cannot be trusted, the sentiment also at the root of the 6 January Capitol riot. The more vaccine opponents succeed in preventing or at least delaying herd immunity, experts noted, the longer it will take for life to return to normal and that will further undermine faith in the government and its institutions.

Last spring, a common purpose among far-right activists and the anti-vaccination movement first emerged during armed protests in numerous state capitols against coronavirus lockdown measures. That cross-pollination expanded over time.

On 6 January, while rioters advanced on the Capitol, numerous leading figures in the anti-vaccination movement were onstage nearby, holding their own rally to attack both the election results and COVID-19 vaccinations.

Events overshadowed their protest, but at least one outspoken activist, Dr Simone Gold of Beverly Hills, California, was charged with breaching the Capitol. She called her arrest an attack on free speech. She was one of several doctors who appeared in a video last year spreading misleading claims about the coronavirus. Mr Trump shared a version of the video, which Facebook, YouTube and Twitter removed after millions of viewers watched it.

In the months since inoculations started in December, the alliance grouping extremist organisations with the anti-vaccination movement has grown larger and more vocal, as conspiracy theories about vaccines proliferated while those about the presidential vote count receded.

With their protests continuing, far-right groups deployed many of the same talking points as the vaccination opponents. Prominent voices in both the “Stop the Steal” and the anti-vaccination movements helped to organise scattered rallies on 20 March against vaccines, masks and social distancing in American cities including Portland, Oregon, and Raleigh, North Carolina, as well as in Australia, Canada and other countries around the world.

In April, a conference with the tagline “Learn How to Fight Back for Your Health and Freedom,” is set to bring together Trump allies like Michael Flynn and Sidney Powell along with high-profile members of the anti-vaccination effort.

Maligning the coronavirus vaccines is obviously not limited to extremist groups tied to the Capitol riot. There is deep partisanship over the vaccines generally.

One-third of Republicans surveyed in a CBS News poll said that they would avoid getting vaccinated — compared with 10 per cent of Democrats — and another 20 per cent of Republicans said they were unsure. Other polls found similar trends.

About 100 members of the House of Representatives, roughly one-quarter, had not been vaccinated as of mid-March, according to Kevin McCarthy of California, the House minority leader.

It is unclear where Mr Trump will fit into the vaccine battle. The former president, who has been vaccinated, endorsed getting the shot recently, provoking some disbelief in QAnon and other chat rooms. “I would recommend it, and I would recommend it to a lot of people that don’t want to get it, and a lot of those people voted for me frankly,” he said in an interview with Fox News.

Across right wing-channels online, certain constant memes have emerged attacking the vaccine, like a cartoon suggesting that what started with mask mandates will end with concentration camps run by FEMA for those who refuse vaccinations.

Numerous channels link to the government website called VAERS, for Vaccine Adverse Event Reporting System, to enervise followers. It had reported 2,216 deaths among people vaccinated for the three months before 22 March, with 126 million doses administered. The COVID-19 vaccines in use, like most vaccinations, are considered overwhelmingly safe, but inevitably a small percentage of recipients suffer adverse reactions, some of them severe. The deaths have not been directly linked to the vaccinations.

The raw, incomplete VAERS statistics are meant for scientists and medical professionals, but are widely used among extremist groups to try to undermine confidence in the vaccine. One video consisted of a person reading the details from the chart aloud barking “Murder” where the chart said “Death.”



On Telegram, channels frequented by tens of thousands of QAnon followers are full of videos warning of the dire consequences of taking the vaccine. For example, David Icke, a British serial conspiracy theorist, posted a video called “Murder by Vaccine” saying that it transformed the nature of the human body. (The claims that the vaccines change human DNA are false.)

Mr Icke was previously best known for pushing the idea that the world was controlled by shape-shifting alien lizards who inhabited a global network of underground tunnels.

The general proliferation of conspiracy theories by QAnon followers for years has helped to create a shared vocabulary among far-right organisations, experts said, which smoothed the way for spreading false information about the vaccines. “The last year with COVID has just been a perfect storm that whatever your crazy conspiracy belief is, there is someone who has a COVID conspiracy to match it,” said Melissa Ryan, CEO of Card Strategies, a consulting firm that researches disinformation.

## **Biodefense in Crisis – Immediate Action Needed to Address National Vulnerabilities**

Source: <https://biodefensecommission.org/wp-content/uploads/2021/03/Biodefense-In-Crisis-1.pdf>

### **Preface**

To the President, Congress, and the American People:

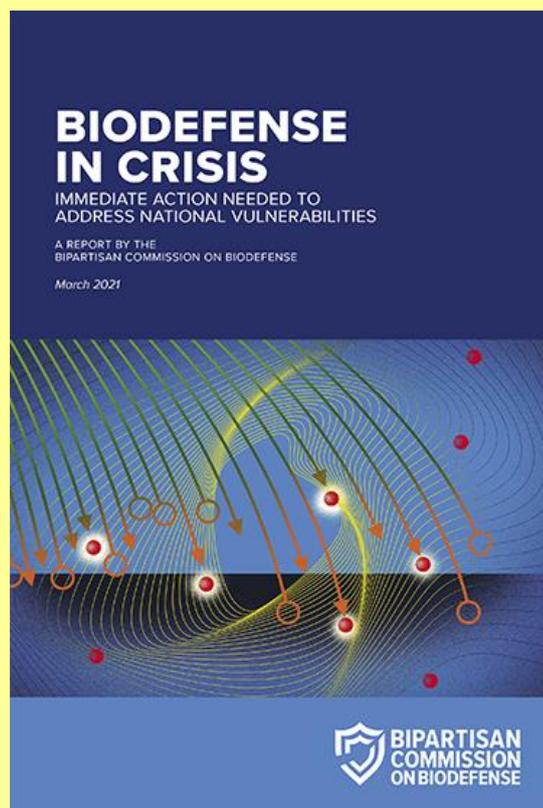
We convened the Bipartisan Commission on Biodefense more than six years ago in recognition of the severity of the biological threat and the lack of cohesive national preparedness for a large-scale event. In the hopes of preventing calamity, we produced our foundational report in 2015, A National Blueprint for Biodefense, in which we noted that the Nation was dangerously vulnerable to biological threats — including an infectious disease pandemic or a terrorist attack with biological weapons. Addressing the totality of federal biodefense policies and programs, the report offered improvements for how the government could prevent, deter, prepare for, detect, respond to, attribute, recover from, and mitigate a biological event. However, little was done in response to warnings and recommendations from our Commission and others. Unfortunately, the Coronavirus Disease 2019 (COVID-19) pandemic has proven us correct. The disease has inflicted great human and economic losses upon our country. We thank, applaud, and support the tireless work of researchers, public health professionals, healthcare deliverers, and frontline responders to bring the pandemic to an end.

COVID-19 continues to threaten the Nation and will remain a constant presence in our lives even with a successful vaccination campaign. Unfortunately, this pandemic will not be the last. Strong federal leadership is critical to enable the Nation to better defend against biological threats. Lessons can and should be learned from what went right during the various stages of response to COVID-19, as well as what went wrong.

The Executive and Legislative Branches did act on several of our recommendations. Most notably, the government developed and released a National Biodefense Strategy in 2018, in accordance with the third recommendation in A National Blueprint for Biodefense. Some Members of Congress and officials within the Obama, Trump, and Biden Administrations have also recognized the dire threat that pathogens pose and acted accordingly.

Regrettably, most of the Commission’s recommendations were unaddressed or only partially addressed before the COVID-19 pandemic began. Had the government fully implemented A National Blueprint for Biodefense or responded to warnings from experts, the Nation would have been much better prepared for COVID-19. Our recommendations would not have prevented infectious disease, but their adoption would have greatly assisted the federal government and its state, local, tribal, territorial, and non-governmental partners in preventing COVID-19 from becoming a pandemic.

We urge the public and private sectors to identify and act upon the difficult lessons learned from the current pandemic and place a high priority on combating the continuing biological



threat to America and the world. We must do this now. Countless lives can be saved in the future by federal leadership; many lives will be lost without it.

## Russia Registered World's First Coronavirus Vaccine For Animals

Source: <https://www.urdupoint.com/en/world/russia-registered-worlds-first-coronavirus-v-1209334.html>

Mar 31 – [Russia](#) has registered the [world's](#) first vaccine against COVID-19 for animals, its mass production could be launched in [April](#), Konstantin Savenkov, deputy head of [Russian](#) agricultural watchdog Rosselkhoznadzor, told reporters. Savenkov said the Carnivac-Cov vaccine, developed by the [Federal](#) Center for Animal Health, was the first and currently only vaccine against [coronavirus](#) for animals in the [world](#).



Editor's comment: Well, Mr. President?

"The clinical trials of Carnivac-Cov, which started in [October](#) last year, involved dogs, cats, polar foxes, minks, foxes and other animals. The [results](#) of the studies allow us to conclude that the vaccine is harmless and has high immunogenic activity, since [all](#) vaccinated animals developed antibodies to [coronavirus](#) in 100 percent of cases," he said.

Currently, Rosselkhoznadzor scientists continue to study how long [immunity](#) is developed after the vaccine administration. According to Savenkov, today this figure is at least six months.

"Already in [April](#), mass production of the vaccine can be launched on the basis of the country's largest platform for the production of medicines for animals of the Federal Center for Animal Health," he said.



## Untold risks: India needs full-time body to tackle biological threats

By Shruti Sharma

Source: <https://www.downtoearth.org.in/blog/governance/untold-risks-india-needs-full-time-body-to-tackle-biological-threats-76194>

Mar 30 – On April 10, 2020, the United Nations Secretary-General Antonio Guterres spoke on an issue that many have feared privately: The novel coronavirus disease (COVID-19) pandemic exposes countries' "weaknesses and lack of preparedness" and "provides a window onto how a bioterrorist attack might unfold". India is particularly vulnerable to such bioterrorist attacks due to its size, geography and uneven health system capacity.

The country faces three major biological threats: Naturally occurring infections in humans, plants, or animals; diseases that may occur due to an unintentional release of pathogens from laboratories; and terrorists or other bad actors deliberately misusing biotechnology to create biological weapons that can affect humans, animals or crops.

India often faces naturally occurring agricultural infestations, such as the recent locust attacks; diseases that affect animals and have not yet infected humans, such as the bird flu outbreak and zoonotic infections that have jumped from animals to humans, such as COVID-19. Yet, the country does not have a proper strategy to tackle infections. Instead, it follows a reactive approach, convening emergency committees, ad hoc response panels and groups once a disaster has struck.

Regarding the second category of risks, the country has so far not reported any case of accidental spilling of pathogens. But there has been illegal cultivation of transgenic crops in different regions. This illegal growth of transgenic crops challenges the implementation of guidelines for maintaining safety of biotechnological research.

India has been similarly fortunate not to experience bioterrorism, so far. It has, however, observed a few episodes that point towards the country's vulnerability to a deliberate biological attack. For example, the postal department, back in 2001, received 17 suspicious letters that were believed to be infected with anthrax spores — bacteria that produce toxins which can cause skin, lung and bowel diseases. If the 21st century is to be the epoch of biotechnology, as many say, it would be dangerously short-sighted to not think that these tools could be used by terrorists.

### Is India prepared?

India follows differing approaches to tackle biological threats emerging from both natural and human-made sources. However, there are some glaring gaps in its ability to manage these risks. Our response to naturally occurring outbreaks has exposed deep fault lines to tackle biological threats.

There are many reasons for this: We have a poor disease-surveillance network, which makes timely detection of outbreaks difficult. Inadequate coordination among ministries to prevent zoonotic infections complicates the response. Dismal investment in scientific research disincentivises researchers involved in the public health sector, who could help by developing capacities to identify, treat and vaccinate against threatening organisms.

India may have developed comprehensive guidelines to ensure safety of biotechnological research, but implementation of biosafety guidelines falls under the ambit of the Union Ministry of Science and Technology and the Ministry of Environment, Forest and Climate Change (MoEFCC). Researchers though are often affiliated to laboratories supported by the Indian Council of Medical Research and the Indian Council of Agricultural Research — research bodies set up under the Ministry of Health and Family Welfare (MoHFW) and the Ministry of Agriculture and Farmers' Welfare.

This multiplicity of organisations operating under different ministries makes it difficult to ensure the implementation of biosafety guidelines across the country.

With regard to potential bioterrorism, the country has no dedicated policy that deals with risks of intentional release of dangerous organisms. Multiple ministries are empowered to ensure protection of plants, animals and humans from disease-causing organisms. For example, one of MoHFW's mandates is to prevent export and import of plants and livestock that can pose risks to agricultural and animal biosecurity, respectively. MoEFCC takes charge of the import and export of plants for commercial purposes. Similarly, MoHFW is tasked to ensure availability of safe and wholesome food to strengthen human biosecurity in the country.

The problem here is that these different ministries often do not coordinate and share data with each other. Moreover, discussions regarding possible threats to national security due



to deliberate biological attacks are often limited to closed policy circles with minimal or no intervention of experts from outside the government.

This leads to poor biosecurity awareness, which further complicates India's preparedness towards threats emerging from deliberate sources.

The spread of infectious diseases is a long-term, continually evolving threat and India needs a governmental body prevent and mitigate all three types of biological threats.

A full-time office of biological threats preparedness and response under the National Disaster Management Authority can be one possible alternative in this regard. This office could become the nodal agency that brings together experts from the various ministries, representatives from the private sector, and professionals from the academic and the scientific communities.

*Shruti Sharma is a research analyst with the Technology and International Affairs Program, Carnegie Endowment for International Peace, New Delhi.*

## **Pandemic Apologies and Defiance: Europe's Leaders Increasingly Rattled**

**By Jamie Dettmer** (VOA reporter)

Source: <http://www.homelandsecuritynewswire.com/dr20210330-pandemic-apologies-and-defiance-europe-s-leaders-increasingly-rattled>

Mar 30 – European leaders are handling rising public frustration, economic distress and mounting coronavirus case numbers in different ways, with most showing the strain of dealing with a yearlong pandemic, say analysts and commentators, who add that the leaders seem to be rattled by a third wave of infections sweeping the continent.

A defiant French President Emmanuel Macron defended his decision to avoid a lockdown as the infection rate climbed in January, telling reporters last week he had “no remorse” and would not acknowledge any failure for the deepening coronavirus crisis engulfing France.

“There won't be a mea culpa from me,” said Macron.

In Germany, Chancellor Angela Merkel last week apologized to Germans for her initial decision — now rescinded — to lock the country down tight for Easter. She called the idea a mistake and apologized after a hastily arranged videoconference with the country's 16 state governors.

But she urged fellow Germans to be more optimistic and stop complaining about restrictions and vaccine delays.

“You can't get anywhere if there's always a negative,” she said. “It is crucial whether the glass is half full or half empty.”

Merkel has likened the third wave of rising coronavirus infections to “living in a new pandemic” and encouraged Germans to test themselves once a week with rapid tests provided by authorities.

In France, medical directors from the Paris public health system warned in a statement to *Le Journal du Dimanche* newspaper that soaring infections are overwhelming the capital's hospitals. As in Bergamo, Italy, a year ago, they say medical staff will soon have to choose which patients to treat.

“We're going straight into the wall,” said Catherine Hill, an epidemiologist in France. “We're already saturated, and it's become totally untenable. We can no longer take in non-COVID patients. It is completely mad,” she told French radio.

France's Health Ministry reported 37,014 new coronavirus cases Sunday, bringing the country's total number of infections to over 4.5 million. Over 94,000 people in the country have died from the virus.

Across Europe, 20,000 people are dying per week, more than a year ago, according to the World Health Organization (WHO). WHO has urged governments to get back to basics in their handling of the pandemic. Central Europe, the Balkans and the Baltic states are also being hit hard with cases, hospitalizations and deaths — among the highest in the world.

### **Political Repercussions**

The pandemic has claimed two political positions, as well. The coalition government in Italy headed by Giuseppe Conte collapsed last month amid a dispute about how to spend European Union recovery funds.

On Sunday, embattled Slovak Prime Minister Igor Matovič announced his resignation to end a monthlong political crisis sparked by his decision to buy the Russian-made Sputnik V vaccine to make up for a shortfall in vaccines distributed by the EU.

Matovič will switch places with current Finance Minister Eduard Heger, who will become the new prime minister of the fractious four-party coalition government.



## HZS C<sup>2</sup>BRNE DIARY – April 2021

Under public pressure to get a grip on the crisis, some leaders appear to be increasingly nervous about the possible electoral repercussions from more lockdowns, deaths and likely more months of reduced economic activity, which means more bankruptcies. According to a pan-Europe opinion poll conducted for the International Republican Institute, a U.S.-based NGO in partnership with European parliamentary groups, Europeans, especially in the East and center of the continent, are becoming increasingly gloomy about their economic prospects. Pessimism is especially pronounced among low-income Europeans.

More than 40% of respondents from Hungary, Slovenia, Bulgaria, Italy, Romania, Poland and Spain told pollsters they feel their financial situation will get worse. With the gloom mounting, governments appear to be lashing out, according to some commentators, with efforts being made to find scapegoats for the worsening crisis.

British officials argue that the ongoing dispute between Britain and the EU over supplies to Europe of the AstraZeneca vaccine are part of an effort to shift blame. The EU claims it is not getting a fair share of doses, thanks to behind-the-scenes British shenanigans — an accusation London vehemently denies.

The British media have also lambasted European leaders for what they say are false accusations, with Macron being seen as largely behind the distraction.

“There is now a systematic attempt by his (Macron’s) entourage to blame the unfolding debacle on the British, trying to create a sense that everything would be on track were it not for the U.K.’s refusal to hand over AstraZeneca vaccines,” said British columnist Ambrose Evans-Pritchard.

Policy U-turns are coming thick and fast — another sign of political disarray, analysts say.

Merkel on Sunday — just days after relenting on a tight Easter lockdown — blamed regional governments for failing to take the crisis seriously enough and for easing restrictions despite rapidly rising infection rates.

She threatened to centralize Germany’s pandemic response and override regional powers, a move that would be legally and politically risky and would undermine traditional German federalism.

## World Leaders Call for Treaty to Prepare for Next Pandemic

Source: <http://www.homelandsecuritynewswire.com/dr20210330-world-leaders-call-for-treaty-to-prepare-for-next-pandemic>

Mar 30 – Leaders from 23 countries, the World Health Organization and the EU called for a new international treaty to better prepare for [future pandemics](#) in an op-ed published on Tuesday.

The signatories of the op-ed — published in major newspapers worldwide — were global leaders from five continents and included Germany’s Angela Merkel, Britain’s Boris Johnson, France’s Emmanuel Macron, South Korea’s Moon Jae-in and South Africa’s Cyril Ramaphosa.

“We believe that nations should work together towards a new international treaty for pandemic preparedness and response,” the op-ed said.

“Such a renewed collective commitment would be a milestone in [stepping up pandemic preparedness](#) at the highest political level.”

### Better Cooperation Next Ttime

The idea was first floated by President of the European Council Charles Michel at a G20 summit in November last year.

The need for international cooperation was made clear by the COVID-19 pandemic that has ravaged global health services and economies.

It is hoped that a treaty would ensure universal and equal access to vaccines, medicines and diagnostics for future pandemics.

“There will be other pandemics and other major health emergencies. No single government or multilateral agency can address this threat alone,” the op-ed said.

### Need to Overcome International Divisions

Leaders from the US, China, Russia and Japan were conspicuous by their absence among the signatories.

It is expected that any successful international treaty will be the result of a long period of political wrangling.

The coronavirus pandemic has seen governments and national leaders [trade accusations](#) over each others’ handling of the outbreak. At the same time, rich countries have been criticized for hoarding vaccines at the expense of a global equitable distribution.

The sentiment was not lost on the signatories which included leaders from the EU and the UK who have been involved in a [row over access to AstraZeneca COVID-19 vaccine doses](#).



“At a time when COVID-19 has exploited our weaknesses and divisions, we must seize this opportunity and come together as a global community for peaceful cooperation that extends beyond this crisis,” the op-ed pleaded.

## Here's What COVID-19 Vaccine Side Effects to Expect Based on Your Age, Sex, And Dose

Source: <https://www.sciencealert.com/it-s-time-to-get-your-covid-vax-here-s-some-side-effects-you-can-expect>

Mar 31 – When Freedom Baird got her first dose of Moderna's vaccine in February, she wasn't sure what kind of side effects to anticipate.

Baird is a [COVID-19](#) long-hauler – she's had lingering shortness of breath and chest pain for roughly a year. Many people who've had a prior infection develop more side effects in response to the first vaccine dose than the second. An average person, meanwhile, typically feels more run-down after their second shot.

Baird's age complicated her expectations: She's 56, and [clinical trials](#) have shown that people over 55 often develop fewer vaccine side effects. As it turns out, she didn't feel much.

"It was really just that first day of feeling achy and flu-y," Baird told Insider.

While doctors can't predict exactly how someone will respond to a [coronavirus](#) vaccine, they've identified a few patterns based on a person's age, sex, health status, and which dose they're receiving.

Clinical trials suggest that side effects are generally more pronounced among women and younger adults, especially after their second dose.

### Dose two usually comes with more severe side effects

The most common side effect for all three authorized US vaccines is pain or swelling at the injection site: Nearly 92 percent of participants in Moderna's clinical trial developed this side effect. In Pfizer's trial, 84 percent of participants reported that, as did 49 percent in Johnson & Johnson's.

Other common side effects include fatigue, headache, and body or muscle aches. Around 65 percent of vaccine recipients in Pfizer's and Moderna's trials, and 38 percent in Johnson & Johnson's, developed fatigue.

For those who haven't had COVID-19 before, side effects tend to be more numerous and severe after the second dose.

Roughly twice as many participants in Pfizer's trial developed chills and joint pain after their second dose than after their first. In Moderna's trial, meanwhile, around five times as many participants developed chills after their second dose than their first.

[Fever](#)s were also far more common among second-dose recipients than first-dose recipients in both trials.

### People who've had COVID-19 may develop more side effects after dose 1

A [small study](#) from the Icahn School of Medicine at Mount Sinai found that vaccine side effects such as fatigue, headaches, and chills were more common among people with pre-existing immunity to the coronavirus than people who'd never been infected before. Around 73 percent of vaccine recipients who'd previously had COVID-19 developed side effects after dose one of Pfizer's or Moderna's shot, compared to 66 percent of vaccine recipients who'd never gotten infected before.

"If you've already had a COVID-19 infection, you've developed memory cells from that infection," Dr. Vivek Cherian, a Baltimore-based internal medicine physician, told Insider.

"If you were ever to be exposed to the infection again, your body would basically be able to respond quickly and more robustly that second time around," he added.

"That's why you tend to have more strong side effects from that initial vaccine."

### Younger adults may feel more run-down after their shots than older people

Our immune systems gradually deteriorate as we age, which means older people's bodies don't work as hard to defend them against foreign invaders – including the protein introduced to the body via a vaccine.

"Younger individuals have a much more vigorous immune response, so it should make sense that they would also have more side effects," Cherian said.

After one dose of Moderna's shot, 57 percent of people younger than 65 developed side effects, compared to 48 percent of those older than 65. After the second dose, nearly 82 percent of people in the younger group developed side effects, compared to nearly 72 percent of older adults.



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Pfizer broke down its data slightly differently: Around 47 percent of people ages 18 to 55 developed fatigue after dose one, whereas 34 percent of people ages 56 and older reported that side effect. After dose two, the numbers rose to 59 percent and 51 percent, respectively.

After Johnson & Johnson's one-shot vaccine, nearly 62 percent of people ages 18 to 59 developed side effects, compared to 45 percent of people ages 60 and up.

### Women can expect more side effects in general

The Centers for Disease Control and Prevention [analyzed Americans' reactions to nearly 14 million doses](#) of the Pfizer and Moderna shots from December to January.

The results showed that roughly 79 percent of instances of vaccine side effects reported to the CDC came from women, though just 61 percent of doses were administered to women overall.

Cherian said women tend to react more strongly to vaccines for polio, influenza, measles, and mumps as well.

"All of these vaccines in general, women tend to have greater side effects," he said. "They're even more pronounced for a pre-menopausal woman compared to a post-menopausal woman."

Scientists suspect the difference has to do with estrogen levels.

"Testosterone tends to be an immune-suppressive hormone and estrogen tends to be an immune stimulant," Cherian said. "So more than likely it's the estrogen hormone – that's why females tend to have more side effects."

### Most high-risk medical conditions won't lead to stronger side effects

People with weakened immune systems don't mount a strong defense against viral infections in general, so they're particularly vulnerable to severe COVID-19. For that reason, the CDC recommends that these groups get vaccinated right away.

But it's possible that immunocompromised people, such as [cancer](#) patients, won't mount a strong immune response to the vaccine, either.

"Your immune response essentially dictates your side effects, so if you're immunocompromised, you may not necessarily be having as many side effects, but you should still absolutely get vaccinated," Cherian said.

The vaccines should provide immunocompromised people with at least some protection against severe COVID-19, even if they don't feel any side effects – though the effectiveness may be lower than for the average person.

Cherian said that for people with autoimmune conditions, meanwhile, the side effects probably won't be any worse than for the average person.

"If you have those high risk factors, you really, really want to get vaccinated," he said.

"Dealing with a few side effects of some diarrhea or some muscle aches is a much, much better thing than some of those serious, potentially life-threatening side effects of the COVID-19 infection."

## Future pandemics? Stress tests and preparedness plans must be core part of businesses' strategy



By Lord Toby Harris

Source: <https://www.cityam.com/future-pandemics-stress-tests-and-preparedness-plans-must-be-core-part-of-businesses-strategy/>

Mar 30 – No one in the business world saw Covid-19 coming. There had, of course, been warnings about pandemics. Some businesses were better prepared than others, but very few imagined it would really happen or what it would be like in practice.

But now we do know and we have seen the impact on people's health, on the economy and on society. So, in the future there will be no excuses for being unprepared. However, the next crisis will not be the same as this one, and we all need to be ready for the unexpected.

In the last 12 months, businesses have had to reinvent themselves in ways few would have thought possible. Entire workforces have been sent home. Bricks and mortar companies have had to shift online and create new ways of selling their products and services. A few organisations have thrived, but many have struggled and some have not survived.

Hindsight is a wonderful thing. It is easy to attribute blame and focus on what could have been avoided or managed more effectively.

**However, it is more useful to look ahead and learn from the experiences of the last year.** Cranfield University, in partnership with the National Preparedness Commission, which



I chair, and Deloitte, have today published landmark research that looks at how businesses responded to Covid-19, so as to identify how businesses can make themselves more resilient to future challenges.

Researchers spoke to over fifty senior leaders of [FTSE 100 companies](#), multi-nationals and major infrastructure organisations – many of them household names. These in-depth interviews, roundtables and focus groups found that most companies – at best – struggled through the pandemic and were ill-prepared for the disruption it caused.

Those that coped best were the ones that already understood what was most important to their customers and therefore what were the most essential things to continue to deliver as the crisis unfolded. These businesses had examined in advance alternative ways of delivering those services that mattered the most. They had developed the ability to cope under pressure no matter what.

**The key was to have stress-tested the organisation for possible disruption whatever the type of threat.** Normal operation is not possible in a pandemic, nor in a major cyberattack, a flood or a prolonged power failure. The organisation has to be able to adapt quickly and continue to deliver what is most important.

This was the lesson learned by the financial services sector from the financial crisis of 2008. The regulatory framework now pushes for better resilience across the sector, where financial impact thresholds are set and stress-tested against severe, but plausible, scenarios. This approach, now applied to all aspects of the sector's operations, has meant that financial services have become much more mature in their approach to resilience. This operational preparedness allowed them to cope with the disruption caused by the pandemic, but also adapt at speed to new and essential requirements, such as the disbursement of government backed loans.

The truth is that this sort of approach is now needed across all sectors. Every business needs to strengthen its resilience – particularly as the threat landscape is becoming ever more complex and volatile. The latest National Risk Register issued by the Government a few weeks ago maps 38 major risks facing the country, including environmental hazards, major accidents, malicious attacks, risks arising overseas, and animal and human diseases. And then there are the long-term challenges as we respond to climate change and the net zero agenda, the impact of demographic change and inequalities at home and around the world.

Dreadful though the experience of Covid-19 has been, it has been a wake-up call to business leaders and to Whitehall to act strategically to strengthen resilience and to embrace 'futures thinking'. This means not being fixated on individual threats, but instead look at how we can develop the flexibility and agility to cope with the unimaginable and the unexpected. Our focus must be on what matters most – whether it is to our customers or society at large – and how our preparedness can ensure that those essentials are protected.

*Lord Toby Harris is chair of the National Preparedness Commission.*

## **Powder letters in the Netherlands and Belgium**

By Lina Kolesnikova

Source: [https://crj.co/Articles/606569/Powder\\_letters\\_in.aspx](https://crj.co/Articles/606569/Powder_letters_in.aspx)

In January this year, a powder letter was sent to the Public Waste Agency of Flanders (OVAM) in Mechelen (Belgium) and, according to the first indications, it contained a highly toxic chemical. The substance was **strychnine** – a white, odourless and highly toxic substance that is often used for mole and rat poison. Two employees were taken to hospital as a precaution.

In February, again in Belgium, an unidentified person left an envelope containing white powder at the home of the Mayor of the City of Antwerp, Bart de Wever. The fire brigade, police and civil protection services arrived immediately, and a perimeter was established. After examination, the substance turned out to be **flour**.

However, the Netherlands was terrorised by powder letters throughout the autumn of last year. Dutch police are investigating any connection between a series of 19 letters, which have been sent to 12 different addresses in Amsterdam and to additional locations in Amersfoort, Arnhem, Best, Rotterdam, Utrecht, Roermond and Zeist. Among the recipients of these letters were hospitals, private companies, media groups and hotels. According to the police, nobody had been hurt but the powder caused slight breathing problems and burning eyes in some of the recipients, which led the police to conclude that the powder was indeed harmful.

In 2001, letters filled with anthrax spores killed five people in the USA and created a fear of biological attacks all around the world. White powder letters could be a real danger when they contain dangerous substances, and they could be hoaxes – faux terrorism, which is still costly in terms of wasting emergency responders' resources and time.

However, the threat is not limited to powders. Explosives, chemical or radiological materials are potential examples of hazardous materials sent via letters and parcels.



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Such letters have usually been sent to the addresses of governmental agencies or big companies, including banks, but sometimes also targeted famous and/or notorious political figures, such as Dr Anthony Fauci in the USA or aforementioned Bart de Wever.

The resurgence of powder letters should lead us to assume that such incidents are still ongoing in Europe and elsewhere. Therefore, we must attract attention to improving the public's general situational awareness when it comes to suspicious mail or parcels, or when a package is found to contain a powder or any other substance.

Postal and other delivery services should consider how and to what extent their services can and should be equipped with the scanning and 'sniffing' systems which may detect and control the presence of harmful materials throughout delivery pipelines. It is logical that such controls should be set at the sorting sites where all mail traffic is processed.

Post office delivery centres should try to improve their registration controls of senders as a way to deter criminals and to assist with post-incident investigation support. While this might be a relatively feasible task for parcels, where post offices, agents and automated postal drop-off systems can be equipped with cameras for example, it is a much more complex and difficult task for regular post. The latter is often collected via free access distributed postal boxes – very often these are situated in unmonitored and even deserted places. Access to these boxes is open around the clock. Therefore, a better option might be to move postal boxes to places where they could be viewed or monitored by CCTV camera installations. Such a move would achieve a deterrent effect without major investment.

On the response side, special training and information campaigns should be developed for first responders and law enforcement agents who are on the front line of such incidents. A review of equipment made available to first responders for the purposes of protecting personnel and detecting hazardous material should also be considered.

*Lina Kolesnikova is consultant in International Relations, Security, Risk and Crisis Management, Brussels. Lina is a specialist in consultancy, training and research, especially in the fields of: Risk, crisis and disaster management tactical, operational and strategic level); homeland security; CBRNE; OSINT. She holds an MSc Degree in Risk, Crisis & Disaster Management from Leicester University, UK; an MA in History (Novosibirsk State University, Russia, 1996); and post graduate qualifications in International and European Relations (Amsterdam School of International Relations, the Netherlands, 2000), Communication and Languages as Strategic Skills (CLASS) (Erasmus Hogeschool, Belgium, 2005), Logistics Management (American Military University, 2011), and is working on further qualifications in Terrorism Studies (American Military University).*

## Covid-19 was third leading cause of death last year, CDC confirms in early data

Source: <https://edition.cnn.com/2021/03/31/health/covid-19-deaths-2020-cdc-report-wellness/index.html>

Mar 31 – Covid-19 was the third leading cause of death in the United States last year, after heart disease and cancer, according to [provisional data](#) released on Wednesday by the US Centers for Disease Control and Prevention.

The death rate from 2019 to 2020 increased by 15.9%, going up from 715.2 to 828.7 deaths per 100,000 people, according to the report.

The early data showed that the top **10 leading causes of death in 2020** were:

- |                         |                                      |
|-------------------------|--------------------------------------|
| 1. Heart disease        | 6. Chronic lower respiratory disease |
| 2. Cancer               | 7. Alzheimer's disease               |
| 3. Covid-19             | 8. Diabetes                          |
| 4. Unintentional injury | 9. Influenza and pneumonia           |
| 5. Stroke               | 10. Kidney disease                   |

Researchers at the National Center for Health Statistics analyzed death certificate data from the National Vital Statistics System, taking a close look at deaths among US residents between January and December of 2020.

"COVID-19 was the third leading underlying cause of death in 2020, replacing suicide as one of the top 10 leading causes of death," the researchers wrote in the report. Suicide previously was the 10th leading cause of death but was bumped off the list for 2020 as deaths due to Covid-19 climbed.

The researchers found in their report that about 3.36 million deaths occurred last year. Covid-19 was reported as the underlying cause or a contributing cause of death for nearly 378,000



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-- or about 11.3% -- of those deaths. The data showed that heart disease caused 690,882 deaths and cancer caused 598,932 deaths. The data also showed that, overall, death rates were highest among the Black and Native American or Alaska Native communities, adults ages 85 and older and men. The Covid-19 death rate specifically was highest among Hispanics, according to the CDC report. The data are provisional -- and so numbers and death rates might change as additional information is received. Since investigating causes of death takes time, final data for a given year are typically published about 11 months after the end of the calendar year. In January, CDC statisticians shared with CNN that Covid-19 was likely the third leading cause of death in the United States for last year.

Life expectancy in the United States also dropped a full year in the first half of 2020, according to a provisional report published by the CDC's National Center for Health Statistics in February. The report shows that [US life expectancy fell](#) to 77.8 years, back to what it was in 2006.

### Medical studies without adequate pre-publication review could damage public trust in science

Source: [https://www.eurekalert.org/pub\\_releases/2021-03/tfg-msw033121.php](https://www.eurekalert.org/pub_releases/2021-03/tfg-msw033121.php)

Mar 31 – The public could lose trust in science if scientific and medical researchers choose to bypass the traditional high standards of peer-reviewed medical journals in the rush to get research data released, particularly during crises such as the COVID-19 pandemic.

That's the warning from three leading medical communications organizations, that have published a joint statement in the peer-reviewed journal [Current Medical Research and Opinion](#) - asserting that the integrity of published scientific and medical research must be protected.

Out today, the joint statement from the American Medical Writers Association (AMWA), the European Medical Writers Association (EMWA), and the International Society for Medical Publication Professionals (ISMPP), argues that although peer-review is still the most common process for vetting scientific publications, there is a worrying trend for manuscripts to be released without pre-publication review.

Especially during the COVID-19 health crisis, medical researchers have felt significant pressure to publish COVID-19 findings as quickly as possible, but the statement emphasizes that having a pre-publication review is still essential. The danger is that once the threshold of publication oversight is lowered, it becomes a precedent that cannot be easily reversed, potentially eroding standards and causing the public to lose trust in medical science. "Medical communicators, including writers, editors, and those involved in quality control, play a critical role in ensuring that clinical and scientific data are published and disseminated in an accurate and clear manner. In the current rush-to-publish environment, all stakeholders in the scientific and clinical research communities and press must ensure that the public have correct and actionable information from which to make health and medical decisions," explained Gail Flores, PhD, President of AMWA.

In particular, the statement highlights the impact of preprints - preliminary scientific reports that are made publicly available online for anyone to read and discuss before they have been peer reviewed. While preprints enable rapid release and discussion of data, many are never revised or corrected, and only about a third-to-a half are ever fully published. This can also occur with articles submitted for post-publication peer review, in which an article is published in its original form, before expert peer reviewers are invited to critique it.

The statement recognizes the benefit of rapid publication but alerts that they have to be vetted against the potential harms associated with an accelerated process. "Particularly in these times, it is more important than ever to retain public trust in science, while balancing the need to report timely and relevant medical research," stated Beatrix Doerr, PhD, President of EMWA. In seeking a resolution, the three organizations present recommendations and a Reviewers' Checklist to provide a minimum standard of pre-publication vetting to enhance preprint publication processes.

#### Their key recommendations include:

- Performing more extensive and consistent checks ? for example, by preprint server hosts ? - on articles that have not been peer-reviewed prior to publication.
- Referencing preprints and articles uploaded for post-publication peer-review only as in-text reference (with a preprint link, DOI, or both), rather than as a bibliographic reference, and clearly labelled as a preprint, or as undergoing post-publication peer review.



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- Watermarking articles plus including a disclosure within the body of the article highlighting that the findings have not been formally peer-reviewed.
- Educating medical journalists and the public about the differences between preprints, post-publication peer review, and traditional peer review.

Crucially, the organizations have also identified ways in which the peer-review process - renowned for being "laborious and time-consuming" - could be expedited. They call upon each stakeholder - authors, journal editors, and publishers - to play a part in this.

### Their key suggestions include:

- Rapid response team of reviewers
- Standardized formatting requirements to shorten the time to re-submission
- Portable peer-review
- Fast-track options
- Incentives for reviewers

"For those engaged in preprints, post-publication peer-review, as well as traditional peer-review publications, our joint statement presents key practical recommendations to safeguard the quality of the publications while supporting their more rapid dissemination. We strongly encourage authors, journal editors, publishers, and other stakeholders to review and apply these practical suggestions, ensuring a high-quality standard for published research, irrespective of the format," emphasized Robert J. Matheis, PhD, MA, President and CEO of ISMPP.

## A Review of Masks Against COVID-19 for Better Protection

By Carolyn Crist and Charles P. Vega, MD

Source: <https://www.medscape.org/viewarticle/948263>

Mar 31 – Masks are a proven means to prevent the spread of SARS-Cov-2, the virus that causes COVID-19, but a previous study by Sickbert-Bennett and colleagues suggested that not all masks may be equal in this regard. In this study, researchers evaluated 29 nonfitted masks for fitted filtration efficiencies (FFE) in a controlled laboratory environment. Their results were published in the August 11, 2020 issue of *JAMA Internal Medicine*.<sup>[1]</sup>

As expected, N95 respirators outperformed other masks, with FFE in excess of 95%; however, a less expected finding was that N95 respirators that had expired or that had been sterilized with ethylene oxide and hydrogen peroxide were still highly effective. KN95 respirators, many of which are produced in China, were substantially less effective, with FFE of 53.2% to 85.1%. Surgical masks with ties offered reasonable efficacy (FFE = 71.5%), but surgical masks with ear loops were associated with an FFE of 38.1% alone.

The current study by Clapp and colleagues provides more evidence regarding the efficacy of masks in preventing the spread of molecules with size similar to SARS-CoV-2. In particular, this study addresses means that purportedly can increase mask effectiveness.

### Study Synopsis and Perspective

Centers for Disease Control and Prevention (CDC) officials emphasized the importance of wearing face masks that properly fit the face to slow the spread of SARS-CoV-2, the virus that causes COVID-19.

Mask fitters, which are small reusable devices that cinch a cloth or medical mask, can create a tighter fit against the face.

"Fitters have been scientifically demonstrated to improve filtration performance by as much as 90% or more," John Brooks, MD, chief medical officer of the CDC's COVID-19 Response, said January 29 during a media briefing with the Infectious Diseases Society of America.<sup>[2]</sup>

That range of filtration efficiency meets the same standards as N95 respirators, he said.

"The more choices we can offer people, the more likely they are to find something that suits them and that they'll adopt," he said.

Wearing masks remains a key part of slowing the spread of COVID-19, particularly with the new spread of coronavirus variants, Brooks said. He reiterated that masks aren't a substitute for social distancing and that people should still wear masks when they stand 6 feet apart from others, especially indoors and around those who do not live in the same household.

Throughout the pandemic, the CDC has studied the best combination of materials that block and filter respiratory particles, along with fit, comfort, durability, and consumer appeal.

Double masking, for instance, could be effective to further reduce the spread of the virus, Brooks said. People can wear a cloth mask with a high thread count over a medical mask,



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where the medical mask acts as a filter and the cloth mask adds an extra layer of filtration that better fits the contour of the face to prevent leaking.

CDC scientists are now conducting experiments to evaluate the efficacy of wearing 2 masks and will share the data as soon as it is available, Brooks said.

“It’s thought that this specific combination of a cloth and a medical mask could block over 90% or more of those respiratory droplets and particles,” he added.

Mask fitters could achieve a similar goal of preventing leakage, he said. For consumers who are interested, mask fitters are available for sale online, and several websites provide instructions on how to make one at home. A smartphone app also allows consumers to scan their face and use a 3D printer to create a better custom fit for the contours of their face.

“Any mask is better than no mask,” he said. “Regardless of what we use, it’s critical that as many of us as possible mask up.”

### Study Highlights

- Clapp and colleagues evaluated the FFE of various consumer-grade and improvised face masks, as well as several popular modifications of medical procedure masks intended to improve mask fit or comfort. Their study results were published online December 10, 2020, in *JAMA Internal Medicine*.<sup>[3]</sup>
- The researchers used a generator that produced particles with a median diameter of 0.05 µm. They tested FFE for different masks while varying the humidity and temperature within a chamber. The test volunteer completed a series of bodily movements in the chamber to validate FFE in different positions.
- All masks were tested on a single man, who weighed 165 lb and measured 5' 10" tall. The male volunteer had no beard.
- The investigators tested 7 different masks, as well as 5 modifications to a standard medical procedure mask.
- The N95 respirator achieved an FFE of 98.4%. The FFE of the other commercially available masks tested ranged from 79% to 26.5%:
  - 3-layer cotton mask with ear loops = 26.5%
  - Polypropylene mask with fixed ear loops = 28.6%
  - Single-layer polyester gaiter/neck cover (balaclava bandana) = 37.8%
  - Single-layer polyester/nylon mask with ties = 39.3%
  - 2-layer nylon mask with ear loops (without aluminum nose bridge) = 44.7%
  - Cotton bandana worn “bandit style” = 49%
  - Cotton bandana folded in a rectangle per Surgeon General’s recommendation = 49.9%
  - 2-layer nylon mask with ear loops (with aluminum nose bridge) = 56.3%
  - Surgical mask with ties = 71.5%
  - 2-layer nylon mask with ear loops (with aluminum nose bridge and 1 insert) = 74.4%
  - 2-layer nylon mask with ear loops (with aluminum nose bridge and no insert; washed once) = 79%
- In addition, the FFE for the standard medical procedure mask with ear loops were as follows:
  - No alteration = 38.5%
  - Loops tied and corners tucked back in = 60.3%
  - Secured with ear guard = 61.7%
  - Secured with 23-mm claw-style hair clip = 64.8%
  - Secured with 3 rubber bands to fix the mask = 78.2%
  - Secured with a 10-inch segment of nylon hosiery = 80.2%

### Clinical Implications

- In a previous study by Sickbert-Bennett and colleagues, expired or sterilized N95 respirators retained greater filtering efficiency vs other types of masks for particles similar in size to SARS-CoV-2.
- In the current study by Clapp and colleagues, the most effective mask outside of N95 respirators for the prevention of possible COVID-19 was the 2-layer nylon mask with ear loops and an aluminum nose bridge, provided that the mask had been washed once. Wearing a segment of nylon hosiery over a typical medical procedure mask was the most effective augmentation of such a mask.
- Implications for the healthcare team: The healthcare team can recommend masks for patients according to the current study, and the team can also employ these findings routinely in their daily lives to protect themselves and the community from COVID-19.

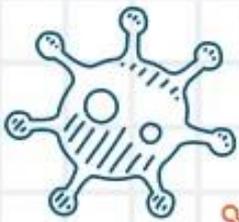


**EMA**

**give**

**Europeans**

**the**



**Sputnik V vaccine**

## Boerhavia diffusa possess potential therapeutic properties against COVID-19

Source: <https://www.news-medical.net/news/20210328/Boerhavia-diffusa-possess-potential-therapeutic-properties-against-COVID-19.aspx>

Mar 28 – The main protease found in [coronaviruses](#) is the 3C-like protease (3CL<sup>pro</sup>), corresponding to non-structural protein 5, one of the sixteen non-structural proteins encoded by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) genome. 3CL<sup>pro</sup> is involved in post-translational modification and is vital to the replication of the virus, thus makes an attractive drug target. Several companies and research groups have been searching for suitably docking ligands that inhibit the function of this protein. In a research paper recently published to the Springer journal [VirusDisease](#) by Surya & Praveen (March 6<sup>th</sup>, 2021) *in silico* docking simulations towards 3CL<sup>pro</sup> have been performed, focusing in particular on natural products obtained from the plant *Boerhavia diffusa*.



*Boerhavia diffusa* is a species of flowering plant in the four o'clock family which is commonly known as punarnava, red spiderling, spreading hogweed, or tarvine. Image Credit: Hem Stock / Shutterstock

### Natural product drug discovery

*Boerhavia diffusa* is sometimes taken as a herbal medicine for pain relief and other uses, and some evidence suggests that it could provide some minor health benefits.

The phytochemicals within the plant are diverse, consisting of a variety of isoflavonoids, xanthenes, steroids, and other complex biological molecules, in addition to being rich in vitamins B and C.

The group selected nine major phytochemicals present in the plant and simulated docking with 3CL<sup>pro</sup> of both SARS-CoV-2 and MERS-CoV, finding that three had favorable docking energies and could potentially inhibit the function of the protein: Biorobin, - 8.17 kcal/mol; Bioquercetin, - 7.97 kcal/mol; and Boerhavisterol, - 6.77 kcal/mol.

Further computational analysis to assess the adsorption, distribution, metabolism, excretion and toxicity properties of the three molecules was performed, accounting for factors such as hydrophobicity and comparative structural similarity to known compounds to estimate these properties.

Biorobin and Bioquercetin each contain a large number of external hydrogen bond donors and acceptors, and molecular weights over 500, suggesting that they would make poor drugs.



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Boerhavisterol, on the other hand, was suggested to make an efficiently adsorbed and distributed non-toxic candidate. The estimated inhibition constant of the drug towards 3CL<sup>pro</sup> was 10.98  $\mu$ M, around ten-fold poorer than the two other lead drugs.

Interestingly, none of the tested compounds showed favorable binding energies with the MERS-CoV 3CL<sup>pro</sup>, suggesting that although the proteins are structurally similar across coronaviruses, they differ in sequence around the relevant binding pockets with these molecules.

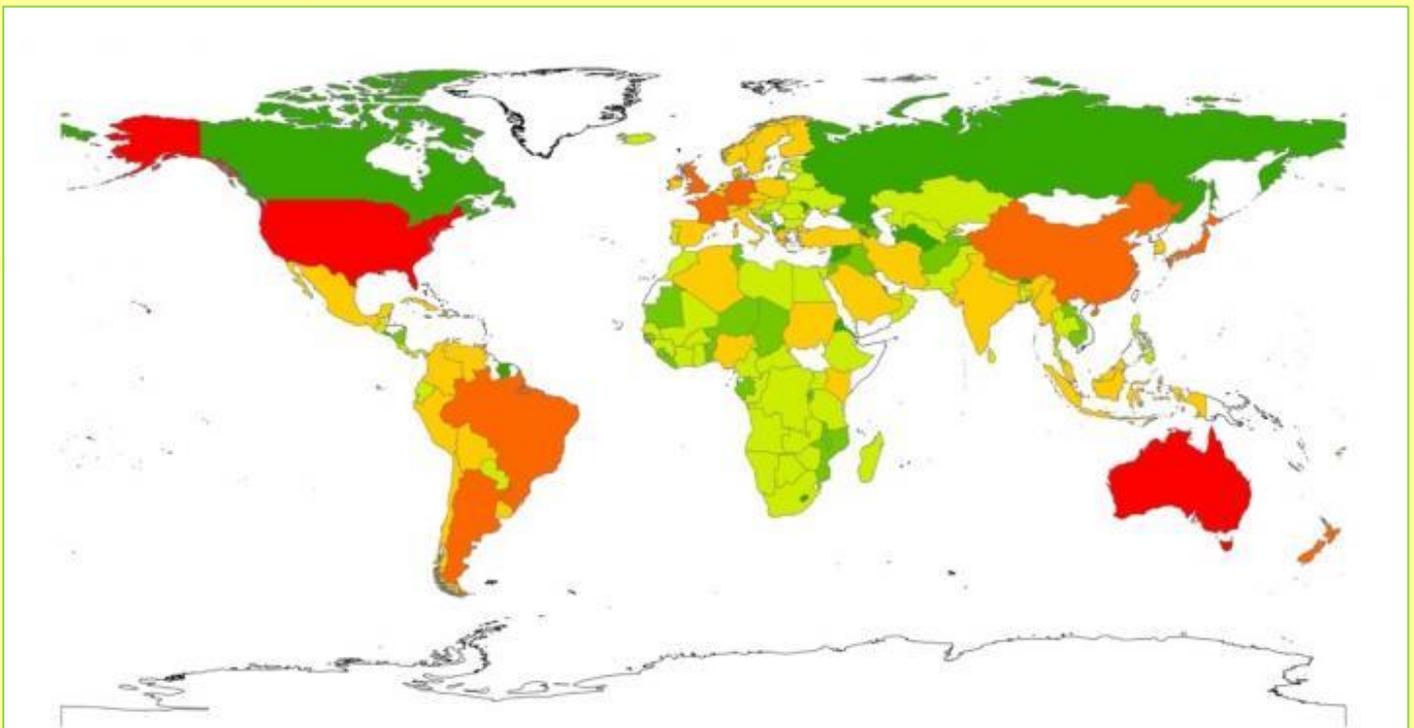
This preliminary study has highlighted a small group of compounds that could potentially inhibit the vital function of 3CL<sup>pro</sup> in SARS-CoV-2, though significant *in vivo* and *in vitro* work remains before the candidates can be verified in terms of [efficacy](#) and safety.

►► **Journal reference:** Rutwick Surya, U., Praveen, N. A molecular docking study of SARS-CoV-2 main protease against phytochemicals of *Boerhavia diffusa* Linn. for novel COVID-19 drug discovery. *VirusDis.* (2021). <https://doi.org/10.1007/s13337-021-00683-6>, <https://link.springer.com/article/10.1007%2Fs13337-021-00683-6>

## Factors that may predict next pandemic

University of Sydney

Source: [https://eurekaalert.org/pub\\_releases/2021-03/uos-ftm032921.php](https://eurekaalert.org/pub_releases/2021-03/uos-ftm032921.php)



World map indicating zoonotic pathogen diversity. Red = high diversity, green = low diversity – Credit: Singh et al.

Mar 29 – Humans are creating or exacerbating the environmental conditions that could lead to further pandemics, new University of Sydney research finds.

Modelling from the Sydney School of Veterinary Science suggests pressure on ecosystems, climate change and economic development are key factors associated with the diversification of pathogens (disease-causing agents, like viruses and bacteria). This has potential to lead to disease outbreaks.

The research, by Dr Balbir B Singh, Professor Michael Ward, and Associate Professor Navneet Dhand, is published in the international journal, *Transboundary and Emerging Diseases*.

They found a greater diversity of zoonotic diseases (diseases transmitted between animals and humans) in higher income countries with larger land areas, more dense human populations, and greater forest coverage.

The study also confirms increasing population growth and density are major drivers in the emergence of zoonotic diseases. The global human population has increased from about 1.6 billion in 1900 to about 7.8 billion today, putting pressure on ecosystems.



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Associate Professor Dhand said: "As the human population increases, so does the demand for housing. To meet this demand, humans are encroaching on wild habitats. This increases interactions between wildlife, domestic animals and human beings which increases the potential for bugs to jump from animals to humans."

"To date, such disease models have been limited, and we continue to be frustrated in understanding why diseases continue to emerge," said Professor Ward, an infectious diseases expert.

"This information can help inform disease mitigation and may prevent the next COVID-19."

Other zoonotic diseases that have recently devastated human populations include SARS, avian (H5N1) and swine (H1N1) flu, Ebola and Nipah - a bat-borne virus.

### Factors predicting disease

The researchers discovered country-level factors predicting three categories of disease: zoonotic, emerging (newly discovered diseases, or those diseases that have increased in occurrence or occurred in new locations), and human.

- **Zoonotic diseases:** land area, human population density, and area of forest. Areas with high zoonotic disease diversity include Europe, North America, Latin America, Australia, and China.
- **Emerging diseases:** land area, human population density and the human development index. Areas with high emerging disease diversity include Europe, North America,
- **Human diseases:** high per capita health expenditure, mean annual temperature, land area, human population density, human development index and rainfall. Areas with high human disease diversity include North America, Latin America, China and India.

"Countries within a longitude of -50 to -100 like Brazil, developed countries like United States and dense countries such as India were predicted to have a greater diversity of emerging diseases," Professor Ward said.

The researchers also noted weather variables, such as temperature and rainfall, could influence the diversity of human diseases. At warmer temperatures, there tend to be more emerging pathogens.

The analyses demonstrate that weather variables (temperature and rainfall) have the potential to influence pathogen diversity. These factors combined confirm human development - including human-influenced climate change - not only damages our environment but is responsible for the emergence of infectious diseases, such as COVID-19.

### Using data to help prevent outbreaks

"Our analysis suggests sustainable development is not only critical to maintaining ecosystems and slowing climate change; it can inform disease control, mitigation, or prevention," Professor Ward said.

"Due to our use of national-level data, all countries could use these models to inform their public health policies and planning for future potential pandemics."

**Methodology:** The authors used 13,892 unique pathogen-country combinations and 49 socioeconomic and environmental variables to develop this model. Information from 190 countries was analysed using statistical models to identify drivers for emerging and zoonotic diseases.

**Declaration:** The authors would like to thank the Australian Government's Department of Education and Training for awarding a 2018 Endeavour Research Fellowship to the primary author of this research.

The authors acknowledge the data relied for this research is incomplete. Reasons include underreporting of some previously known and undiscovered pathogens, particularly in less developed countries. For some of the predictor variables, the latest data available had missing values because recent data had not been updated.

## Vaccine totalitarianism: 'Medical fascism' must be stopped

By Jeffrey T. Kuhner

Source: <https://freepressers.com/articles/vaccine-totalitarianism-medical-fascism-must-be-stopped>

Apr 01 – Liberal elites are slowly pushing America toward totalitarianism. And Covid-19 "vaccine passports" represent a giant step in that dark direction.

Gov. Andrew Cuomo last week unveiled a new "vaccine passport" program, making New York the first state to introduce it in America. In Europe, the vaccine passport system is already being developed and implemented. Cuomo and the radical Democrats want it established here as well.



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The vaccine passport, known as the Excelsior Pass (photo below), will be used at large-scale events and entertainment venues—including Madison Square Garden and Barclays Center. Cuomo also says the Excelsior Pass will be expanded and used by numerous other businesses and venues in the coming weeks.



As USA Today reported, the vaccine passport is similar to an airline boarding ticket—without it you will not be allowed to enter any venue or business establishment. People will need to download the Excelsior Pass app, enter their name, date of birth, zip code and other vital personal information. Then once an individual has been vaccinated, a digital QR code—a “quick response” machine-readable label—will pop up on one’s iPhone or cellphone, the data coming from the state’s vaccine registry, thereby proving one’s vaccinated status. One can also download proof of a recent Covid negative test from several pre-approved testing companies. But these tests have a limited expiration time and need to be updated constantly (at \$150 per test). Without this

vaccine passport, an individual cannot attend a game, concert or other large-scale event at either Madison Square Garden or Barclays Center.

Yet, this is just the beginning. Cuomo has made clear he intends to massively expand the program to affect almost every aspect of life. Boarding a plane, taking Amtrak, renewing one’s driver’s license, going back to school or university, being allowed to return to the workforce, shopping at the mall or most other businesses and establishments, going to restaurants, bars, cafes, gyms and movie theaters — all of this will soon require a vaccine passport.

The only exceptions (so far) will be going to the grocery store or filling up your tank at the gas station. Otherwise, without a vaccine passport an individual will be rendered a third-class citizen. He or she will be unable to fully participate in society, being stripped of many of their fundamental rights.

This is the greatest assault on mass civil liberties in U.S. history. Vaccine passports will inevitably divide society along two lines: a privileged (vaccinated) class and a semi-permanent (unvaccinated) underclass.

Unvaccinated Americans will increasingly be treated like the Jews in early Nazi Germany — social pariahs, who are slowly marginalized in a radical, authoritarian society. All that’s missing is the armbands with the Star of David, or in this case, armbands marked with “UV” (unvaccinated) on them. The whole concept is politically twisted and morally grotesque.

Hence, it’s no wonder the Biden administration wants to impose a national vaccine passport system modeled upon the European Union. The Washington Post reported on Sunday that five senior administration officials admitted Team Biden wants to develop and implement a vaccine passport system for the entire country. According to these officials, Biden has ordered multiple government agencies to coordinate and formulate a plan to be used later this year. In fact, he wants to make a vaccine passport contingent for millions of Americans to come back to work.

Like Cuomo, Team Biden vows that the only way to return to a “new normal” is for everyone to be forced to take the jab. The choice is stark: Inject your body with a foreign (and potentially dangerous) substance or forgo your ability to feed your family. This is medical fascism — and it must be stopped.

Covid-19 vaccines have already proven to be deadly or damaging in numerous cases. [In Europe, 3,964 people have directly died from taking the vaccines](#), while another 162,610 have been injured. The vaccines used were the ones produced by Pfizer, Moderna and AstraZeneca (there is not enough data yet on the Johnson and Johnson vaccine). In America, we have a more lax and less rigorous self-reporting system. Still, over 1,500 Americans have died—many of them perfectly healthy—from taking one of the vaccines. Hence, it is not unreasonable for people to be skeptical of the vaccine, and having no desire to take it.

Moreover, as Robert F. Kennedy Jr. told me in a brilliant interview that aired recently on The Kuhner Report (which you can listen to by going to [www.wrko.com/kuhner](http://www.wrko.com/kuhner) and clicking on the podcast section), the entire vaccine roll-out is a form of “population experimentation.” As Kennedy rightly noted, the vaccines are not fully FDA approved; rather, they have been authorized for emergency use only.

In short, we are being pressured and stampeded into taking something that is untested and ultimately, unknown. We do not know the long-term health consequences or side effects of getting the vaccine. There may well be none. But that is irrelevant. Americans are being turned into guinea pigs, laboratory rats for an experimental vaccine in which Big Pharma is



going to make tens of billions of dollars in profits. The medical establishment and powerful corporations have a huge vested financial interest in pushing the vaccine — and by extension, the vaccine passport. The state has no business, and certainly no moral right, coercing or forcing people to take a new, untested, unreliable vaccine against their will.

I am not anti-vaccine. On the contrary, I am pro-freedom. If you want to take a Covid vaccine, then that is your right. Vaccine passports, however, strike at the heart of a free society. It treats citizens as if they are children — and ultimately, slaves — at the mercy of Big Brother. It is about imposing social control and centralizing power by a ruling class that destroys the very pillars of a self-governing republic: free will, individual liberty and personal responsibility.

If I do not want to take the vaccine — and I won't, no matter how much political and social pressure is brought to bear — then that is my God-given right as well.

**My body, my choice.**

*Jeffrey T. Kuhner is a columnist at WorldTribune.com and the host of “The Kuhner Report” weekdays 6-10 a.m. EST on WRKO AM-680 in Boston.*

**In memoriam:** Bereaved families have [filled a 6.5-foot-high wall](#) on the southern bank of the Thames in London with thousands of painted hearts that they say will eventually contain about 150,000, for every person with Covid-19 marked on a death certificate in Britain.



## Can technology increase COVID-19 vaccination rates?

Source: [https://www.thelancet.com/journals/landig/article/PIIS2589-7500\(21\)00061-3/fulltext](https://www.thelancet.com/journals/landig/article/PIIS2589-7500(21)00061-3/fulltext)

Apr 01 – Vaccine ready is the theme of the [National Minority Health Month](#) in April, 2021. This initiative aims to educate the public on health problems facing minority populations in the USA. The vaccine theme has been chosen because, paradoxically, although minority populations have been disproportionately impacted by COVID-19, they are also reported to be the least likely to be vaccinated. Barriers against vaccination among minority populations have been widely reported, including low confidence in the vaccine, poor access, and distrust of the health system. The [WHO Digital Health Flagship initiative](#) has stated that digital technology could play a critical role during the COVID-19 pandemic by improving communications between people and health services, empowering individuals and patients, and strengthening critical public health functions including disease surveillance. Can technology also help build trust and promote vaccination within communities that are most at risk?

Systemic biases in health care, typically caused by under representation in clinical studies, have caused mistrust among minority populations. Studies indicate that this mistrust is deep-seated, even among minority health-care workers who also show lower vaccine uptake in the UK and the USA. Representation of minority ethnic groups in vaccine efficacy trials has been disproportionately low. The lack of data in these populations is a barrier to uptake if communities perceive that these vaccines are not established to be safe and effective for them.

[The most common reason for vaccine hesitancy amongst minority groups](#) is concern about adverse effects. Rapid and transparent reporting on potential adverse effects could go some way to improve communication and potentially reduce hesitance among minority populations. [One such technology, V-safe, employed by the Centers for Disease Control and Prevention](#), is a smartphone tool to track side-effects of COVID-19 vaccines directly from patients. A similar tool has been developed in the UK, the [Yellow Card app](#), to enable close monitoring and real-time reporting of the COVID-19 vaccine roll-out. V-safe and the Yellow Card app have empowered individuals to provide real-time information of side-effects and help establish a trusted, public-led vaccine safety monitoring programme.

Success of these tools in tracking adverse events is essential as the UK regulating body, the Medicines and Healthcare products Regulatory Agency (MHRA), report that they are expecting between [50 000 and 100 000 adverse event reports](#) for every 100 million doses delivered to patients over a 6–12 month period. However, simply increasing the volume of data will not solve the problem of tracking and communicating genuine adverse events to the public. Many reported side-effects are not causal and inaccurate reporting has been shown to cause significant damage, especially when influenced by the media, anti-vaccine activity, and political lobbying. An example of such harm has already been seen in



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the premature abandonment of the Oxford–AstraZeneca COVID-19 vaccine across countries in Europe despite an absence of robust evidence supporting the decision.

Here is where artificial intelligence (AI) could help. To manage the wealth of data from adverse events tracking, the [MHRA have awarded £1.5 million](#) to develop AI that can identify genuine COVID-19 vaccine adverse effects. While experts have applauded the MHRA's forward thinking approach, development of AI based on limited self-reported public data and electronic health records that are subject to historic and systemic bias must be validated on data from minority and other at risk populations to maintain trust within these communities.

To combat bias in datasets and algorithms, transparent auditing of clinical AI tools is essential to accurately communicate results to the public for greater vaccine uptake. As the UK and the USA pass the milestones of 20 million and 100 million people (respectively) vaccinated against COVID-19, associated data must be made transparent and accessible. Datasets such as the [England and Wales COVID-19 vaccination datasets](#), which are available upon request to researchers, are critical to communicate real-world effectiveness of the vaccine to the public.

President Biden has recently pledged over \$500 million in additional funds to address vaccine uptake in the USA. This funding must be spent on establishing transparent COVID-19 vaccine data to aid informed public decisions. Technology can help monitor progress of vaccine programmes, but it will not be enough to establish trust among the public, especially among those most at risk.

## Sunlight Inactivates Coronavirus 8 Times Faster Than Predicted. We Need to Know Why

Source: <https://www.sciencealert.com/sunlight-inactivates-sars-cov-2-a-lot-faster-than-predicted-and-we-need-to-work-out-why>

Apr 02 – A team of scientists is calling for greater research into how sunlight inactivates [SARS-CoV-2](#) after realizing there's a glaring discrepancy between the most recent theory and experimental results. UC Santa Barbara mechanical engineer Paolo Luzzatto-Fegiz and colleagues noticed the virus was inactivated as much as eight times faster in experiments than the most recent theoretical model predicted.

"The theory assumes that inactivation works by having UVB hit the RNA of the virus, damaging it," [explained](#) Luzzatto-Fegiz.

But the discrepancy suggests there's something more going on than that, and figuring out what this is may be helpful for managing the virus.

UV light, or the ultraviolet part of the spectrum, is easily absorbed by certain nucleic acid bases in DNA and RNA, which can cause them to bond in ways that are hard to fix.

But [not all UV light is the same](#). Longer UV waves, called UVA, don't have quite enough energy to cause problems. It's the mid-range UVB waves in sunlight that are primarily responsible for killing microbes and putting our own cells at risk of Sun damage.

Short-wave [UVC](#) radiation has been shown to be [effective](#) against [viruses](#) such as SARS-CoV-2, even while it's still safely enveloped in human fluids.

But this type of UV doesn't usually come into contact with Earth's surface, thanks to the [ozone](#) layer.

"UVC is great for hospitals," [said](#) co-author and Oregon State University toxicologist Julie McMurry. "But in other environments – for instance, kitchens or subways – UVC would interact with the particulates to produce harmful ozone."

In July 2020, [an experimental study](#) tested the effects of UV light on SARS-CoV-2 in simulated saliva. They recorded the virus was inactivated when exposed to simulated sunlight for between 10-20 minutes.

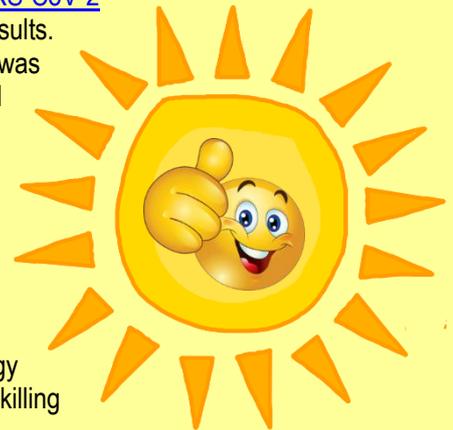
"Natural sunlight may be effective as a disinfectant for contaminated nonporous materials," Wood and colleagues [concluded in the paper](#).

Luzzatto-Fegiz and team compared those results with [a theory](#) about how sunlight achieved this, which was published just a month later, and saw the math didn't add up.

This study found the SARS-CoV-2 virus was three times more sensitive to the UV in sunlight than influenza A, with 90 percent of the [coronavirus's](#) particles being inactivated after just half an hour of exposure to midday sunlight in summer.

By comparison, in winter light infectious particles could remain intact for days.

Environmental calculations made by a separate team of researchers [concluded](#) the virus's RNA molecules are being photochemically damaged directly by light rays.



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This is more powerfully achieved by shorter wavelengths of light, like UVC and UVB. As UVC doesn't reach Earth's surface, they based their environmental light exposure calculations on the medium-wave UVB part of the UV spectrum.

"The experimentally observed inactivation in simulated saliva is over eight times faster than would have been expected from the theory," [wrote](#) Luzzatto-Feigiz and colleagues.

"So, scientists don't yet know what's going on," Luzzatto-Feigiz [said](#).

The researchers suspect it's possible that instead of affecting the RNA directly, long-wave [UVA](#) may be interacting with molecules in the testing medium (simulated saliva) in a way that hastens the inactivation of the virus.

Something similar is seen [in wastewater treatment](#) – where UVA reacts with other substances to create molecules that damage viruses.

If UVA can be harnessed to combat SARS-CoV-2, cheap and energy-efficient wavelength-specific light sources might be useful in augmenting air filtration systems at relatively low risk for human health.

"Our analysis points to the need for additional experiments to separately test the effects of specific light wavelengths and medium composition," Luzzatto-Feigiz [concludes](#).

With the ability of this virus to [remain suspended in the air](#) for extended periods of time, the safest means to avoid it in countries where it's running rampant is still social distancing and [wearing masks](#) where distancing isn't possible. But it's nice to know that sunlight may be helping us out during the warmer months.

►► Their analysis was published in [The Journal of Infectious Diseases](#).

## The PCR False Positive Pseudo-Epidemic

By Dr. Mike Yeadon

Source: <https://www.globalresearch.ca/pcr-false-positive-pseudo-epidemic/5741669>

Apr 02 – In Spring 2020 a novel coronavirus swept across the world: novel, but related to other viruses. In the UK, unknown at the time, around 50% of the population were already immune. *The evidence for this is unequivocal and arose due to prior infection by common cold-causing coronaviruses (of which four are endemic)*. This prior immunity has been confirmed around the world by [top cellular immunologists](#). There is even a very recent paper from Public Health England on the topic of prior immunity and a wealth of other evidence from studies on memory T-cells, studies on household transmission and on antibodies.

Because of the extent of the prior immunity, and as a result of heterogeneity of contacts, once only a low percentage of the population, perhaps as low as 10-20% had been infected, "herd immunity" was established. This is why daily deaths, which were rising exponentially, turned abruptly and began to fall, uninterrupted by street protests, the return to work, the reopening of pubs and crowded beaches during the summer. (See [this explainer](#) by the data scientist Joel Smalley.)

Immunity to ordinary respiratory viruses occurs mainly through T-cells which 'take a picture of the invader' at a molecular level, 'reproduce' it on certain immune cells and essentially 'never forget a face'. This T-cell immunity is robust and durable. Those exposed to the highly related SARS virus in 2003 still have this immunity 17 years later. In relation to SARS-CoV-2, the pattern of immunity to date is identical and after around 800 million infections across the world, there is no convincing evidence for significant levels of re-infection. Not only are those who've been infected and have now recovered immune (they cannot get ill again with the same virus), but importantly they do not participate in transmission. (See [my article on what SAGE got wrong](#) for *Lockdown Sceptics*.) Furthermore, because the immune response is diverse, a proportion of them will also be immune to novel but similar viruses in the future.

In Spring, however, this virus did kill or hasten the end for approximately 40,000 vulnerable people, who were mostly old (median age 83, which is longer than that cohort's life expectancy when born) and many of whom had multiple other medical conditions. There were some rare and very unfortunate younger people who also died, but age is clearly the strongest risk factor.

But due to extraordinary errors in modelling created by unaccountable academics at Imperial College, the country was told to expect over a half a million deaths. Three Nobel prize-winning scientists wrote to that modelling team in February correcting their errors. This was done confidentially. This expert, third-party estimate was remarkably accurate – it predicted that there would be a total of 40k deaths from COVID-19. I believe this is in fact correct and is what has happened. While I have no proficiency in modelling, I can distinguish predictions that are biological plausible from those which are literally incredible. When inputs to a model are wrong or missing, their outputs cannot be trusted. The Imperial model made the extreme assumption that there was zero prior immunity in the population or social contact heterogeneity.



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It is now appreciated that this virus is [less of a threat to those under 70 than seasonal flu](#), even with a flu vaccine, which routinely provides <50% effectiveness and usually much less.

The ease with which humans develop immunity to this virus is striking. Incidentally, it is this immune adeptness which has probably played an important role in why, against prior pessimism, many vaccines for SARS-CoV-2 have apparently 'worked' (though there is much to criticise about how efficacy has been defined, because a reduction in the propensity to become PCR positive has not previously been regarded as a leading indicator of the degree to which a vaccine will protect a population against severe illness). Available evidence suggests that herd immunity at a national level (in England) was attained as early as May. ([Joel Smalley again.](#)) There have been no alternative explanations promulgated for the force which bore down on infections and deaths during the largely unmitigated spreading of the virus early in Spring. As an example of evidence that we are at herd immunity, London is relatively peaceful in relation to the virus now, having been the national epicentre in Spring, with hundreds of deaths daily in the capital.

▶▶ [Read the full text at source's URL.](#)

*Dr Mike Yeadon, former CSO and VP, Allergy and Respiratory Research Head with Pfizer Global R&D and co-Founder of Ziarco Pharma Ltd.*

### U.K. Launches the U.K. Health Security Agency



Source: <http://www.homelandsecuritynewswire.com/dr20210402-u-k-launches-the-u-k-health-security-agency>

Apr 02 – Dr. Jenny Harries and the Health and Social Care Secretary, Matt Hancock, visited Colindale, north London, to see the work being done to help understand and respond to new variants of the virus causing COVID-19. These laboratories, which have been operating throughout the pandemic under Public Health England (PHE) leadership will transfer to the new [UKHSA](#). The new agency will work to protect the U.K. from future health threats and ensure the U.K. can respond to pandemics quickly and at greater scale.

It will also work with global partners, becoming a mainstay of what Prime Minister Boris Johnson and other international leaders have called “a more robust international health architecture that will protect future generations.”

The U.K. has also confirmed a £4 million contribution to the World Health Organization's (WHO) Contingency Fund for Emergencies (CFE). The purpose of the CFE is to give WHO the resources to quickly mount an effective response to disease outbreaks and humanitarian crises in developing countries and stop these health emergencies from spiraling out of control, saving lives.

Hancock said: “This is an important day as we launch the U.K. Health Security Agency to ensure that we protect the public and prepare for the next pandemic. The team working at UKHSA, expertly led by Dr. Jenny Harries, will spend every day focused on the current and future health threats facing our country so we are always ready for whatever is on the horizon.”

Harries said:

*It is a significant moment as the work of the U.K. Health Security Agency begins with a specific focus on pandemics and public health threats. We have learned so much from responding to COVID-19 and this is a brilliant opportunity to ensure these lessons can be applied in the future, with the scale and capacity needed to save lives and protect the public.*

*There is work to do right away as we continue our fight against COVID-19, even with the success of our vaccine program so far, and the tentative steps we have made on the roadmap to return to normality. UKHSA will work with our regional, national and global partners to tackle this virus while ensuring we are ready to face future health challenges.*

The primary focus for UKHSA in its initial phase of operation will be the continued fight against the COVID-19 pandemic.

It will bring together the U.K. health security science capabilities, data analytics, and genomic surveillance with at scale testing and contact tracing capability – combining key elements of Public Health England with NHS Test and Trace including the Joint Biosecurity Centre.

UKHSA will be chaired by Ian Peters, currently Chair of Barts Health NHS Trust and former Chief Executive of British Gas, Managing Director of NatWest Small Business Services, and chairman of several data driven growth technology companies.

The agency will lead on health protection and security activity for England, and will also take over from the PHE and NHS Test and Trace work those organizations already carry out on a U.K. basis, either as reserved functions or under collaborative arrangements with the



Scottish, Welsh and Northern Ireland administrations – for example, the Joint Biosecurity Centre. It will not replace the public health agencies in the other 3 UK countries, but will operate a close collaborative relationship with them. Public Health England and NHS Test and Trace will continue to operate during the transition to UKHSA.

## Pathogens Have the World's Attention

Source: <http://www.homelandsecuritynewswire.com/dr20210402-pathogens-have-the-world-s-attention>

Apr 02 – The novel coronavirus has demonstrated just how devastating a transmissible pathogen can be—and just how difficult to contain. Nathan Levine and Chris Li write in *Foreign Affairs* that “the sobering truth is that, as deadly diseases go, the world got lucky. **The global case fatality rate of COVID-19 is around 2 percent.** One need only compare this to SARS (10 percent), smallpox (30 percent), pulmonary anthrax (80 percent), or Ebola (90 percent) to consider that the coronavirus could easily have been much, much worse.”

Moreover, they note, “these are all natural pathogens. The toll from a virus genetically engineered to increase transmissibility and lethality as a bioweapon could be almost inconceivable.”

They write:

*There can be little doubt as to the destructive capacity of bioweapons. Indeed, the release of one, whether intentional or unintentional, could have an effect wholly comparable to that of a nuclear weapon. And a weaponized pathogen is nowhere near as difficult to produce as even the crudest nuclear device: the World Health Organization concluded in 2015 that the virus responsible for smallpox could be re-created in three months through synthetic biology, using publicly available genomes, in a process most lab technicians or undergraduate students could manage.*

*U.S. President Richard Nixon recognized this catastrophic potential in 1969 when he ordered the termination of the United States’ offensive biological weapons program that year, declaring that “mankind already carries in its own hands too many of the seeds of its own destruction.” His decision paved the way for the signing in 1972 of the landmark Biological Weapons Convention (BWC), which bans the development, production, or stockpiling of biological agents that have no peaceful use. Today, a total of 183 countries (all but ten UN member states) are signatories.*

They add that the release of a bioweapon could have an effect wholly comparable to that of a nuclear weapon, but that, nonetheless, after the Cold War, attention to the issue languished.

*Now, however, the American public—and the entire world—is acutely aware of humankind’s deep, interconnected vulnerability to biological threats. As the COVID-19 pandemic demonstrates, viruses carry no passports and respect no borders. Pathogens that emerge from any corner of the world can impose severe costs on the rest of the globe. Thus the present moment provides an opportunity for extraordinary unity behind a new round of multilateral negotiations on biosecurity. Indeed, publics are likely to demand this from their governments.*

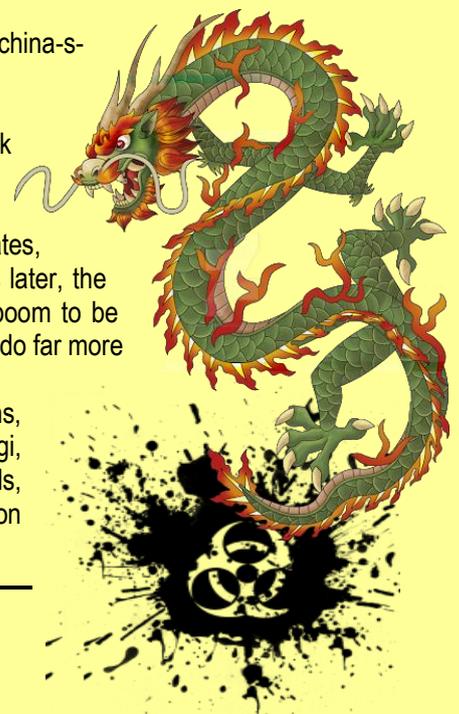
## A Look at China's Biological Capabilities and the Recent Coronavirus Outbreak

By Corey Pfluke

Source: <http://www.homelandsecuritynewswire.com/dr20210402-biohazard-a-look-at-china-s-biological-capabilities-and-the-recent-coronavirus-outbreak>

Apr 02 – When people think about weapons of mass destruction (WMD), they tend to think of things that go “boom.” The bigger the weapon, the bigger the boom, and the worse the impact. Past generations were taught to prepare for nuclear war. At the height of nuclear development, Bert the Turtle graced the television screens in schools across the United States, teaching children to “duck and cover” if there was an imminent attack. Nearly 70 years later, the nation still remembers Bert and his teachings. However, not all weapons need a big boom to be effective. Every day, millions of people are affected by a weapon that has the potential to do far more damage than a nuclear bomb, a weapon we cannot see, a weapon we call germs.

According to the *Encyclopedia Britannica*, “biological weapons, also called germ weapons, are any number of disease-producing agents, such as bacteria, viruses, rickettsiae, fungi, toxins, or other biological agents, that may be utilized as weapons against humans, animals, or plants.”<sup>1</sup> Throughout history, pathogens have proven to be the most destructive weapon



of all. Nearly 300 million people died from smallpox in the twentieth century alone, and that was from a natural outbreak. The destructive power of an intentional attack could reach and possibly surpass that of smallpox.

However, such a weapon's potential for destruction acts as its own deterrent to use. Biological weapons are unique in that an attempt to infect an enemy could lead to a pandemic of one's own troops and people. Diseases have no discrimination techniques, so a small *intentional* release could have large *unintentional* side effects. Or worse, a small *unintentional* release could have large *unintentional* consequences. For example, it was speculated that the coronavirus outbreak that began in China in 2019 could have been an unintentional consequence of alleged bioweapon research in Wuhan. This article will look into the validity of such claims, the current coronavirus situation, China's current alleged biowarfare capabilities, and the future of biowarfare.

### Coronavirus (COVID-19)

In the weeks following the spread of the novel coronavirus, also known as COVID-19, conflicting news reports, misinformed research, and conspiracy theorists all led to allegations that China was once again building bioweapons and that this recent disease outbreak was the result of an accidental release of a new biologically engineered pathogen. At the center of the controversy was the Wuhan Institute of Virology (WIV) of the Chinese Academy of Sciences (CAS). WIV is one of 20 separate biomedical research institutes in CAS, but it is the only institute specializing in virology, viral pathology, and virus technology.<sup>2</sup> It contains five research centers, including the Center for Emerging Infectious Disease, Chinese Virus Resources and Bioinformatics Center, Center of Applied and Environmental Microbiology, and the Department of Analytical Biochemistry and Biotechnology.<sup>3</sup> Recently, it also became China's first, and only, biosafety level 4 (BSL-4) laboratory. BSL-4 labs operate under the strictest levels of biological safety as the lab work done inside these labs often deal with dangerous and exotic microbes like Ebola, Marburg,<sup>4</sup> and as some people originally speculated, the coronavirus.

It was in mid-January 2020 that the virus was first linked to bioweapons research at the WIV. It started as a minor rumor before turning into a full-blown conspiracy theory. It was not until *The Washington Post* published the main dissent titled, not so subtly, "Experts debunk fringe theory linking China's coronavirus to weapons research" that people began to look farther than the clickbait.<sup>5</sup> *The Washington Post* cites multiple US experts who use both logic and analysis to debunk the rumors. First, the WIV is not suited to bioweapons research. Any bioweapons research would likely need to remain covert, as bioweapons are outlawed by the Biological Weapons Convention. In contrast, the WIV is well-known, open, and linked with other labs around the world, including the Galveston National Laboratory in Texas.<sup>6</sup> That sort of publicity and reputation could make it hard for the lab to operate secretly. Second, experts in virology, including Richard Ebright, a chemical biology professor, and Tim Trevan, a biological safety expert, have indicated that there is no evidence that the virus was created. Ebright says, "Based on the virus genome and properties there is no indication whatsoever that it was an engineered virus."<sup>7</sup> A couple weeks later, *The Financial Times* reported a similar notion. The article quoted Trevor Bradford, a virus expert and global lead coronavirus investigator, who said, "The evidence we have is that the mutations [in the virus] are completely consistent with natural evolution."<sup>8</sup> It is a fact of life that viruses evolve, they get stronger, find ways of beating current vaccines, and sometimes transform into something entirely new. An example is the flu. Each year, researchers and medical professionals find new strands of the flu that make treating it an exercise in futility. It is theorized that the coronavirus went through a similar type of evolution as the flu does each year, making it a dangerous pathogen in its own right but not a biologically engineered one.

### The Current Crisis

The coronavirus outbreak may have been an unfortunate consequence of natural evolution, but its impact is still being felt around the world. Just imagine if the outbreak was intentional, engineered to be just a little more fatal, or released in multiple areas at the same time. But is a biological weapon attack like that probable or even possible? If it is, how much worse could this outbreak have been?

These questions are not new, and the answers are not surprising. People have been finding ways to manipulate natural diseases for their benefit since the fourteenth century BCE. The first attempts at biological warfare were rudimentary at best, often utilizing the cadavers of the infected to attempt to infect others. The Hittites used infected cattle, the Swedes used infected plague victims, the British used contaminated blankets, and the Japanese used flea bombs. No matter what the method or disease, nations throughout history have been fascinated by the destructive power of diseases, and China is no exception. China has shown interest in biological weapons, biodefense, and even genetic weapons—a new subfield of biological weapons

### China's Biological History

In 1952 and 1984, the People's Republic of China signed the Geneva Protocol and Biological and Toxin Weapons Convention (BTWC) respectively.<sup>11</sup> During World War II, China was the



victim of countless biological attacks by Japan, leading to Beijing's future efforts to develop a stronger biodefense infrastructure and a biotechnology industry with substantial dual-use capabilities that can be used for both biodefense and bioweapons. Because of China's experience with biological attacks, Beijing maintains that it does not have an offensive biological program, but its dual-use infrastructure is plenty big enough to accommodate a shift in that public policy.<sup>12</sup> Despite these declarations, many have suspected that China has maintained a biological weapons program since before the signing of the BTWC.

A 2005 US Department of State compliance report noted that "China maintains some elements of an offensive [biological weapon] capability in violation of its BTWC obligations. Despite China's declarations to the contrary, indications suggest that China maintained an offensive [biological weapon] program before acceding to the Convention in 1984."<sup>13</sup> Since signing the BTWC, China has been a stringent supporter of the treaty, desiring to improve both the verification mechanism of the treaty as well as strengthen export controls to prevent the proliferation of biological materials. However, according to a US intelligence official, China was the biggest export violator of all, as it had sold dual-use equipment and vaccines with both civilian medical applications and biological weapons applications. These exports likely turned into the beginnings of the Iranian biological weapons program. Then in 2006, China updated its export control list to restrict 14 additional biological agents from being exported from the mainland.<sup>14</sup> Despite these actions, it is still believed that China has helped Iran and other Middle Eastern nations build their biological weapons programs.

Reports from the United States in 2010, 2012, and 2014 all state essentially the same thing, that China likely possesses a biological weapons program, but the extent of that program remains unknown to the public.<sup>15</sup> According to the Nuclear Threat Initiative, it is clear that "China possesses the required technology and resources to mass-produce traditional [biological weapon] agents as well as expertise in aerobiology."<sup>16</sup> Today, it is likely that China's current dual-use infrastructure acts as the basis for its offensive biological capability.

The 2005 US Department of State report also identifies two facilities that have links to an offensive biological weapons program: the Chinese Ministry of Defense's Academy of Military Medical Sciences (AMMS) Institute of Microbiology and Epidemiology (IME) in Beijing, and the Lanzhou Institute of Biological Produces (LIBP).<sup>17</sup> China responds that the former is a biodefense-focused facility and the latter is a vaccine production facility. In addition to these two central laboratories, it is estimated that there are at least 50 other laboratories and hospitals being used as biological weapons research facilities.

China's dual-use infrastructure also gives outsiders an idea of the composition of its offensive program. In 2007, China created a 20-year plant to study natural and human-made epidemics to create protective equipment for biodefense.<sup>18</sup> It was part of China's very public biodefense efforts. China is also known for its advancements in dispersal and delivery systems. A journal article titled, "China's Biological Warfare Programme: An Integrative Study with Special Reference to Biological Weapons Capabilities" reports that

*It is fairly clear that certain RF have fully mastered the aerobiological technologies needed for effective dispersal of BWA, both pathogens and toxins, and probably infected vectors (insects) as well. The quality, extensiveness, and characteristics of aerobiological works—including the component of nano-aerobiology—conducted by the related facilities, unambiguously lead to that postulation. They are also able, in all likelihood, to construct the functional conjunction combining dispersal devices, various warheads and delivery systems—including surface-to-surface missiles—in terms of operational biological weaponry.<sup>19</sup>*

This report makes it clear that China has an advanced capability for deploying and dispersing aerosolized biological weapons. This sort of advanced capability is especially worrying because aerosolized diseases are the most contagious type of disease and have the potential to infect the largest number of people.

However, an advanced biological weapons program is not enough to classify as a threat; there also needs to be a real intent to use those weapons. When it comes to China's intention, it is possible that China would not choose to use biological weapons in any capacity because of the suffering the country saw due to Japan's use of Shigella and plague against the nation. During the 1991 BTWC Review Conference, the Chinese delegation stated, "Of bacteriological weapons, China has always advocated the complete prohibition and thorough destruction of biological weapons and pursues a policy of not developing, producing, or stockpiling this type of weapon."<sup>20</sup> More recently, the Chinese Foreign Ministry stated in 2011 that China continues to support the "complete prohibition and thorough destruction of all kinds of weapons of mass destruction, including biological weapons."<sup>21</sup> At the same time, China was not involved in the BTWC negotiations and, before signing the treaty, ensured the inclusion of a clause that meant the treaty was only binding if all other countries in the treaty were also following the guidelines, essentially giving the state an out to not only pursue biological weapons but to use them if necessary.<sup>22</sup> This action indicates that the Chinese wish to leave the possibility of using biological weapons open as a policy option, which in turns means a certain amount of willingness to utilize the weapons if the need arose. Overall, China may have the capability, but Beijing may not have the will to put its own people at risk, which is what makes the new subfield of genetic weapons both fascinating and frightening.



### China, CRISPR, and Gene Editing

In November 2018, Chinese scientist He Jiankui of the Southern University of Science and Technology in Shenzhen China announced that he used the gene-editing technique CRISPR-Cas9 to create genetically modified human babies.<sup>23</sup> Using embryos created from their parents' eggs and sperm, He performed what he calls *gene surgery* to modify their genetics to better protect them from human immunodeficiency virus (HIV) because the babies' father is HIV positive. More specifically, He "deleted a region of a receptor on the surface of white blood cells known as CCR5 [using] CRISPR-Cas9."<sup>24</sup> In his statement, he claims to have used this same technique to edit seven embryos, but this was the first to result in a successful pregnancy and birth.<sup>25</sup> Previously, CRISPR-Cas9 had never been used in altering the genome of embryos.

CRISPR-Cas9 is "a unique technology that enables geneticist and medical researchers to edit parts of the genome by removing, adding, or altering sections of DNA sequence."<sup>26</sup> The CRISPR acronym refers to "clustered regularly interspaced short palindromic repeats" that are repetitions of the base sequences of DNA, while Cas-9 refers to a specific protein that can act like scissors to cut parts of DNA, allowing it to be rearranged.<sup>27</sup> Laboratories all around the world are researching the possibility of using CRISPR-Cas9 to cure diseases and prevent other diseases in offspring, for example HIV. China investigated He's claims and found them to be accurate. In 2019, the Chinese government investigated He for ethics violations and possible law violations. He has since been fined 3 million yuan (430,000 USD) and will spend the next three years in jail.<sup>28</sup> His breakthrough, if truly successful, would be monumental for the scientific community, but it could also mean the start of a new threat era.

### Gene Editing: The New WMD

US officials now see CRISPR gene editing as a serious threat to national security. James Clapper, a former US Director of National Intelligence, added gene editing to a list of threats posed by WMD and proliferation back in 2016.<sup>29</sup> The invention of CRISPR has made gene editing far easier to successfully use. Clapper says, "Given the broad distribution, low cost, and accelerated pace of development of this dual-use technology, its deliberate or unintentional misuse might lead to far-reaching economic and national security implications."<sup>30</sup> The threat from gene-editing techniques, like CRISPR, comes from their dual-use attributes and the possibility that they could be used for something other than normal scientific developments. There is concern that CRISPR could be used to make genetically engineered killer mosquitos, plagues that target and wipeout specific crops, and possibly even viruses that can snip people's DNA.<sup>31</sup>

Another possibility is using CRISPR to alter diseases in a way that they only target certain genes. For example, it might be possible to use CRISPR to design diseases to seek people out with certain genetics, like those with Down syndrome or autism. Going a step even further, it might be possible to use CRISPR to alter diseases to target entire races by focusing the disease on a certain genetic trait. In this way, China could, hypothetically, build a disease that targets the Japanese and release it, without worrying about it infecting China's own people. This may sound like a science-fiction movie plot, but it is no longer inconceivable. Not only can genes be edited, but China is already successfully doing it.

### Conclusion

The next time you hear someone cough or watch a child wipe their nose on their sleeve, do not think it means that you need to duck and cover for protection, but it is important to recognize the threat caused by germs and begin thinking about how to protect ourselves from pandemics in the future. The world was lucky that the coronavirus outbreak was not indicative of a biologically engineered disease, but that luck may run out in the future. China is leading the world in biological research and gene editing, but it is not the only country considering these options. Biological weapons are not a thing of science fiction, and China's alleged program is only the beginning.

►► References are available at source's URL.

*Corey Pfluke is a treaty analyst at Lockheed Martin.*

## UVA radiation: a significant contributor to sunlight inactivation of SARS-CoV-2

By Paolo Luzzatto-Fegiz, Fernando Temprano-Coleto<sup>1</sup>, François J. Peaudecerf, et al.

Source: <https://www.biorxiv.org/content/10.1101/2020.09.07.286666v1.full.pdf>



Past experiments demonstrated SARS-CoV-2 inactivation by simulated sunlight; models have considered exclusively mechanisms involving UVB



acting directly on RNA. However, UVA inactivation has been demonstrated for other enveloped RNA viruses, through indirect mechanisms involving the suspension medium. We propose a model combining UVB and UVA inactivation for SARS-CoV-2, which improves predictions by accounting for effects associated with the medium. UVA sensitivities deduced for SARS-CoV-2 are consistent with data for SARS-CoV-1 under UVA only. This analysis calls for experiments to separately assess effects of UVA and UVB in different media, and for including UVA inactivation models.

## Pandemic champions

April 2021

>30 mil cases	>12 mil cases	>4 mil cases	>3 mil cases	>2 mil cases	>1 mil cases
USA	Brazil India	France Russia UK	Italy Turkey Spain	Germany Poland Colombia Argentina Mexico	Iran Ukraine Peru Czechia S. Africa Indonesia Netherlands Chile Canada

## COVID-19 Exposes Biodefense Vulnerabilities as Next Pandemic or Attack Looms

By Bridget Johnson

Source: <https://www.hstoday.us/subject-matter-areas/infrastructure-security/covid-19-exposes-biodefense-vulnerabilities-as-next-pandemic-or-attack-looms/>

Apr 02 – The COVID-19 pandemic has not only exposed weaknesses in America’s biodefense but stands as a reminder that “this pandemic will not be the last” as the country remains “dangerously vulnerable to biological threats” with lax implementation of longstanding recommendations to shore up prevention, detection, response, and mitigation, the Bipartisan Commission on Biodefense said.

“While the current spotlight on COVID-19 is necessary and urgent, it would be a costly mistake to focus solely on this pandemic to the exclusion of all other biological threats,” said commission co-chairman former Homeland Security Secretary Tom Ridge. “Nation-states such as China, Iran, North Korea, and Russia continue to invest heavily in advancing biotechnology and could produce biological agents and weapons. Terrorist organizations also remain interested in learning how to attack enemies with biological agents” including anthrax and botulism. “National biodefense must begin and end with strong national leadership.”

“The efforts of all federal departments and agencies with responsibilities for biodefense need to be coordinated, and they must be held accountable, by the White House,” he added.

Formerly known as the Blue Ribbon Study Panel on Biodefense, the group was formed in 2014 and the following year issued the benchmark report [A National Blueprint for Biodefense: Leadership and Major Reform Needed to Optimize Efforts](#). The panel’s new report this week, [Biodefense in Crisis: Immediate Action Needed to Address National Vulnerabilities](#), walks through the status of the 33 recommendations made years ago and gives 11 updated recommendations to reflect lessons learned through the horrendous toll COVID has taken on the country and world.

“Out of our 87 recommended action items, the government has completed just 3, took some action to address 54, no action on 24, and emergency or crisis actions on 6 in response to the COVID-19 pandemic,” co-chairman former Sen. Joe Lieberman (I-Conn.) said. “We are still more vulnerable to the next pandemic than we should be.”

The report stresses that “countless lives can be saved in the future by federal leadership; many lives will be lost without it.”

“The emergence of the SARS-COV-2 virus and the resulting COVID-19 pandemic reveals the numerous gaps remaining in U.S. biodefense,” it says. “The Commission urges policymakers to learn from the COVID-19 pandemic and address critical gaps in the Nation’s biodefense, without waiting for COVID-19 to disappear, and before we find ourselves facing the next infectious disease pandemic or biological attack.”



The mosquito-borne Zika virus resulted in more than 3,700 cases of congenital birth defects in the Americas yet a vaccine has yet to be approved, the report notes. Ebola outbreaks in Africa “were never fully eradicated and defy control to this day.” And the 2018-2019 influenza season “resulted in nearly 57,000 deaths in the United States because the vaccine was only 29 percent effective.”

“Federal and private sector facilities that work in the United States with select agents also remain unacceptably insecure and troubling safety and security lapses still occur,” the report continues. “These institutions provide much needed research to support the biodefense enterprise. However, such work requires stronger management, funding, and oversight to prevent accidental or intentional releases of pathogens from high containment laboratories.”

As far as COVID-19, “the U.S. contribution to rapid vaccine development” to combat the virus “yielded results outstripping even the most optimistic of assessments, but nearly every other aspect of our response to the pandemic falls short of our peer countries and that of many low-to-middle income countries in the developing world.”

“COVID-19 has devastated American lives, the economy, and our national confidence, and yet the next biological event could be even worse and happen at any time.”

**New recommendations in this report include:**

- President should establish a dedicated Deputy National Security Advisor for Biodefense, overseen by the Vice President of the United States and supported by NSC staff in a Directorate for Global Public Health Security and Biodefense and a Directorate for Domestic Public Health Security and Biodefense.
- The White House should establish a federal advisory committee comprised of state, local, tribal, and territorial and private sector representatives charged with advising the Biodefense Steering Committee.
- The National Security Council, in coordination with the Biodefense Steering Committee, should develop and issue a comprehensive implementation plan for the National Biodefense Strategy.
- House and Senate leadership should establish a bipartisan, bicameral Congressional Working Group on Biodefense.
- Congress should mandate in the Intelligence Authorization Act for Fiscal Year 2022 an annual, comprehensive report on biodefense activities of all Intelligence Community agencies and national intelligence managers.
- Congress should, in the National Defense Authorization Act, direct the Secretary of State, the Secretary of Defense, the Secretary of Homeland Security, the Attorney General, and the Director of National Intelligence to jointly develop, plan for, and establish a national biological attribution apparatus to inform decision-making.
- Congress should amend the Homeland Security Act of 2002 to direct the Secretary of Homeland Security to conduct a comprehensive assessment of the National Biosurveillance Integration System.
- Congress should amend the Public Health Service Act to authorize the HHS Regional Disaster Health Response System.
- Congress should amend the Public Health Service Act to direct the Secretary of Health and Human Services to conduct a comprehensive review of existing medical countermeasure programs, policies, and assets, including the Centers for Innovation in Advanced Development and Manufacturing. Findings should inform the FY 2023 budget request.
- Congress should amend the Foreign Assistance Act of 1961 to authorize the Global Health Security Agenda and provide increased, consistent appropriations to support the Agenda’s activities.

The report also recommends that Office of Management and Budget, in coordination with the NSC, eliminate the Department of Homeland Security’s BioWatch program from all future presidential budget requests.

“Current BioWatch technology performs poorly and is far from the deterrence mechanism it was originally intended to be. BioWatch detectors, when they work, only provide useful data hours or days after an event. While we appreciate that DHS heard our concerns and is looking into replacing outdated non-functional BioWatch technology, Biodetection 2021, the DHS acquisition program to identify and acquire new biodetection technology, has its own difficulties,” the report states. “Clear requirements for replacement technology have not been established for this acquisition program and concerns abound regarding the methods utilized by DHS to field and test these new technologies. In the meantime, BioWatch continues to use limited, decades-old collection equipment paired with more advanced laboratory testing capability, limping along until the Biodetection 2021 program acquires usable new technology and DHS can procure it.”

Six actions based on the commission’s original blueprint were only taken in crisis mode — in response to the COVID-19 pandemic. “The Commission acknowledges that the Trump Administration elevated biodefense policy to the level of the National Security Advisor and put the Vice President in charge of COVID-19 response,” the report continues. “However, national biodefense requires a permanent centralized authority who can effectively act on behalf of the President to manage and make budgetary decisions about the fifteen departments, eight independent agencies, and one independent institution that comprise the national biodefense enterprise.”



The commission issued a statement Wednesday praising the Biden administration for including \$30 billion for biodefense in its new infrastructure plan to “invest smartly in medical countermeasure manufacturing, our strategic national stockpile, prototype vaccines and other critical priorities.”

“The President’s American Jobs Plan is an excellent start and the Commission is pleased to see him making biodefense a national priority. As an organization whose very name includes the word bipartisan, we urge the Administration to reach across the aisle and work with Republicans to find areas of agreement,” Ridge said. “As COVID-19 demonstrated, biological events do not recognize red or blue states. We look forward to working with the Administration and Congress in the days and weeks ahead, to help ensure that our Nation is no longer vulnerable to the devastating consequences of biological incidents.”

*Bridget Johnson is the Managing Editor for Homeland Security Today. A veteran journalist whose news articles and analyses have run in dozens of news outlets across the globe, Bridget first came to Washington to be online editor and a foreign policy writer at The Hill.*

## Why the Push Is on to Make Pandemic Life 'Permanent'

By Tom Mullen

Source: <https://fee.org/articles/why-the-push-is-on-to-make-pandemic-life-permanent/>

Apr 04 – One year after Americans were ordered to close down society for “two weeks to flatten the curve,” *Bloomberg* columnist Andreas Kluth [warned](#), “We Must Start Planning for a Permanent Pandemic.”

Because new variants of SARS-COV-2 are impervious to existing vaccines, says Kluth, and pharmaceutical companies will never be able to develop new vaccines fast enough to keep up, we will never be able to get “back to normal.”

“Get back to normal” means recovering the relative liberty we had in our already overregulated, pre-Covid lives. This is just the latest in a long series of crises that always seem to lead our wise rulers to the same conclusion: we just cannot afford freedom anymore.

Covid-19 certainly wasn’t the beginning. Americans were told “the world changed” after 9/11. Basic pillars of the American system, like the Fourth and Fifth Amendments, were too antiquated to deal with the “new threat of terrorism.” [Warrantless surveillance](#) of our phone, e-mail, and financial records and physical searches of our persons without probable cause of a crime became the norm. A few principled civil libertarians dissented, but the public largely complied without protest.

“Keep us safe,” they told the government, no matter the cost in dollars or liberty.

Perhaps seeing how willingly the public rolled over for the political right during the “War on Terror,” authoritarians on the left turbocharged their own war on “climate change.” Previously interested in merely significantly raising taxes and heavily regulating industry, they now wish to ban all sorts of things, including [air travel](#), [gasoline-powered cars](#), and even [eating meat](#).

Since Covid-19, however, even the freedom to assemble and see each other’s faces may be permanently banned to help the government “keep us safe.”

Assaulting our liberty isn’t the only characteristic these crisis narratives have in common. They share at least two others: dire predictions that turn out to be false and proposed solutions that turn out to be ineffective.

George W. Bush warned Saddam Hussein had “weapons of mass destruction” capable of hitting New York City within 45 minutes. He created the Department of Homeland Security and the TSA to prevent, among other things, a “mushroom cloud” over a major American city.

Twenty years later, we know there were no weapons of mass destruction in Iraq, the terrorist threat was grossly exaggerated, and the TSA has still never caught a terrorist, not even the two people who tried to set off explosives concealed in their shoes and underwear, respectively.

The only effective deterrent of terrorism so far has been the relatively calmer foreign policy during the four years of the Trump administration, during which regime change operations ceased and major terrorist attacks in the United States virtually disappeared. Predictions of environmental catastrophe have similarly proven false. Younger people may not remember that in the early 1970s, long before Alexandria Ocasio-Cortez was born, environmentalists were predicting worldwide disasters that subsequently failed to materialize. In 1989, the *Associated Press* [reported](#), “A senior U.N. environmental official says entire nations could be wiped off the face of the Earth by rising sea levels if the global warming trend is not reversed by the year 2000.” The same official predicted the Earth’s temperature would rise 1 to 7 degrees in the next 30 years.

Ocasio-Cortez is famous for [predicting](#) in 2019, “The world is gonna end in 12 years if we don’t address climate change.” But Al Gore had [warned](#) in 2006 that “unless drastic



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measures to reduce greenhouse gases are taken within the next 10 years, the world will reach a point of no return.” So, isn't it too late anyway?

As with the war on terrorism, the war on climate change asks us to give up our freedom for solutions that don't work. Assuming climate change proponents have diagnosed the problem correctly and haven't exaggerated the threat—huge assumptions by themselves—implementing their proposed solution [won't solve](#) the problem, even by their own standards.

Its proponents know this. The U.S. has already led the world in reducing carbon emissions without the draconian provisions of the Green New Deal. If you listen to them carefully, the Green New Deal's proponents propose the U.S. give up what freedom and prosperity remain to them *merely as an example* to developing nations, whom they assume will forego the benefits of industrialization already enjoyed by developed countries because of the shining example of an America in chains and brought to its economic knees to “save the earth.”

Fat chance, that.

The latest remake of this horror movie is Covid-19. While undeniably a serious pathogen that has likely killed more people than even the worst flu epidemics of the past several decades (although this is hard to confirm since public health officials [changed the methodology](#) for determining a virus-caused death), the government and its minions have still managed to grossly exaggerate this threat.

Gone is any sense of proportion when discussing Covid-19. Yes, it is certainly *possible* to spread the virus after one has been vaccinated or acquired natural immunity. But how *likely* is it? Is it any more likely than spreading other pathogens after immunity?

If not, then why are we treating people with immunity differently than we have during more dangerous pandemics in the past? Similarly, it is likely possible for asymptomatic people to spread the virus—a key pillar of the lockdown argument—but again, how likely is it?

The theory Covid-19 could be spread by asymptomatic people was originally based on the case of a single woman who supposedly infected four other people while experiencing no symptoms. Anthony Fauci said this case [“lays the question to rest.”](#)

The only problem was no one had asked the woman in question if she had symptoms at the time. When it turned out she did, the study on her was [retracted](#). A subsequent [study](#) “did not link any COVID-19 cases to asymptomatic carriers,” and yet [another](#) after that concluded transmission of the disease by asymptomatic carriers “is not a major driver of spread.” Yet, policies based on this falsehood, like lockdowns and forcing asymptomatic people to wear masks, remain in place.

Most importantly, none of the government-mandated Covid-19 mitigation policies work. No *retrospective* review conducted with any semblance of the scientific method has found a relationship between lockdowns, mask mandates, or social distancing and the spread of Covid-19. In fact, the most recent [study](#) suggests lockdowns may have increased Covid-19 infections, in addition to all the non-Covid excess deaths they caused.

Over and over, authoritarians overhype crises to scare the living daylights out of the public and propose solutions that have two things in common: they demand more of our freedom and they don't work. It's always all pain and no gain. One wonders how many repetitions of this crisis drill it will take before the citizens of the so-called “land of the free” finally think to ask:

**Why is freedom always the problem?**

*Tom Mullen is the author of [Where Do Conservatives and Liberals Come From? And What Ever Happened to Life, Liberty and the Pursuit of Happiness?](#) and [A Return to Common Sense: Reawakening Liberty in the Inhabitants of America](#). His writing has been featured at [The Washington Times](#), [The Huffington Post](#), [The Daily Caller](#), [321 Gold!](#) and [Peter Schiff's EuroPac.net](#). Tom has been a guest on Fox's [Freedom Watch](#) with Judge Andrew Napolitano, [Adam Vs. the Man](#), [Free Talk Live](#), and numerous other programs. In 2007, Tom released his first solo CD, [A Glimpse of the Ether](#), containing 13 original compositions. Tom's style has been described as “Powerpop with a hint of modern rock.” Tom is originally a native of Buffalo, NY and graduate of Canisius College. He earned a Master's Degree in English from State University of New York College at Buffalo.*

## Monitoring Current and Future Biological Threats

Source: <http://www.homelandsecuritynewswire.com/dr20210405-monitoring-current-and-future-biological-threats>

Apr 05 – The Department of Homeland Security (DHS) [Science and Technology Directorate](#) (S&T) says that in order to develop capabilities to monitor the current COVID-19 pandemic and other future biological events, it has awarded \$199,648 to Mesur.io Inc., for



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analysis and reporting of outbreak-related data. Based in Chapel Hill, North Carolina, [Mesur.io](#) is a current [Silicon Valley Innovation Program](#) (SVIP) portfolio company.

This award is made under SVIP's *Emerging Needs: COVID-19 Response & Future Mitigation* solicitation and supports the National Biosurveillance Integration Center (NBIC), located within DHS Countering Weapons of Mass Destruction Office (CWMD). NBIC uses cases from the solicitation, which seek data analysis tools to monitor trends and validate open-source data from authoritative sources. The Mesur.io project proposes to adapt their Earthstream Platform to provide DHS and NBIC with data that tracks metrics related to an outbreak or emergence to predict various risks of a biological threat. It automatically identifies, extracts and links geospatial data with relevant data, such as demographics and travel, for easy analysis and improved reporting. The Earthstream Platform is currently used to identify and predict for emerging agricultural pathogens and invasive species. Alongside prior work related to Zika and Ebola, Mesur.io has applied the Earthstream platform to COVID-19 analytics involving forecasting and analysis of agricultural, economic, and health impacts.

"We are looking forward to embarking on another project with Mesur.io," said Melissa Oh, SVIP managing director. "Their work in agriculture and other prior global outbreaks have demonstrated the project's adaptability to meet our needs in monitoring the evolution of the current pandemic and anticipating for any future public health crisis."

This Phase 1 project proposes to broaden the data source discovery engine and develop capabilities to discover quantitative data from authoritative sources to meet the data needs of DHS related to the COVID-19 pandemic and other possible future biological events.

"DHS is very excited to work with Mesur.io," said Dave Shepherd, S&T program manager. "At its core, the Mesur.io product is rooted in automated, continuous learning. It promises to deliver a platform capable of automated discovery of data helpful to understand the effectiveness of responses to current and emerging diseases."

## New RNA-Sequencing Method Opens a Pandora's Box of Opportunity

RNA sequencing provides researchers with visibility into previously undetected changes occurring in disease states, in response to therapeutics, under different environmental conditions, and across a broad range of other study designs. A new RNA sequencing method called "Panoramic RNA Display by Overcoming RNA Modification Aborted Sequencing" or PANDORA-seq developed by scientists from the University of California, Riverside, can help discover numerous modified small RNAs that were previously undetectable. [+ MORE](#)

## Meet 'Very Fast Death Factor' - The Algal Toxin Scientists Are Finding in Our Air

Source: <https://www.sciencealert.com/scientists-have-found-that-a-dangerous-algal-bloom-toxin-can-be-found-in-the-air>



Apr 06 – While some blue-green algae (or more accurately - cyanobacteria) are critical to us for their nitrogen-fixing abilities, others can also become dangerous pests [of our own making](#).

[Climate change](#) and agricultural run-off are causing [a once normal environmental process](#) to [spiral out of control](#) more often, and a new study has shown that a particularly dangerous toxin produced by cyanobacteria is not just hitching a ride in water, but also in our air in some cases.



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The toxin, called [anatoxin-a \(ATX\)](#) or Very Fast Death Factor ([no, we're not kidding](#)), does what it says on the tin - kills things fast. If you are unfortunate enough to be exposed it can cause a loss of coordination, paralysis, or death in humans and other animals.

"ATX is one of the more dangerous cyanotoxins produced by harmful algal blooms, which are becoming more predominant in lakes and ponds worldwide due to global warming and climate change," [explains first author James Sutherland from the Nantucket Land Council](#).

ATX is produced by a range of cyanobacteria that bloom in warm, still, nutrient-rich water, and it can disrupt the rest of the ecosystem. In harmful algal blooms (HAB), the cyanobacteria lower the oxygen levels of the water and can sometimes produce toxins such as ATX.

Then, once the bloom dies, the microbes that decompose the algae use even more oxygen, which can create mass fish die-offs and even [dead zones](#).

**Usually, when water authorities spot an algal bloom, they make sure that humans stay well clear of the water because of the danger that toxins such as ATX can cause.** However, there's still been [a number of hospitalizations](#), and many deaths of dogs and other animals from ingesting the water.

But researchers at the Nantucket Land Council wanted to know if the air surrounding the bloom was also dangerous.

"Although no previous studies have documented the capture of airborne ATX molecules or cyanobacteria cells containing ATX, we hypothesized that ATX could become airborne under certain environmental conditions," [the team write in their new paper](#).

The team investigated Capaum Pond, a freshwater pond in Nantucket, Massachusetts, known for regular summer HABs. They collected samples from the area between July to October 2019, both in the water itself, and the air around the edge of the pond.

ATX was found in quite high concentrations in the body of water - on one particular day - 11 September 2019 - the team recorded 21 nanograms per milliliter.

On that windy and foggy September day, the team also detected ATX in the air around the pond. They found an average concentration of 0.87 nanograms per filter, which corresponds to a potential airborne exposure of 0.16

nanograms per meter squared.

"People often recreate around these lakes and ponds with algal blooms without any awareness of the potential problems," [said Sutherland](#).

"Direct contact or inhalation of these cyanotoxins can present health risks for individuals, and we have reported a potential human health exposure not previously examined."

The team isn't sure yet how the toxin is ending up in the air, and aerosol exposure to ATX isn't well understood, so there's plenty more to investigate here.

The researchers suggest in the paper that perhaps the wind caused small droplets filled with ATX molecules, or even the cyanobacterial cells, to become airborne, and the fog helped the ATX stay in the air for longer.

In the meantime, best to stay away from bodies of water with algal blooms - especially on days with lots of wind or fog, lest you become an unwitting case study into the Very Fast Death Factor.

►► The research has been published in [Lake and Reservoir Management](#).

## Allergic Reactions Including Anaphylaxis After Receipt of the First Dose of Moderna COVID-19 Vaccine

United States, December 21, 2020-January 10, 2021

*Morbidity and Mortality Weekly Report*. 2021;70(4):125-129.

Source: <https://www.medscape.com/viewarticle/944899>

On December 18, 2020, the Food and Drug Administration (FDA) issued an Emergency Use Authorization (EUA) for Moderna COVID-19 vaccine administered as 2 doses, 1 month apart



to prevent COVID-19. On December 19, 2020, the Advisory Committee on Immunization Practices (ACIP) issued an interim recommendation for use of Moderna COVID-19 vaccine.<sup>[1]</sup> As of January 10, 2021, a reported 4,041,396 first doses of Moderna COVID-19 vaccine had been administered in the United States, and reports of 1,266 (0.03%) adverse events after receipt of Moderna COVID-19 vaccine were submitted to the Vaccine Adverse Event Reporting System (VAERS). Among these, 108 case reports were identified for further review as possible cases of severe allergic reaction, including anaphylaxis. Anaphylaxis is a life-threatening allergic reaction that occurs rarely after vaccination, with onset typically within minutes to hours.<sup>[2]</sup> Among these case reports, 10 cases were determined to be anaphylaxis (a rate of 2.5 anaphylaxis cases per million Moderna COVID-19 vaccine doses administered), including nine in persons with a documented history of allergies or allergic reactions, five of whom had a previous history of anaphylaxis. The median interval from vaccine receipt to symptom onset was 7.5 minutes (range = 1–45 minutes). Among eight persons with follow-up information available, all had recovered or been discharged home. Among the remaining case reports that were determined not to be anaphylaxis, 47 were assessed to be nonanaphylaxis allergic reactions, and 47 were considered nonallergic adverse events. For four case reports, investigators have been unable to obtain sufficient information to assess the likelihood of anaphylaxis.

►► [Read the full text at source's URL.](#)

## Study IDs 3 COVID-19 Phenotypes, Could Help Guide Care

Source: <https://www.medscape.com/viewarticle/948742>

Apr 05 – Researchers have found three distinct COVID-19 phenotypes of patients who present to the emergency department, information that could eventually guide treatment, they say.

Elizabeth Luszczek, PhD, an assistant professor in the Department of Surgery, and pulmonologist Nicholas Ingraham, MD, both with the University of Minnesota Medical School in Minneapolis, and colleagues described the three phenotypes in an [article published online](#) March 31 in the open-access journal *PLOS ONE*.

### Most Are "Phenotype II"

Researchers analyzed electronic health records from 14 hospitals in the midwestern United States and from 60 primary care clinics in Minnesota. Data were available for 7538 patients with PCR-confirmed COVID-19 between March 7 and August 25, 2020.

Of the 7538, about 14% (1022) of these patients required hospital admission and were included in the study. Patient data included comorbidities, medications, lab results, clinic visits, hospital admission information, and patient demographics.

Most patients (613 patients, or 60%) included in the study presented to emergency rooms with "phenotype II."

Patients who presented with phenotype II had a less frequent history of hepatic disease than phenotypes I or III. They typically had more moderate disease and about 10% mortality.

Almost one quarter (236 patients, or 23%) fell into "phenotype I," or the "adverse phenotype," which was linked with the poorest outcomes. These patients had the most hematologic, renal, and cardiac comorbidities (all  $P < .001$ ). They were also more likely to be non-White (38.8% vs 45.6% vs 60.7%, respectively,  $P = .002$ ) and more likely to be non-English speakers (47.9% vs 39.2% vs 23.7%, respectively,  $P < .001$ ).

The racial/cultural gap was one of the most striking findings, Ingraham told *Medscape Medical News*, and has become the topic for a second paper coming out within a few weeks.

"That was really concerning," he said. "We found that non-English speaking was significantly associated with hospitalization even when you control for race."

Ingraham said the finding brings up questions of whether non-English speakers, for instance, have a poorer understanding of guidance from the Centers for Disease Control and Prevention.

Luszczek added that "we know that people who experience a lot of discrimination are at higher risk for heart disease and diabetes, and that may be playing out here."

Those in phenotype I were older than patients in phenotypes II and III (67.2 [52.9, 79.0] years vs 60.9 [45.9, 75.4] years and 58.6 [34.8, 71.3] years, respectively,  $P < .001$ ).

Luszczek told *Medscape Medical News* they also found markers of inflammation were much higher in the phenotype I group.



### Phenotype III Was Smallest, Best Outcomes

The smallest group was "phenotype III," or the "favorable phenotype," and 173 patients (16.9%) fell into this group, which had the best clinical outcomes.

Those in phenotype III, surprisingly, had the highest rate of respiratory comorbidities ( $P = .002$ ) despite having the lowest complication and mortality rates. They were more likely to have had a history of smoking, [alcohol abuse](#), and [neutropenia](#).

Ingraham said as a pulmonologist he was intrigued by that finding. He said most of his patients with chronic lung diseases are on inhalers and this finding might indicate inhalers are more protective.

"This helps point you in the direction you might look into next," he said.

Those in phenotype III also had a 10% greater risk of hospital readmission compared with the other phenotypes.

Those in phenotype III were also more often female than patients with phenotype I or II (57.6% vs 41.6% and 53.4%, respectively,  $P = .002$ ).

Overall, phenotypes I and II were linked with 7.30-fold (95% CI, 3.11-17.17,  $P < .001$ ) and 2.57-fold (95% CI, 1.10-6.00,  $P = .03$ ) increases, respectively, in hazard of death compared with phenotype III.

"We couldn't have guessed the difference would be 7-fold," Ingraham said. "It really highlights the heterogeneity of how different COVID patients can be."

Alexander Charney, MD, PhD, codirector of the Mount Sinai Clinical Intelligence Center in New York City, told *Medscape Medical News* this work is an example of the rich data available through EHRs, considering the millions treated for COVID-19 across the country.

"This is the first step before using the information to see how it should change care," he said. "It helps us understand what's going on here."

The information may eventually help answer questions surrounding post-acute sequelae of SARS-CoV-2 infection (PASC), or long COVID, such as whether it is an accumulation of symptoms from people who were sick before they had COVID-19, Charney said.

"What will be very valuable," he said, "is if the information could help predict at the time of admission who's going to get one kind of symptom versus another."

With a robust algorithm and further research on how to treat each phenotype, Charney said, a physician could then get an alert, such as, "there's a 99% chance the patient will fall into phenotype I."

It could also help with triage protocols, he said.

"Back when we were under siege in the spring of 2020, these types of algorithms didn't exist. They could have been extremely helpful," Charney added.

### Treatments Lag

Treatment options are sorely needed for COVID-19 patients.

So far, only one pharmacotherapeutic agent, [dexamethasone](#), has been linked with reduced mortality in at-risk individuals, the authors note.

"[P]atients could benefit from phenotype-specific medical care, which may differ from established standards of care," the authors write.

Ingraham stressed that this study should not be used to alter practice.

"But what it does is give context clues on what we should be looking into next with a little educated guessing," he said.

## CDC: SARS-CoV-2 and Surface (Fomite) Transmission for Indoor Community Environments

Source: <https://www.cdc.gov/coronavirus/2019-ncov/more/science-and-research/surface-transmission.html#ref7>

People can be infected with SARS-CoV-2 through contact with surfaces. However, based on available epidemiological data and studies of environmental transmission factors, surface transmission is not the main route by which SARS-CoV-2 spreads, and the risk is considered to be low. The principal mode by which people are infected with SARS-CoV-2 is through [exposure to respiratory droplets carrying infectious virus](#). In most situations, cleaning surfaces using soap or detergent, and not disinfecting, is enough to reduce risk. Disinfection is recommended in indoor community settings where there has been a suspected or confirmed case of COVID-



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19 within the last 24 hours. The risk of fomite transmission can be reduced by wearing masks consistently and correctly, practicing hand hygiene, cleaning, and taking other measures to maintain healthy facilities.

▶▶ Read the full text at source's URL.

### Army Begins Clinical Trials on Vaccine That May Be Effective Against All Coronaviruses

Source: <https://www.military.com/daily-news/2021/04/06/army-begins-clinical-trials-vaccine-may-be-effective-against-all-coronaviruses.html>



Officer receives the Pfizer-BioNTech COVID-19 vaccine at the Conroy Bowl on Schofield Barracks, Hawaii on Jan. 14, 2021. (U.S. Army/1st Lt. Angelo Mejia)

Apr 06 – Fifteen months after launching an effort to develop a vaccine against COVID-19, the Walter Reed [Army](#) Institute of Research is preparing for a clinical trial, seeking volunteers for a small safety study.

The Army's vaccine candidate uses a new technology involving a Spike Ferritin Nanoparticle, or SpFN, that researchers hope can be adapted to protect against any coronavirus, including those that cause the common cold or deadly diseases such as COVID-19, Severe Acute Respiratory Syndrome, or SARS, and Middle East Respiratory Syndrome, MERS.

The **WRAIR vaccine** candidate has been tested in mice and monkeys and is now ready for human safety trials, according to officials at the institute, which falls under Army Medical Research and Development Command.

"Even before recent COVID-19 variants were identified, our team was concerned about the emergence of new coronaviruses in human populations, a threat that has been accelerating in recent years," Dr. Kayvon Modjarrad, director of the Emerging Infectious Diseases Branch at WRAIR, said in a released statement. "That's why we need a vaccine like this: one that has potential to protect broadly and proactively against multiple coronavirus species and strains."

The study is being conducted at WRAIR's Clinical Trials Center and will enroll 72 healthy adult volunteers ages 18 to 55 who will be randomly placed in placebo or experimental groups.



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WRAIR began its work on a coronavirus vaccine Jan. 11, 2020 -- the day after Chinese researchers published the coronavirus' genetic sequence, enabling scientists to more fully understand the lethal pathogen.

With that genetic makeup in mind and building on research on the coronavirus that causes Middle East Respiratory Syndrome, or MERS, WRAIR scientists developed SpFN as a protein base that can carry one or more spike proteins engineered to block infection and elicit an immune response, according to Modjarrad.

While commercial manufacturers have produced four distinct vaccines against COVID-19, three of which are currently being distributed under emergency-use authorization in the U.S., WRAIR is playing the long game when it comes to developing a coronavirus vaccine for the future.

"We are in this for the long haul," Modjarrad said in a release. "We have designed and positioned this platform as the next generation vaccine, one that paves the way for a universal vaccine to protect against not only the current virus, but also counter future variants, stopping them in their tracks before they can cause another pandemic."

The vaccine was developed with support from the Henry M. Jackson Foundation for the Advancement of Military Medicine.

More than 176,000 U.S. service members have tested positive for COVID-19 since the beginning of the pandemic and [24 have died. Another 307 civilian DoD employees, contractors and family members also have died.](#)

Worldwide, 132.1 million people have been infected with the coronavirus, and 2.8 million have died. There have been nearly 30.8 million cases in the U.S. and 556,307 American deaths as of April 4, according to Johns Hopkins University.

Across the Defense Department, 2.1 million doses of the COVID-19 vaccine -- made by Moderna, Pfizer or Johnson & Johnson -- have been administered to U.S. troops, family members, civilian employees and other essential workers, according to the Centers for Disease Control and Prevention.

On Tuesday, President Joe Biden implored Americans to get their vaccines, especially with cases on the rise in some areas and the spread of variants.

"We're getting more and more data on just how effective these vaccines are," Biden said. "We're making a lot of good progress ... but we're not even halfway to vaccinating 300 million Americans. We are still in a life and death race against this virus."

## Baltic Amber Gives Rise to Paleopharmaceuticals

Source: <https://www.genengnews.com/news/baltic-amber-gives-rise-to-paleopharmaceuticals/>

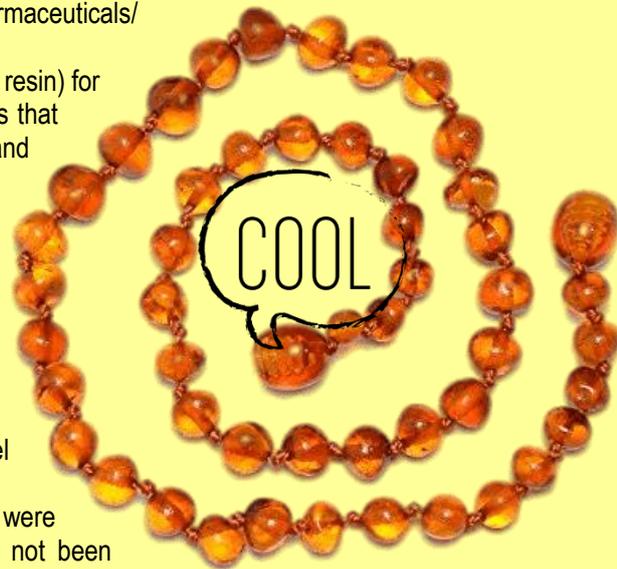
Apr 06 – Humans in the Baltic countries have used ancient amber (fossilized tree resin) for medicinal purposes for centuries. Infants there today are given amber necklaces that they chew to relieve teething pain, and people put pulverized amber in elixirs and ointments for its purported anti-inflammatory and anti-infective properties.

Now researchers from the University of Minnesota (U of M) have pinpointed compounds that help explain Baltic amber's therapeutic effects and that could lead to new medicines to combat antibiotic-resistant infections.

"New drug scaffolds are urgently needed for pain, inflammation, and infectious disease," said Elizabeth Ambrose, PhD, associate professor, department of medicinal chemistry, U of M, during a session at the online spring meeting of the American Chemical Society yesterday. "Molecules in fossils, often from extinct species, undergo biotransformations over millions of years that lead to novel structures."

Ambrose and her team say they knew from previous research that there were substances in Baltic amber that might lead to new antibiotics, but they had not been systematically explored. "We have now extracted and identified several compounds in Baltic amber that show activity against gram-positive, antibiotic-resistant bacteria," she continues, calling Baltic amber a "med chem treasure trove." Each year in the U.S., at least 2.8 million people get antibiotic-resistant infections, leading to 35,000 deaths, according to the U.S. CDC.

Ambrose's interest originally stemmed from her Baltic heritage. While visiting family in Lithuania, she collected amber samples and heard stories about their medicinal uses. The Baltic Sea region contains the world's largest deposit of the material, which is fossilized resin formed about 44 million years ago. The resin oozed from now-extinct pines in the Sciadopityaceae family and



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acted as a defense against microorganisms such as bacteria and fungi, as well as herbivorous insects that would become trapped in the resin.

Ambrose and graduate student Connor McDermott analyzed commercially available Baltic amber samples, in addition to some that Ambrose had collected.

“One major challenge was preparing a homogeneous fine powder from the amber pebbles that could be extracted with solvents,” McDermott explains. He used a tabletop jar rolling mill, in which the jar is filled with ceramic beads and amber pebbles and rotated on its side. Through trial and error, he determined the correct ratio of beads to pebbles to yield a semi-fine powder.

**Then, using various combinations of solvents and techniques, he filtered, concentrated and analyzed the amber powder extracts by gas chromatography-mass spectrometry (GC-MS).**

Dozens of compounds were identified from the GC-MS spectra. The most interesting were **abietic acid, dehydroabietic acid, and palustric acid**—20-carbon, three-ringed organic compounds with known biological activity. Because these compounds are difficult to purify, the researchers bought pure samples and sent them to a company that tested their activity against nine bacterial species, some of which are known to be antibiotic resistant.

“The most important finding is that these compounds are active against gram-positive bacteria, such as certain *Staphylococcus aureus* strains, but not gram-negative bacteria,” McDermott says, adding that gram-positive bacteria have a less complex cell wall than gram-negative bacteria. “This implies that the composition of the bacterial membrane is important for the activity of the compounds,” continues McDermott, who also obtained a Japanese umbrella pine, the closest living species to the trees that produced the resin that became Baltic amber.

McDermott extracted resin from the needles and stem and identified sclarene, a molecule present in the extracts that could theoretically undergo chemical transformations to produce the bioactive compounds the researchers found in Baltic amber samples. “We are excited to move forward with these results,” Ambrose says. “Abietic acids and their derivatives are potentially an untapped source of new medicines, especially for treating infections caused by gram-positive bacteria, which are increasingly becoming resistant to known antibiotics.”

## 6 Months After Surviving COVID, 1 in 3 Have Neurological or Psychiatric Problems

Source: <https://www.sciencealert.com/study-suggests-1-in-3-covid-19-survivors-suffer-mental-or-neurological-problems>

Apr 07 – One in three people who overcome [COVID-19](#) suffer from a neurological or psychiatric diagnosis six months on, according to the largest study so far published on the mental toll that long-COVID takes on survivors.

Authors said the research, printed Wednesday in [The Lancet Psychiatry](#) journal, proved that COVID-19 patients were significantly more likely to develop brain conditions than those suffering from other respiratory tract infections.

Studying the health records of more than 230,000 patients who had recovered from COVID-19, they found that 34 percent were diagnosed with a neurological or psychiatric condition within six months.

The most common conditions were anxiety (17 percent of patients) and mood disorders (14 percent).

For 13 percent of patients the disorders were their first diagnosis of a mental health issue.

Incidence of neurological disorders such as brain hemorrhage (0.6 percent), stroke (2.1 percent) and dementia (0.7 percent) was lower overall than for psychiatric disorders but the risk for brain disorders was generally higher in patients who had severe COVID-19.

The authors also examined data from more than 100,000 patients diagnosed with influenza and more than 236,000 diagnosed with any respiratory tract infection.

They found there was overall a 44 percent greater risk of neurological and mental health diagnoses after COVID-19 than after flu, and a 16 percent higher risk than with respiratory tract infections.

Paul Harrison, lead author from the University of Oxford, said that while the individual risk of neurological and psychiatric orders from COVID-19 was small, the overall effect across the global population could prove to be "substantial".

"Many of these conditions are chronic," he said.

"As a result, health care systems need to be resourced to deal with the anticipated need, both within primary and secondary care services."

### 'Severe impact'

Patients hospitalized with severe COVID-19 were at great risk of developing long-term conditions, according to the analysis.



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For example, 46 percent of patients who needed intensive care were diagnosed with neurological or psychiatric conditions within six months of recovery.

The data showed 2.7 percent of people needing intensive care suffered a subsequent brain hemorrhage, compared to 0.3 percent of people who weren't hospitalized.

And nearly 7 percent of those needing ICU care suffered a stroke, compared with 1.3 percent of patients who didn't.

Writing in a linked comment article, Jonathan Rogers from University College London, said further research was needed on the long-term neurological and psychiatric outcomes among COVID-19 patients.

"Sadly, many of the disorders identified in this study tend to be chronic or recurrent, so we can anticipate that the impact of COVID-19 could be with us for many years," said Rogers, who was not involved in the study.

"It is clear from this study that the impact COVID-19 is having on individuals mental health can be severe," [said Lea Milligan, CEO of the MQ Mental Health research group.](#)

"This is contributing to the already rising levels of mental illness and requires further, urgent research."

## Exa Mask lets you breathe easy while keeping you safe

Source (+video): <https://newatlas.com/sponsored-content/exa-mask-breathe-easy/>

Apr 06 – Over the past year, masks have become the must-have accessory, but we've also discovered just how annoying most are



to wear. Difficulty breathing, foggy glasses, skin irritation and muffled speech are problems we've all been forced to live with – until now. [Exa is a new type of mask](#) that solves all these problems thanks to a unique three-part system.

The first part of the Exa mask is the AirFrame, which maximizes protection for you and those around you. This detachable nose piece features medical-grade silicone that conforms perfectly to the face to provide a seal around the inhalation track. It also directs exhaled air directly away from the face, reducing humidity buildup and preventing glasses from fogging up. The remainder of the AirFrame component is made of TR-90 nylon, which is the same material used in Oakley sunglasses and ensures it is sunscreen-, makeup- and oil-proof and should last two years. It is held in place by straps that are designed

to minimize pressure around the ears, while the second part of the system – HEPA replaceable filters that filter out 97 percent of pollutants down to 0.3 microns – are inserted into the front of the AirFrame.

The Exa mask prevents glasses fogging up



The AirFrame can be worn on its own, enabling the wearer to breathe filtered air through their nose while still being able to eat or drink at a restaurant. However, a magnetic ring on the AirFrame allows attachment of the third and final piece of the Exa system – the Face Shield. This fabric outer layer provides protection from flying particulates when someone speaks and can be removed or attached quickly and easily. And because the Face Shield sits a slight distance from your face,

there's no skin irritation or muffling of your voice when speaking.



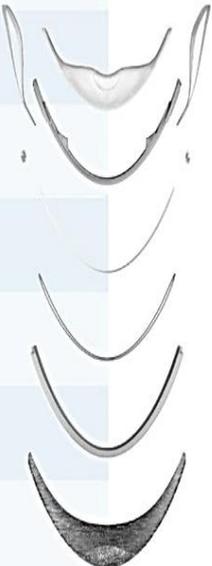
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So whether you're wearing the Exa mask for just a few minutes or the whole day, you'll remain comfortable and safe, breathing pure, filtered air without the discomfort and humidity common with other types of masks.

You can stay safe and start breathing easier by grabbing your own [Exa Mask here](#).

### The Details

- **Cushion Design** allows for an incredible seal around the inhalation track
- **Adjustable Straps** are designed to be worn all day with minimal pressure
- **Magnetic Rings** instantly attach the shield to the frame
- **PFE 97 Filters** filter 97% of pollutants at .3 microns
- **Air Frame** directs airflow away from the face, preventing humidity and fog
- **Face Shield** protects against flying particulates when someone speaks



### Competition

	ExaMask	N95 Mask	Surgical Mask	Cloth Mask
Complete Seal	✓	✓	✗	✗
Full Filtration	✓	✓	✗	✗
Comfortable	✓	✗	✗	✓
Stops Humidity Buildup	✓	✗	✗	✗
Fashionable	✓	✗	✗	✓

## What Has the Pandemic Revealed about the U.S. Health Care System — and What Needs to Change?

Source: <http://www.homelandsecuritynewswire.com/dr20210407-what-has-the-pandemic-revealed-about-the-u-s-health-care-system-and-what-needs-to-change>

Apr 07 – With vaccinations for Covid-19 now underway across the nation, seven MIT scholars engaged in health and health care research share their views on what the pandemic has revealed about the U.S. health care system — and what needs to change. With vaccinations for Covid-19 now underway across the nation, MIT SHASS Communications asked seven MIT scholars engaged in health and health care research to share their views on what the pandemic has revealed about the U.S. health care system — and what needs to change. Representing the fields of medicine, anthropology, political science, health economics, science writing, and medical humanities, these researchers articulate a range of opportunities for U.S. health care to become more equitable, more effective and coherent, and more prepared for the next pandemic.

### [Dwaipayan Banerjee](#), associate professor of science, technology, and society

On the heels of Ebola, Covid-19 put to rest a persistent, false binary between diseases of the rich and diseases of the poor. For several decades, health care policymakers have labored under the impression of a great epidemiological transition. This theory holds that the developed world has reached a stage in its history that it no longer needs to worry about communicable diseases. These “diseases of the poor” are only supposed to exist in distant places with weak governments and struggling economies. Not here in the United States.

On the surface, Covid-19 made clear that diseases do not respect national boundaries. More subtly, it tested the hypothesis that the global north no longer need concern itself with communicable disease. And in so doing, it undermined our assumptions about global north health-care infrastructures as paradigmatically more evolved.

Over the last decades, the United States has been focused on developing increasingly sophisticated drugs. While this effort has ushered in several technological breakthroughs, a preoccupation with magic-bullet cures has distracted from public health fundamentals. The spread of the virus revealed shortages in basic equipment and hospital beds, the



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disproportionate effects of disease on the marginalized, the challenge of prevention rather than cure, the limits of insurance-based models to provide equitable care, and our unacknowledged dependence on the labor of underpaid health care workers.

To put it plainly, the pandemic did not create a crisis in U.S. health care. For many in the United States, crisis was already a precondition of care, delivered in emergency rooms and negotiated through denied insurance claims. As we begin to imagine a “new normal,” we must ask questions about the old. The pandemic made clear that the “normal” had been a privilege only for a few well-insured citizens. In its wake, can we imagine a health-care system that properly compensates labor and recognizes health care as a right, rather than a privilege only available to the marginalized when an endemic crisis is magnified by a pandemic emergency?

### [Andrea Campbell](#), professor of political science

No doubt, the pandemic reveals the dire need to invest in public-health infrastructure to better monitor and address public-health threats in the future, and to expand insurance coverage and health care access. To my mind, however, the pandemic’s greatest significance is in revealing the racism woven into American social and economic policy.

Public policies helped create geographic and occupational segregation to begin with; inadequate racist and classist public policies do a poor job of mitigating their effects. Structural racism manifests at the individual level, with people of color suffering worse housing and exposure to toxins, less access to education and jobs, greater financial instability, poorer physical and mental health, and higher infant mortality and shorter lifespans than their white counterparts. Residential segregation means many white Americans do not see these harms.

Structural racism also materializes at the societal level, a colossal waste of human capital that undercuts the nation’s economic growth, as social and economic policy expert [Heather McGhee](#) shows in her illuminating book, “The Sum of Us.” These society-wide costs are hidden as well; it is difficult to comprehend the counterfactual of what growth would look like if all Americans could prosper. My hope is that the pandemic renders this structural inequality visible. There is little point in improving medical or public-health systems if we fail to address the structural drivers of poor health. We must seize the opportunity to improve housing, nutrition, and schools; to enforce regulations on workplace safety, redlining, and environmental hazards; and to implement paid sick leave and paid family leave, among other changes. It has been too easy for healthy, financially stable, often white Americans to think the vulnerable are residual. The pandemic has revealed that they are in fact central. It’s time to invest for a more equitable future.

### [Jonathan Gruber](#), Ford Professor of Economics

The Covid-19 pandemic is the single most important health event of the past 100 years, and as such has enormous implications for our health care system. Most significantly, it highlights the importance of universal, non-discriminatory health insurance coverage in the United States. The primary source of health insurance for Americans is their job, and with unemployment reaching its highest level since the Great Depression, tens of millions of workers lost, at least temporarily, their insurance coverage.

Moreover, even once the economy recovers, millions of Americans will have a new preexisting condition, Covid-19. That’s why it is critical to build on the initial successes of the Affordable Care Act to continue to move toward a safety net that provides insurance options for all without discrimination.

The pandemic has also illustrated the power of remote health care. The vast majority of patients in the United States have had their first experience with telehealth during the pandemic and found it surprisingly satisfactory. More use of telehealth can lead to increased efficiency of health care delivery as well as allowing our system to reach underserved areas more effectively.

The pandemic also showed us the value of government sponsorship of innovation in the health sciences. The speed with which the vaccines were developed is breathtaking. But it would not have been possible without decades of National Institute of Health investments such as the Human Genome Project, nor without the large incentives put in place by Operation Warp Speed. Even in peacetime, the government has a critical role to play in promoting health care innovation.

The single most important change that we need to make to be prepared for the next pandemic is to recognize that proper preparation is, by definition, overpreparation. Unless we are prepared for the next pandemic that doesn’t happen, we won’t possibly be ready for the next pandemic that does.

This means working now, while the memory is fresh, to set up permanent, mandatorily funded institutions to do global disease surveillance, extensive testing of any at-risk populations when new diseases are detected, and a permanent government effort to finance underdeveloped vaccines and therapeutics.

### [Jeffrey Harris](#), professor emeritus of economics and a practicing physician

The pandemic has revealed the American health care system to be a non-system. In a genuine system, health care providers would coordinate their services. Yet when Elmhurst Hospital in Queens was overrun with patients, some 3,500 beds remained available in other



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New York hospitals. In a genuine system, everyone would have a stable source of care at a health maintenance organization (HMO). While our country has struggled to distribute the Covid-19 vaccine efficiently and equitably, Israel, which has just such an HMO-based system, has broken world records for vaccination.

Germany, which has all along had a robust public health care system, was accepting sick patients from Italy, Spain, and France. Meanwhile, U.S. hospitals were in financial shock and fee-for-service-based physician practices were devastated. We need to move toward a genuine health care system that can withstand shocks like the Covid-19 pandemic. There are already models out there to imitate.

We need to strengthen our worldwide pandemic and global health crisis alert systems. Despite concerns about China's early attempts to suppress the bad news about Covid-19, the world was lucky that Chinese investigators [posted the full genome](#) of SARS-CoV-2 in January 2020 — the singular event that triggered the search for a vaccine. With the recurrent threat of yet another pandemic — after H1N1, SARS, MERS, Ebola, and now SARS-Cov-2 — along with the anticipated health consequences of global climate change, we can't simply cross our fingers and hope to get lucky again.

### [Erica Caple James](#), associate professor of medical anthropology and urban studies

The coronavirus pandemic has revealed some of the limits of the American medical and health care system and demonstrated many of the social determinants of health. Neither the risks of infection nor the probability of suffering severe illness are equal across populations. Each depends on socioeconomic factors such as type of employment, mode of transportation, housing status, environmental vulnerability, and capacity to prevent spatial exposure, as well as “preexisting” health conditions like diabetes, obesity, and chronic respiratory illness.

Such conditions are often determined by race, ethnicity, gender, and “biology,” but also poverty, cultural and linguistic facility, health literacy, and legal status. In terms of mapping the prevalence of infection, it can be difficult to trace contacts among persons who are regular users of medical infrastructure. However, it can be extraordinarily difficult to do so among persons who lack or fear such visibility, especially when a lack of trust can color patient-clinician relationships.

One's treatment within medical and health care systems may also reflect other health disparities — such as when clinicians discount patient symptom reports because of sociocultural, racial, or gender stereotypes, or when technologies are calibrated to the norm of one segment of the population and fail to account for the severity of disease in others.

The pandemic has also revealed the biopolitics and even the “necropolitics” of care — when policymakers who are aware that disease and death fall disproportionately in marginal populations make public-health decisions that deepen the risks of exposure of these more vulnerable groups. The question becomes, “Whose lives are deemed disposable?” Similarly, which populations — and which regions of the world — are prioritized for treatment and protective technologies like vaccines and to what degree are such decisions politicized or even racialized?

Although no single change will address all of these disparities in health status and access to treatment, municipal, state, and federal policies aimed at improving the American health infrastructure — and especially those that expand the availability and distribution of medical resources to underserved populations — could greatly improve health for all.

### [Seth Mnookin](#), professor of science writing

The Covid-19 pandemic adds yet another depressing data point to how the legacy and reality of racism and white supremacy in America is lethal to historically marginalized groups. A number of recent studies have shown that Black, Hispanic, Asian, and Native Americans have a significantly higher risk of infection, hospitalization, and death compared to white Americans.

The reasons are not hard to identify: Minority populations are less likely to have access to healthy food options, clean air and water, high-quality housing, and consistent health care. As a result, they're more likely to have conditions that have been linked to worse outcomes in Covid patients, including diabetes, hypertension, and obesity.

Marginalized groups are also more likely to be socioeconomically disadvantaged — which means they're more likely to work in service and manufacturing industries that put them in close contact with others, use public transportation, rely on overcrowded schools and day cares, and live in closer proximity to other households. Even now, more vaccines are going to wealthier people who have the time and technology required to navigate the time-consuming vaccine signup process and fewer to communities with the highest infection rates.

This illustrates why addressing inequalities in Americans' health requires addressing inequalities that infect every part of society. Moving forward, our health care systems should take a much more active role in advocating for racial and socioeconomic justice — not only because it is the right thing to do, but because it is one of the most effective ways to improve health outcomes for the country as a whole.



## HZS C<sup>2</sup>BRNE DIARY – April 2021

On a global level, the pandemic has illustrated that preparedness and economic resources are no match for lies and misinformation. The United States, Brazil, and Mexico have, by almost any metric, handled the pandemic worse than virtually every other country in the world. The main commonality is that all three were led by presidents who actively downplayed the virus and fought against lifesaving public health measures. Without a global commitment to supporting accurate, scientifically based information, there is no amount of planning and preparation that can outflank the spread of lies.

### Parag Pathak, Class of 1922 Professor of Economics

The pandemic has revealed the strengths and weaknesses of America's health care systems in an extreme way. The development and approval of three vaccines in roughly one year after the start of the pandemic is a phenomenal achievement. At the same time, there are many innovations for which there have been clear fumbles, including the deployment of rapid tests and contact tracing.

The other aspect the pandemic has made apparent is the extreme inequality in America's health systems. Disadvantaged communities have borne the brunt of Covid-19 both in terms of health outcomes and also economically. I'm hopeful that the pandemic will spur renewed focus on protecting the most vulnerable members of society.

A pandemic is a textbook situation in economics of externalities, where an individual's decision has external effects on others. In such situations, there can be major gains to coordination. In the United States, the initial response was poorly coordinated across states. I think the same criticism applies globally. We have not paid enough attention to population health on a global scale.

One lesson I take from the relative success of the response of East Asian countries is that centralized and coordinated health systems are more equipped to manage population health, especially during a pandemic. We're already seeing the need for international cooperation with vaccine supply and monitoring of new variants. It will be imperative that we continue to invest in developing the global infrastructure to facilitate greater cooperation for the next pandemic.

## Men and Women Differ on Masks During, After COVID-19: Survey

Source: <https://www.medscape.com/viewarticle/948843>

Apr 06 – Answers ranged from "while recommended by public health experts" to "never" regarding the wearing of masks during and after the COVID-19 pandemic in a new WebMD survey. Significant differences emerged between women and men, as well as by age.

A much higher percentage of women plan to wear a mask because of COVID-19 as long as public health experts such as those at the Centers for Disease Control and Prevention recommend it — 73%, compared with 63% of men.

In contrast, 6% of women and 11% of men said they do not wear a mask, although the absolute number who provided this answer was smaller: 126 people.

Their answers are included in responses from 2181 adults who participated in all or part of the survey between April 1-5, 2021.

Other responses to the question, "How long do you plan to routinely wear a mask due to COVID-19?" included, "until I'm fully vaccinated." A total of 131 respondents chose this answer, including 5% of women and 9% of men. The difference by gender was statistically significant at the 95% confidence level.

Only nine people indicated that they would wear a mask until they receive the first dose of one of the available mRNA vaccines. Another 176 respondents said they would wear a mask as long as their workplace or school required it; 8% of women and 10% of men responded in that way.

Another 166 people chose "other" when asked how long they would wear a mask because of COVID-19, including 7% of women and 6% of men.

Respondents had the option to explain this choice. Comments included "forever," "long term," and "For the rest of my entire life. Not joking either." Other explanations included "until I feel safe," "if required in a business that I enter," or comments about their vaccination status.

### Mask After COVID-19?

The survey also asked: "Apart from the COVID pandemic, at what other times do you plan to wear a mask in the future?" Unlike the first question, in which people could only select one response, for this question, respondents could select all answers that applied.

With the exception of "other," all answers differed significantly between men and women.

For example, 38% of women and 27% of men plan to wear a mask during the traditional cold and [flu](#) season.



## HZS C<sup>2</sup>BRNE DIARY – April 2021

Also, 54% of women and 40% of men plan to don a mask "when ill." A slightly lower proportion indicated that they will wear a mask when others are ill, 52% of women and 37% of men.

Furthermore, 47% of women and 37% of men plan to wear a mask in crowded public places. Asked about public transportation, 34% of women and 26% of men plan to put on a mask.

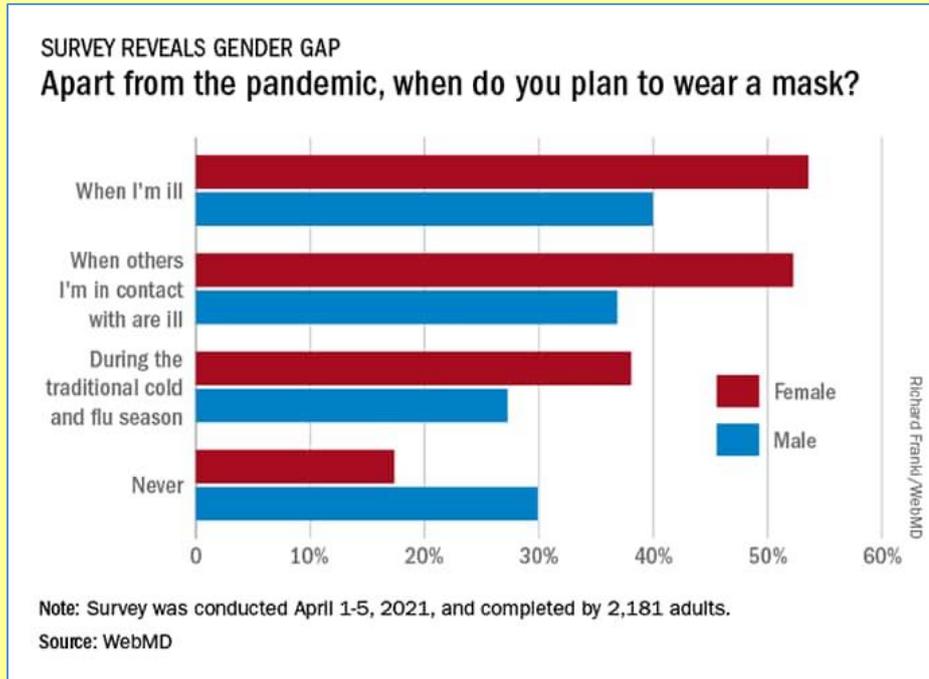
Interestingly, 17% of women and 30% of men said they plan to never wear a mask apart from the COVID-19 pandemic.

Some of the 8% of women and 7% of men who chose "other" expanded on their answer. "When I feel it's necessary," "not sure," and "at the doctor's office" were among the responses.

### Answers by Age

Responses to the two survey questions also varied by age. The survey classified age into three cohorts: younger than 35, 35 to 54, and 55 and older.

The only significant difference among all age cohorts was people who indicated "do not wear a mask" in response to the first question about how long they plan to wear a mask because of COVID-19. The



breakdown was 11% of those under 35, 9% of those between 35 and 54, and 4% of the older age cohort.

Those who said they never plan to wear a mask after the COVID-19 pandemic included 22% of the younger group, 25% of those 35 to 54, and 17% of the 55-and-older group.

Older respondents to the second question also indicated that they plan to take more precautions in crowded locations — 50% of the 55-and-older group plan to wear a mask, compared with 41% of the middle-age group and 38% of the younger group.

The intercept survey answers were weighted by age and gender to better represent WebMD readers. Responses were evaluated by state and region of the United States, but no significant patterns emerged. The margin of error was  $\pm 2.10\%$ . The total number of responses was based on unweighted data.

## More than 3,600 US health workers died in the first year of the pandemic, a yearlong investigation found, as there's no official list

Source: <https://www.businessinsider.com/us-health-workers-over-3600-dead-first-year-pandemic-investigation-2021-4>



- 3,607 US healthcare workers died in the first year of the pandemic, a yearlong investigation found.
- There is no official federal list of healthcare worker deaths, and Fauci said that should exist.
- The investigation found lower-paid workers were more likely to die, and PPE shortages increased deaths.
- [See more stories on Insider's business page.](#)

More than 3,600 US health workers died in the first year of the pandemic, a yearlong has found.

[The Guardian and Kaiser Health News](#) found that as of April 2021, 3,607 healthcare workers had died, and that many of the deaths could have been prevented with proper personal protective equipment.

The outlets found that nonwhite healthcare workers and lower-paid workers were also more likely to die during the pandemic. There is no official US government list of healthcare worker deaths.



Dr. Anthony Fauci, the top US infectious-disease expert, [told The Guardian](#) that he believes the federal government should, at some point, compile such a list: "We certainly want to find an accurate count of the people who die." He also said that healthcare worker deaths were increased by shortages of PPE.

## What Happens If You Don't Have Any Vaccine Reaction?

Source: <https://www.yahoo.com/lifestyle/happens-don-t-vaccine-reaction-213607620.html>

Apr 08 – With approximately 19% of the U.S. population [fully vaccinated](#), we have more information than ever about [the three COVID-19 vaccines currently available to Americans](#) — and we also have a lot of information about their side effects. Nausea, muscle pain, chills, fatigue, and a fever are all normal reactions. So normal, in fact, that some people might now be more worried about what it means if they feel nothing.

But experts say that both side effects and a lack thereof are no cause for concern. "The reason why people have different levels of side effects or different severity is complex and not fully understood," [Abisola Olulade, MD](#), a San Diego-based physician, tells Refinery29. However, we do know that side effects are connected to immune response, which is why people who are older — and have weaker immune systems — are actually less likely to experience them. "Essentially, when you get a vaccine, your body recognizes it as foreign, and then it triggers inflammation. And that's essentially what gives those side effects. So some people may not have that trigger as strongly as others."

The way you react to a vaccine depends on a whole slew of factors, including age, preexisting conditions, and genetics. Studies show that people with high levels of estrogen are [likely to report stronger side effects](#), and data released in February indicated that [people who have previously had COVID-19](#) also tend to take longer to shake off the post-vaccine symptoms. Dr. Olulade says that even things like your environment, diet, and stress levels might play a role in your reaction to the shot.

You also might experience a different reaction depending on your vaccine. According to [a recent study published in JAMA](#), about 75% of people said they experienced some sort of reaction after receiving their second dose of the Moderna vaccine, whereas just 64% of people experienced side effects from their second Pfizer-BioNTech shot. The Johnson & Johnson shot, which only requires one dose, has the fewest reported side effects, but it also has the lowest efficacy rate: While the Moderna and Pfizer shots have [94.1% and 95% efficacy rates](#), respectively, the J&J vaccine is at 72% overall, and [86% against serious disease](#). (It should be noted that Johnson & Johnson's vaccine is still an important and efficient combat to COVID-19.)

These numbers also prove that side effects don't dictate vaccine efficacy. In the Pfizer trial, for example, only around [half of all test subjects](#) said they had any physical reaction to the vaccine. "They all, regardless of whether or not they had side effects, had really good protection against coronavirus," says Dr. Olulade. "So that tells you that just because someone doesn't have side effects, it doesn't mean the vaccine is not effective."

But everyone's immune system is different, and just like it's perfectly normal not to experience any side effects, it's also normal if you do feel achy, sick, or exhausted after your vaccine. In fact, it's just proof that your body is mounting an immune response. "Vaccine side effects are a great thing," Dr. Olulade adds. "It tells us that your immune system is working and it's responding the way we want it to, which is very important." This doesn't mean, though, that if you don't have a side effect, anything is wrong with you.

More good news: Side effects from all three vaccines should go away within a couple days. The only real reason to worry, [according to the CDC](#), is if you're still experiencing symptoms after a few days, or if the injection site becomes even more tender, red, or swollen after 24 hours. If either of these things happen, call a doctor (or [take an antihistamine if you suspect you have a rash](#) or other type of allergic reaction).

## What's the AstraZeneca blood clot risk and how does it compare to surgery and other medicines?

Source: <https://www.thenationalnews.com/uae/coronavirus-what-s-the-astrazeneca-blood-clot-risk-and-how-does-it-compare-to-surgery-and-other-medicines-1.1199825>

Apr 08 – The use of the shot in under 30s is to be limited due to concerns over blood clots - but what exactly is the risk and how does it compare?

82-year-old Brian Pinker receives the Oxford University/AstraZeneca vaccine from nurse Sam Foster at the Churchill Hospital in Oxford. AP Photo



## HZS C<sup>2</sup>BRNE DIARY – April 2021

The UK's decision this week to stop giving the Oxford-AstraZeneca vaccine to under 30s has underlined the risks from medications and medical procedures.

It came after health authorities in at least six European countries restricted the shot to those between 55 and 70 years.

Regulators emphasise that the dangers of cerebral venous sinus thrombosis (CVST) blood clots in the brain are small and, for most, far outweighed by the threats from Covid-19.

**If the risk is something like one in 250,000, it's a small risk,  
but obviously a tragedy for those involved**

Prof David Taylor

Up to the end of March in the UK there were thought to have been 79 cases of CVST from 20 million doses of the Oxford-AstraZeneca vaccine, with 19 fatal.

This gives a blood clot risk of about one in 250,000 and a risk of death of about one in 1m – roughly the same, reports said, as a 400-kilometre car journey.

"If the risk is something like one in 250,000, it's a small risk, but obviously a tragedy for those involved," said Prof David Taylor, professor emeritus of pharmaceutical and public health policy at University College London. But how does it compare with having surgery?

### Surgery

Risks from surgery are balanced against risks from not having an operation, which for some patients can be very high.

Surgery where the heart is stopped is more dangerous, but even operations such as tonsil removal can prove fatal. A 2019 study found that, globally, 4.2m people die each year within 30 days of surgery.

Abdominal gastrointestinal surgery to combat obesity carries a 1 per cent risk of death, according to the UK's National Health Service, with fatalities normally due to a blood clot in the lungs or gastrointestinal leak.

### Painkillers

"Painkillers kill about 2,000 people a year in the UK alone if you take the cardiovascular risk and everything else into account," said Prof Taylor.

That figure is from a report by Swiss and British researchers highlighting potential dangers from medications such as ibuprofen and aspirin. Such non-steroidal anti-inflammatory drugs (NSAIDs) can cause complications including gastrointestinal bleeding.

Work from 2014 found NSAIDs cause an 80 per cent increase in blood clots in the veins, which can travel to the heart or lungs and may be fatal.

### Antibiotics

These spark an allergic reaction in about one in 15 people taking them, the UK's National Health Service said, and while such reactions are usually mild, anaphylactic shock can prove fatal.

Antibiotics cause about 40 per cent of fatal drug-induced anaphylaxis, with substances given to help medical diagnosis (such as radiocontrast agents, which show up structures on X-rays) and anaesthetics causing much of the rest.

Between 1999 and 2010, about 1,445 people died in the US because of anaphylaxis from any drug, and rates over that period doubled. Anaphylaxis is a severe allergic reaction to venom, food, or medication.

### The contraceptive pill

Oral contraceptives taken by women to prevent pregnancy are associated with an increase in potentially fatal blood clots.

The National Blood Clot Alliance in the US estimates that among women on birth control pills, about 1 in 1,000 per year will suffer a blood clot. Figures from Scotland put the figure at about half this. The BBC worked out that the contraceptive pill resulted in a six-fold increase in CVST blood clots, while a 2015 study suggested there was a 7.59-fold increase. The vaccine (based on BBC calculations using data from European regulators) causes a nine-fold increase.

**EDITOR'S COMMENT:** A very realistic propaganda article but the important thing is that highlighted in the white box.



## Slovakia questions Russia's Sputnik vaccine, saying its doses differ from a Lancet-reviewed formula.

Source: <https://www.nytimes.com/live/2021/04/08/world/covid-vaccine-coronavirus-cases>



A forklift unloading boxes of the Sputnik V vaccine at the International Airport in Kosice, Slovakia, last month. Credit...Peter Lazar/Agence France-Presse — Getty Images

Apr 09 – Slovakia, one of only two European Union countries that have signed up to use Russia's Sputnik V coronavirus vaccine, delivered a potentially serious blow to Russia's product and also its pride on Thursday, with medical regulators disclosing that doses sent to the East European nation are different from a version that received a thumbs-up from a respected British medical journal.

[A peer-reviewed article published in The Lancet](#) in February showed that Sputnik V had a 91.6 percent efficacy rate against Covid-19, an endorsement that Moscow has used to raise confidence in the vaccine and strengthen the Kremlin's hand in vaccine diplomacy.

Slovakia's regulator, however, said in a statement that vaccine batches imported into the country did "not have the same characteristics and properties" as the version of Sputnik V reviewed by The Lancet.

Noting that about 40 countries are using or scheduled to use the Russian vaccine, the Slovak regulatory agency, the State Institute for Drug Control, asserted that "these vaccines are only associated by the name." That claim suggests serious quality control issues. "The comparability and consistency of different batches produced at different locations has not been demonstrated," the regulator said. "In several cases, they appear to be vaccines with different properties (lyophilisate versus solution, single-dose ampoules versus multi-dose vials, different storage conditions, composition and method of manufacture)."

The Slovak statement could damage Russia's efforts to establish Sputnik V as a reliable brand. It could also exacerbate lingering doubts left by the vaccine's highly politicized rollout in Russia, where President Vladimir V. Putin announced that the drug was ready for use in August, before clinical trials had finished.

The Russian Direct Investment Fund, a sovereign wealth fund that financed of Sputnik V's development and has spearheaded a push for the vaccine's use abroad, had no immediate comment on the Slovak claims.



Several countries in Europe have expressed an interest in using Sputnik V, but in the absence of a green light from the European Union's regulatory agency, Slovakia and Hungary are the only countries in the bloc that have placed orders. Serbia, which is not a member of the union, has also ordered the Russian vaccine and started using it widely in a successful mass inoculation program. Slovakia's decision to import Sputnik V has been marred by controversy, and last week set off political squabbling that prompted the prime minister and finance minister to trade jobs in an effort to keep a fragile coalition government afloat. Fellow ministers had accused the prime minister, who negotiated a vaccine deal with Russia in secret, of opening up the country to a "tool of hybrid war." Slovakia received 200,000 doses of Sputnik V in March, but has not yet started using them. On a visit to Moscow on Thursday, former Prime Minister Igor Matovic complained on Facebook of a "dirty game" in Slovakia and accused his country's politicians of "barking" like little dogs.

## For greater vaccine equity, first fix these misconceptions

By Philip Schellekens

Source: <https://www.brookings.edu/blog/future-development/2021/04/02/for-greater-vaccine-equity-first-fix-these-misconceptions/>

Apr 02 – As we start to see the light at the end of the pandemic's dark tunnel, inequities in the distribution of vaccines across countries are coming under intense scrutiny. Unequal vaccine distribution is not necessarily unfair—after all, some population groups are more vulnerable than others. Yet relative to sensible metrics of need, the current inequality is excessive. Efforts to boost and balance deployment have galvanized under the clarion call for #VaccinEquity, but progress has been slow and marred by bottlenecks. In addition to the various practical constraints—including financing, logistics, manufacturing, and patent rights—three misconceptions stand in the way: the view that COVID-19 is mainly a "rich-country disease"; a focus on herd immunity that detracts from the pressing goal of protecting the global priority group; and a belief that fixing vaccine hoarding in rich countries will fix vaccine equity on its own.

►► Read the rest of this article at source's URL.

*Philip Schellekens is Senior Economic Advisor @ World Bank Group*

## International Roma Day: Has Europe's largest ethnic minority been forgotten over COVID vaccines?

Source: <https://www.euronews.com/2021/04/08/international-roma-day-will-europe-s-12-million-roma-be-the-last-to-get-a-covid-19-vaccine>

Apr 08 – NGOs are calling on European Union countries to ramp up efforts to vaccinate the Roma community, seen as particularly vulnerable to COVID-19.

Official vaccination guidelines from Brussels have suggested giving priority access to groups with chronic diseases, comorbidities, frailty and disabilities. It also suggested that "vulnerable socio-economic group" could be categorised as "possible priority groups". But Slovakia is currently the only one of the EU's 27 countries to explicitly recognise its 500,000-strong Roma community as an at-risk group in its vaccination campaign despite them being more likely than the general population to suffer from cardiovascular diseases, develop severe disabilities, respiratory and musculoskeletal system diseases, diabetes, asthma, bronchitis, pneumonia and obesity-related diseases.

It comes as International Roma Day is marked on April 8.

Europe counts about 12 million Roma, half of whom are EU citizens, making the community the continent's largest ethnic minority. In Romania, half of the Roma population over the age of 45 suffers from disabilities or chronic diseases, according to a 2014 EU Commission report.

In Hungary, Roma are "dropping like flies" because of the COVID-19, an activist told Reuters. One member of the Roma community interviewed by the agency compared the pandemic in his small Hungarian town to a bomb explosion.

In some Serbian communities, mortality from COVID-19 is reported to be as high as 26 per cent, according to one study.

However, there are no reliable statistics on the number of COVID-19 infections, hospitalisations and deaths among these communities either at the EU level or from individual member states.



### 'Marginalised, uncounted or undocumented'

One of the main issues is that access to health care generally necessitates some form of national identification.

Many Roma do not have these just like millions of other "invisible" people including the homeless, migrants in an irregular situation and stateless people.

"I'm afraid they will be the last to be considered when there is herd immunity," Carlo Stasolla, president of Italy's 21 July Association told Euronews.

The Roma community in **Italy** is estimated at about 20,000, two-thirds of whom are Italian citizens and thus have no problems using the national health service, according to Nazareno Guargneri, president of the Fondazione Romani Italia. But up to 30 per cent of them live in illegal camps and do not have a health card or tax code.

"As they do not have them, they cannot access the vaccine booking systems," said Marco Paggi, a lawyer at the Associazione Studi Giuridici Immigrazione (Asgi).

As of April 8, more than 11.7 million doses of the vaccines have been administered across Italy and 3.6 million of the country's 60.4 million inhabitants have been fully inoculated.

Lack of data makes it impossible to track whether those living in illegal camps have had access to the vaccine but Stasolla says none of the people he's met have been vaccinated "and neither have we, the NGOs who visit these communities".

In **Germany**, Zeljko Jovanovic, director of the Open Society Roma Initiatives Office, told Euronews, "there are many more Roma than the 150,000 officially declared. But they are afraid to be counted. They know that there is freedom of movement in Europe, so they don't declare themselves to the local authorities".

"Many are marginalised, uncounted or undocumented. This is due to many reasons, including endemic racism, school segregation, negative representation in the media and the physical violence they have suffered for centuries," Jovanovic said.

In **Greece**, more than 50,000 people — most of whom do not have a social security number (AMKA) — do not have access to the public health system and cannot be vaccinated. Many of them are Roma. Kostas Paiteris, president of the Union of Greek Roma Mediators, called for a special plan to reach the Greek Roma community. In total, the EU estimates that there are more than 230,000 Roma in Greece.

**Editor's comment:** This is not accurate since all Greek citizens have access to the national public health system. The problem is that Greek Roma population is not cordially willing to integrate with the rest of the society and follow legislation and regulations. Of course, a portion of them have a different opinion and thus no problems. During the pandemic there were many instances that local quarantines were over-ruled especially during marriages and funeral occasions enhancing the spread of the virus in local communities.

### 'Spatial segregation'

Digital skills and literacy are another problem slowing down vaccination within Roma communities.

"In the camps, people do not always have devices that allow internet connection. The level of literacy is low, online access is complex for people who do not have technological tools or are illiterate," Stasolla stressed.

Another is age. The average age of the Roma population is very low — 55 per cent of Romani in Italy are children and in general life expectancy is 10 years lower than that of the rest of the population.

"The elderly have priority in vaccination campaigns, which means that a generally younger population does not fall into the priority categories," Jovanovic said.

Access is made all the more difficult by the fact that many Roma camps are in remote and isolated locations.

Jovanovic emphasised that in too many Roma communities, "people live in unregulated, overcrowded spaces, where isolation is impossible. Not only that, but spatial segregation, outside of public transport routes, makes it much more difficult for Roma to obtain masks, disinfectants or reach local health centres".

In Hungary, the government has closed 10 per cent of small local clinics, according to Reuters, especially in areas with a high concentration of Roma.

A 2020 report by the Slovak Academy of Sciences found that large numbers of Roma live around toxic landfills and flood-prone areas, without access to clean water, sewage or waste collection. All of these conditions, the report says, have facilitated the spread of COVID-19 in these communities.

In the Bulgarian settlement of Sliven, there are no paved roads and no ambulances can get there. During the first lockdown, residents were also cut off from electricity and running water. According to the European Commission, 30 per cent of Roma homes in Europe have no water.



### **Distrust in institutions**

A survey conducted in January by the University of Pécs, in Hungary, showed that only 9 per cent of Roma respondents wanted to be vaccinated against COVID-19.

Zsuzsanna Kiss, a Roma biologist who carried out interviews for the survey, indicated that Roma people have long been suspicious of governments and doctors because of the discrimination they have suffered for decades.

In Serbia, out of a sample of 1,383 Roma respondents for a January 2021 survey, 43 per cent said they had enquired about vaccines on the internet; 52 per cent said they preferred not to be vaccinated, and 41 per cent of those who expressed a willingness to be vaccinated indicated the Russian vaccine Sputnik V as their preference.

"Vaccination campaign adherence rates were already low before COVID-19," Jovanovic pointed out. "The anti-vax movement is strong online, and when you combine that with the Roma's distrust of institutions, you get a very negative mix."

### **What is being done at the European level?**

Exactly 50 years ago, in 1971, a flag, a national anthem and a transnational identity were created for Europe's 12 million Roma. But even today, "Roma lives are 7-20 years shorter than the average European citizen", Jovanovic told Euronews.

NGOs assisting Roma communities are focusing their efforts on getting as many of them as possible to take part in the next general census, scheduled to take place across Europe in 2021. Member states will also have to send their national strategies for the inclusion of Roma communities to Brussels as part of the European Anti-Racism Plan 2020-2025.

Jovanovic points out that in Serbia his mother has been vaccinated, as have many of his friends and fellow activists. The same goes for Romania and North Macedonia.

"Serbia cannot be immunised without immunising the Roma," Stevica Nikolić, of the NGO Opre Roma Srbija, said. "Roma should become a priority group for information and access."

In Spain, as José Heredia, president of the Camelamos association, told Euronews, "we have not detected any cases of lack of access to the vaccination campaign" and "there are no bureaucratic impediments that we know of" preventing elderly Romani from getting vaccinated.

But he also said that there are "no ad hoc vaccination campaigns either for Spanish Roma communities or for migrant Roma camps" and that there are concerns "about the health care and vaccination efforts in the Roma migrant camps, where there is almost no information about the impact of the pandemic".

In Romania and Bulgaria, priority has been given to Roma health mediators, who are considered essential health workers.

Some countries, such as the UK, are conducting aggressive vaccination campaigns to cover vulnerable communities as much as possible. Bilingual GPs, who are trusted in Roma communities, have recorded videos in several languages to encourage as many people as possible to get vaccinated. GPs are also encouraging this.

### **Raising awareness**

In the Czech Republic, Jan Dužda, the regional coordinator of the Effective Health Support programme (working for the National Institute of Public Health) is calling for an information campaign on targeted vaccination for Roma.

Across Europe, NGOs are urging their governments to do the same, so as to combat misinformation and increase herd immunisation. Visits by doctors to settlements, information sessions, materials in Romani languages, training of Roma doctors are all strategies that contribute to raising awareness in order to make a more informed decision about anti-COVID vaccination.

None of these strategies have been applied in Italy according to Stasolla.

"Awareness-raising campaigns? Not that I know of. No one has contacted us, there has been no change of pace with the new government," he said.

A dozen Italian organisations, including Asgi, Caritas, Emergency and Médecins Sans Frontières, have asked the government for active involvement in this issue.

"We wrote to the Ministry of Health in February, but we have not received any reply," Asgi's lawyer Paggi said. "From a strictly legal point of view, it is an indisputable fact, and recognised by the law: all irregular immigrants have the right to benefit from prevention, treatment and vaccination campaigns."

Paggi recounts how a Roma citizen, irregular in Italy and without papers, was given a tax code but only because it was automatically generated following a fine for begging.

"The fear that illegal immigrants would also have access to the vaccine has political implications that are easy to imagine, even if we are not talking about protecting illegal immigrants but rather the community," he concluded.





## India: Kumbh festival

April 17, 2021

**Covid deaths: 175,673**

**Confirmed cases: 14,526,609**



## China to develop vaccines against major infectious diseases - 2021-2025 plan

Source: <https://www.reuters.com/article/us-china-paliament-health-fiveyear/china-to-develop-vaccines-against-major-infectious-diseases-2021-2025-plan-idUSKCN2AX07P>

Mar 05 – China pledges to develop vaccines to cope with major infectious disease, part of its flurry of efforts to boost the competitiveness of its manufacturing sector, the government said on Friday in its development plan for 2021-2025.

## New Zealand Survey Reveals The Positive Aspects of The Country's Strict Lockdown

Source: <https://www.sciencealert.com/new-zealand-survey-reveals-what-people-actually-liked-about-their-lockdown>



Apr 10 – It's easy to focus on all the negatives amid a traumatic global [pandemic](#), but there are some positives, too. A new online survey has found the psychological outcomes of New Zealand's super strict lockdown were not all bad. The study mirrors other mental health studies on [COVID-19](#) in New Zealand, which had one of the most stringent lockdowns in the world. Instead of asking questions about loneliness, [depression](#), and drug use, researchers wanted to know whether participants experienced any positive aspects during the stage 4 lockdown last April.

Of the 2,010 participants surveyed, nearly half reported experiencing a personal silver lining, and over a third said they'd experienced a silver lining for society as a whole.

"Lockdown represented a major flashpoint in people's lives and created an opportunity to stop, take stock, and to reflect and connect with others," [says](#) psychologist Matthew Jenkins from Otago University in New Zealand.

"Many people reported that kindness and helping behaviors became more common over this period."

It's still unclear exactly what long-term effects this traumatic experience will have on people's lives going forward, but at least in the moment, it seems there was some amount of post-traumatic growth occurring at the same time as post-traumatic stress.

A public [survey](#) conducted halfway through New Zealand's stage 4 lockdown found levels of stress, anxiety, and depression rose higher than normal, especially among younger people.

Whether or not this was due to the lockdown itself or the wider threat of COVID-19 remains unclear. However, one of the [first longitudinal studies](#) on the mental toll of the pandemic found social distancing measures and mask mandates were associated with a greater sense of positive mental health.

Letting people take control of their lives and aid others appeared to help relieve some of the stress they felt, while a loss of social support was the strongest and most consistent predictor of anxiety and depression.

The most recent survey in New Zealand found something similarly hopeful about locking down. While isolation measures kept the public away from each other physically, [many participants described](#) "an old fashioned sense of community and caring... that was not apparent before lockdown."

This enhanced community spirit appears born from the very trauma of the pandemic itself. Suddenly, it seems, people became far more aware of those around them and their place in the world. This increased feeling of social connectedness may have even helped them cope with the unusual times they were living in.

A recent [study](#) in Turkey, for instance, found a sense of belonging was associated with greater psychological well-being among students during the pandemic.

Even above simply surviving, people were also finding ways to thrive in these strange times. In the survey, many said they took the time to personally reflect on their values and future so they could "decide what is really important."

Just over 30 percent of respondents reported feeling a greater sense of perceived agency, setting their own hours for work or exercising more. "I can stay at home and pursue the hobbies I enjoy," one respondent explained.

During lockdown, people generally valued materialism less – "not wasting money on stuff one wants rather than what one needs" – and cherished family and friend time more than ever.

In fact, more than half the respondents said they were grateful for their new social interactions and a renewed sense of community cohesion. Some even said they had received grateful comments from older adults in their community who thought they had been forgotten.

"Because of the social distancing measures in place, technology became a major way for people to connect socially and for work via online services such as video conferencing," [says](#) Jenkins.



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"One participant reported they 'got to speak with my Dad, who lives overseas, daily' while another joined a global online knitting group to maintain social interactions."

A clear and effective response from the government is obviously key in this. Many participants in the New Zealand survey said they were happy to comply with government restrictions because it made them feel like they were doing their bit for their community. These sacrifices made some individuals feel like they were contributing to the greater good, helping to keep vulnerable members of the community as safe as possible.

"This reasoning highlights the crucial role of clear government messaging," the authors [write](#).

"The New Zealand government provided daily updates on case numbers, recoveries, and testing; the high transparency received international recognition."

By keeping the public abreast of the pandemic's reality and what individuals could do to help, the New Zealand government appears to have bestowed a strong sense of agency and, therefore, high compliance for pandemic rules among its citizens.

The public understood the lockdown rationale and what it would take to contain the [virus](#). As one respondent put it: "I believe the level 4 lockdown has helped the country keep the virus under control."

In May of last year, after a successful lockdown, the prime minister thanked her '[team of five million](#)' for all their hard work in eliminating the virus.

This gave New Zealanders a renewed sense of national unity and pride, which one respondent said they were honored to be a part of. "[W]e may be a small country," they said, "but we are doing an amazing job."

Such silver linings might not hold for other countries, especially those that have not enforced strict lockdown measures to contain or eliminate the spread of the novel [coronavirus](#). That said, the authors hope these results will help reveal how governments and mental health practitioners can help the public cope during prolonged and stressful events like the current pandemic.

"Our findings show that in a time of turmoil, unrest and psychological distress, many people nonetheless found silver linings," the authors [conclude](#).

"We also speculate that, despite the impact of the lockdown, many people had their psychological needs for social connectedness and autonomy met, and these were likely to have influenced compliance with lockdown measures."

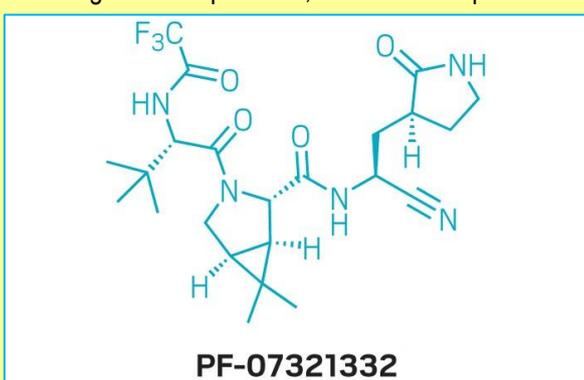
►► The study was published in [PLOS ONE](#).



## Pfizer unveils its oral SARS-CoV-2 inhibitor

Source: <https://cen.acs.org/acs-news/acs-meeting-news/Pfizer-unveils-oral-SARS-CoV/99/i13>

Apr 07 – Drugmaker Pfizer revealed its oral COVID-19 antiviral clinical candidate PF-07321332 on Tuesday at the American Chemical Society Spring 2021 meeting. The compound, which is currently in Phase 1 clinical trials, is the first orally administered compound in the clinic that targets the [main protease](#) (also called the 3CL protease) of SARS-CoV-2, the virus that causes COVID-19. By inhibiting the main protease, PF-07321332 prevents the virus from cleaving long protein chains into the parts it needs to reproduce itself.



Dafydd Owen, director of medicinal chemistry at Pfizer, presented the compound in a symposium of the Division of Medicinal Chemistry.

Last year, [Pfizer reported PF-07304814](#), a different small molecule inhibitor of SARS-CoV-2's main protease. The work to develop that compound began during the 2002-2003 outbreak of SARS-CoV, severe acute respiratory syndrome. But that molecule can only be given intravenously, which limits its use to hospital settings.

Because PF-07321332 can be taken orally, as a pill or capsule, it could be given outside of hospitals if it proves to be safe and effective. People who have been exposed to SARS-CoV-2 could take it as a preventative measure, for example.

"For the foreseeable future, we will expect to see continued outbreaks from

COVID-19. And therefore, as with all viral pandemics, it's important we have a full toolbox on how to address it," Charlotte Allerton, Pfizer's head of medicine design, told C&EN.

**PF-07321332 was developed from scratch during the current pandemic.** It's a reversible covalent inhibitor that reacts with one of the main protease's cysteine residues. Owen also discussed the chemistry involved in scaling up the compound. The first 7 mg of the



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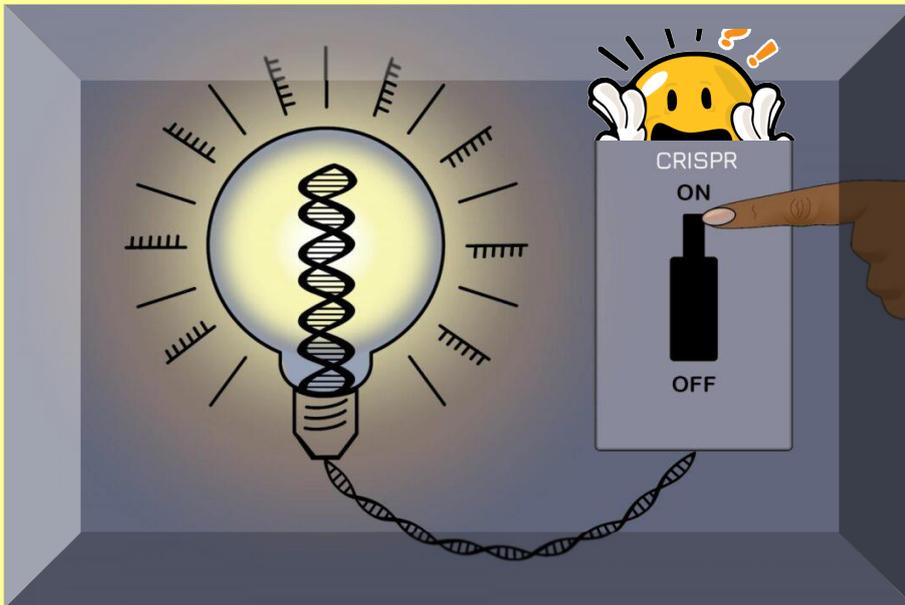
compound were synthesized in late July 2020. Encouraged by the early biological data, the Pfizer team aimed to scale up the synthesis. By late October, they'd made 100 g of the compound. Just two weeks later, the chemists had scaled up the synthesis to more than 1 kg. Owen said 210 researchers had worked on the project.

Ana Martinez, who studies COVID-19 treatments at the Spanish National Research Council CSIC and also presented during the symposium, told C&EN that having a COVID-19 antiviral is of critical importance. She eagerly anticipates the safety and efficacy data from the trials of PF-07321332. "Hopefully we will have a new drug to fight against COVID-19," Martinez said. And because the molecule targets the main protease, she said that it might be useful for fighting other coronaviruses and preventing future pandemics.

## Scientists Develop CRISPRoff for Controlling Gene Expression through Heritable Epigenetic Memory

Source: <https://www.genengnews.com/news/scientists-develop-crisproff-for-controlling-gene-expression-through-heritable-epigenetic-memory/>

Apr 09 – Scientists led by a team at the Whitehead Institute have developed **a new gene editing technology, called CRISPRoff, which can be used to control gene expression with high specificity, while leaving the sequence of the DNA unchanged.** Utilizing a programmable, epigenetic memory writer protein to silence gene expression, CRISPRoff is a highly specific method that



effectively programs epigenetic memory that is heritable for hundreds of cell divisions. Designed by Whitehead Institute Member Jonathan Weissman, PhD, University of California San Francisco assistant professor Luke Gilbert, PhD, Weissman lab postdoc James Nuñez, PhD, and collaborators, the method is also fully reversible.

Reporting on the technology in *Cell*, the developers of CRISPRoff, headed by Whitehead Institute Member Jonathan Weissman, PhD, demonstrated that CRISPRoff epigenetic memory persisted through differentiation of human induced pluripotent stem cells (hiPSCs) into neurons. "The big story here is we now have a simple tool that can silence the vast majority of genes," said Weissman, who is also a professor of biology at MIT and an

investigator with the Howard Hughes Medical Institute. "We can do this for multiple genes at the same time without any DNA damage, with great deal of homogeneity, and in a way that can be reversed. It's a great tool for controlling gene expression."

Weissman and co-developers Luke Gilbert, PhD, an assistant professor at the University of California San Francisco, Weissman lab postdoc James Nuñez, PhD, and collaborators, describe the development of CRISPRoff in a paper titled, "[Genome-wide programmable transcriptional memory by CRISPR-based epigenome editing.](#)"

The project was partially funded by a 2017 grant from the Defense Advanced Research Projects Agency to create a reversible gene editor. "Fast forward four years [from the initial grant], and CRISPRoff finally works as envisioned in a science fiction way," said co-senior author Gilbert. "It's exciting to see it work so well in practice."

**The classic CRISPR-Cas9 system uses a DNA-cutting protein called Cas9, which is found in bacterial immune systems. Using a single guide RNA, the system can be targeted to specific genes in human cells, where the Cas9 proteins create tiny breaks in the DNA strand. The cell's existing repair machinery then patches up the holes.**

Because these methods alter the underlying DNA sequence, they are permanent. Plus, their reliance on "in-house" cellular repair mechanisms means it is hard to limit the outcome to a single desired change. "These technologies have been optimized for targeted changes in the underlying DNA sequence and are therefore ideally suited for repairing or introducing pathogenic mutations," the authors explained. "However, the reliance on endogenous DNA repair machinery presents challenges, because the complexity of these pathways can make it difficult to limit the



outcome to a single desired change.” Weissman noted, “As beautiful as CRISPR-Cas9 is, it hands off the repair to natural cellular processes, which are complex and multifaceted,” Weissman says. “It’s very hard to control the outcomes.”

The team realized an opportunity to develop a different kind of gene editor that didn’t alter the DNA sequences themselves, but instead changed the way they were read in the cell. “An alternative modality for modulating gene function is to rewrite the epigenetic landscape to control gene expression without changing the underlying DNA sequence,” they wrote. This epigenetic strategy is designed to silence or activate genes based on chemical changes to the DNA strand. Problems with a cell’s epigenetics are responsible for many human diseases such as Fragile X syndrome and various cancers, and can be passed down through generations.

Epigenetic gene silencing can work through methylation—the addition of chemical tags to certain places in the DNA strand—which causes the DNA to become inaccessible to the RNA polymerase enzyme that reads the genetic information in the DNA sequence into the messenger RNA transcripts, which can ultimately represent the blueprints for proteins.

Weissman and collaborators had previously created two other epigenetic editors called CRISPRi and CRISPRa—but both of these came with a caveat. In order for them to work in cells, the cells had to be continually expressing artificial proteins to maintain the changes. “... current programmable epigenome editing technologies typically rely on constitutive expression of Cas9-fusion proteins to maintain transcriptional control,” the team noted. “As such, these modalities remain less suitable for therapeutic cell and organismal engineering.”

To build an epigenetic editor that could mimic natural DNA methylation, the researchers created a tiny protein machine that, guided by small RNAs, can tack methyl groups onto specific spots on the strand. These methylated genes are then silenced, or turned off, hence the name CRISPRoff. Because the method does not alter the sequence of the DNA strand, the researchers can reverse the silencing effect through the use of enzymes that remove the methyl groups, a method that they called CRISPRon.

“With this new CRISPRoff technology, you can [express a protein briefly] to write a program that’s remembered and carried out indefinitely by the cell,” said Gilbert. “It changes the game so now you’re basically writing a change that is passed down through cell divisions—in some ways we can learn to create a version 2.0 of CRISPR-Cas9 that is safer and just as effective, and can do all these other things as well.”

**As they tested CRISPRoff in different conditions, the researchers discovered that they could target the method to the vast majority of genes in the human genome, and that also it worked not just for the genes themselves, but for other regions of DNA that control gene expression but do not code for proteins.**

“Our initial experiments demonstrate CRISPRoff can perturb enhancers, opening the potential to target genome elements that control tissue-specific gene expression.” First author Nuñez acknowledged, “That was a huge shock even for us, because we thought it was only going to be applicable for a subset of genes.”

In addition, and again surprisingly, CRISPRoff was able to silence genes that did not have large methylated regions called CpG islands (CGIs), which had previously been thought necessary to any DNA methylation mechanism. “What was thought before this work was that the 30% of genes that do not have a CpG island were not controlled by DNA methylation,” Gilbert commented. “But our work clearly shows that you don’t require a CpG island to turn genes off by methylation. That, to me, was a major surprise.”

To investigate the feasibility of applying CRISPRoff for practical applications, the scientists tested the method in induced pluripotent stem cells, which represent useful models for studying the development and function of particular cell types. The researchers chose a gene to silence in the stem cells, and then induced the stem cells them to differentiate into neurons. Encouragingly, the CRISPRoff-targeted gene remained silenced in 90% of the resulting stem cell-derived neurons, revealing that cells retain a memory of epigenetic modifications made by the CRISPRoff system even as they change cell type.

The researchers also selected the gene that codes for the Tau protein—which is implicated in Alzheimer’s disease—to use as an example of how CRISPRoff might be applied to therapeutics. After testing the method in neurons, they were able to show that CRISPRoff could be used to turn Tau expression down, although not entirely off. “What we showed is that this is a viable strategy for silencing Tau and preventing that protein from being expressed,” Weissman said. “The question is, then, how do you deliver this to an adult? And would it really be enough to impact Alzheimer’s? Those are big open questions, especially the latter.”

Even if CRISPRoff does not lead to Alzheimer’s therapies, there are many other conditions it could potentially be applied to, the researchers suggest. And while delivery to specific tissues remains a challenge for gene editing technologies such as CRISPRoff, as Weissman noted, “we showed that you can deliver it transiently as a DNA or as an RNA, the same technology that’s the basis of the Moderna and BioNTech coronavirus vaccine.”

The scientists are enthusiastic about the potential of CRISPRoff for research as well. “Since we now can sort of silence any part of the genome that we want, it’s a great tool for exploring the function of the genome,” Weissman noted. “The broad ability of CRISPRoff to initiate heritable gene silencing even outside of CGIs expands the canonical model of methylation-



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based silencing and enables diverse applications including genome-wide screens, multiplexed cell engineering, enhancer silencing, and mechanistic exploration of epigenetic inheritance,” the authors concluded.

The availability of a reliable system to alter a cell’s epigenetics could in addition help researchers learn more about the mechanisms by which epigenetic modifications are passed down through cell divisions. As the authors stated, “More generally, this system allows us to broadly explore the biological rules underlying epigenetic silencing and provides a robust tool for controlling gene expression, targeting enhancers, and exploring the principles of epigenetic inheritance.”

Nuñez further noted, “I think our tool really allows us to begin to study the mechanism of heritability, especially epigenetic heritability, which is a huge question in the biomedical sciences.”

**EDITOR’S COMMENT:** Human brain glory! But can we trust the human brain acting only for noble pursuits?

## Meet the 40 New Billionaires Who Got Rich Fighting COVID-19

By Giacomo Tognini

Source: <https://www.globalresearch.ca/meet-40-new-billionaires-got-rich-fighting-covid-19/5742379>

Apr 12 – Some made their fortunes developing new vaccines and promising antibody treatments, while others sell much-needed diagnostic tests and personal protective equipment.

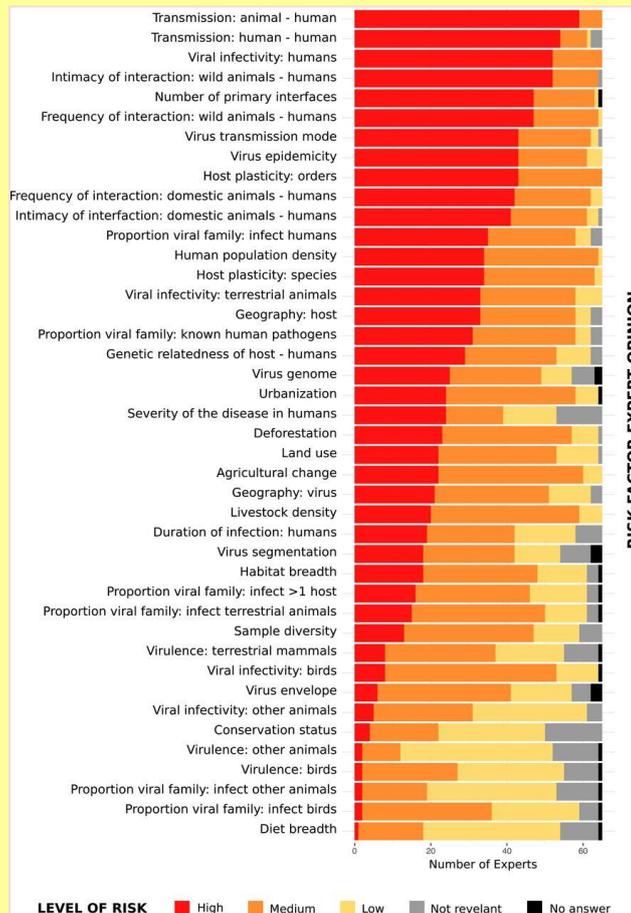
## French National Academy of Medicine: COVID Nasal Swabs Associated with Increased Meningitis Risk

By Jeanne Smits

Source: <https://www.academie-medecine.fr/les-prelevements-nasopharynges-ne-sont-pas-sans-risque/>



Apr 12 – The Académie nationale de médecine, an independent but official learned society in France, published a statement on Thursday warning that nasopharyngeal swabs used for PCR tests to detect the SARS-CoV-2 virus “are not without risks.”



## New Tool Assesses Risk of Wild-Life Origin Viruses

Source: <http://www.homelandsecuritynewswire.com/dr20210412-new-tool-assesses-risk-of-wildlife-origin-viruses>

Apr 12 – A [recent article](#) in the *Proceedings of the National Academy of Sciences* (PNAS) offers details of a new framework and interactive web tool, [SpillOver](#), which “estimates a risk score for wildlife-origin viruses, creating a comparative risk assessment of viruses with uncharacterized zoonotic spillover potential alongside those already known to be zoonotic.”

[Pandora Report](#) reports that SpillOver was created because the threat of zoonotic viral threats continues to rise, and “strategies are needed to identify and characterize animal viruses that pose the greatest risk of spillover and spread in humans and inform public health interventions.” The tool was designed using data from [509,721 tested samples of 74,635 animals](#), then the



spillover potential of 887 wildlife viruses were ranked.

The SpillOver platform, which is publicly accessible, “can be used by policy makers and health scientists to inform research and public health interventions for [prevention and rapid control of disease outbreaks](#).” It is described as a “[living, interactive database](#)” that will be improve over time to better the “quality and public availability of information on viral threats to human health.” Access the SpillOver platform [here](#).

Michael Krug, a graduate of the Biodefense MS program at George Mason University, wrote an article in late 2019 that highlights the critical need for comprehensive and quick biosurveillance tools – like SpillOver – to aid in pandemic preparedness. In November 2019, the decision was made to end USAID’s PREDICT project. PREDICT was established in 2009 to help develop wide-ranging detection capabilities; it was a component of the early-warning system. the project identified 1,200 viruses – including [160 novel coronaviruses](#) – with the potential to induce a pandemic. Beyond identification, the project trained and supported staff across [60 foreign laboratories](#), such as the Wuhan Institute of Virology.

## **CDC and FDA recommend US pause use of **Johnson & Johnson's** Covid-19 vaccine over blood clot concerns**

Source: <https://edition.cnn.com/2021/04/13/health/johnson-vaccine-pause-cdc-fda/index.html>

Apr 13 – The US Centers for Disease Control and Prevention and the US Food and Drug Administration are [recommending that the United States pause](#) the use of Johnson & Johnson's Covid-19 vaccine over six reported US cases of a "rare and severe" type of blood clot.

**The six reported cases were among more than 6.8 million doses of the Johnson & Johnson vaccine administered in the United States.**

All six cases occurred among women between the ages of 18 and 48, and symptoms occurred 6 to 13 days after vaccination, according to a joint statement on Tuesday from Dr. Anne Schuchat, principal deputy director of the CDC and Dr. Peter Marks, director of the FDA's Center for Biologics Evaluation and Research.

"CDC will convene a meeting of the Advisory Committee on Immunization Practices (ACIP) on Wednesday to further review these cases and assess their potential significance," the statement said. "FDA will review that analysis as it also investigates these cases. Until that process is complete, we are recommending a pause in the use of this vaccine out of an abundance of caution. This is important, in part, to ensure that the health care provider community is aware of the potential for these adverse events and can plan for proper recognition and management due to the unique treatment required with this type of blood clot."

[Johnson & Johnson issued a statement](#) on Tuesday noting that the company has decided to "proactively delay the rollout" of its vaccine in Europe.

"We have been working closely with medical experts and health authorities, and we strongly support the open communication of this information to healthcare professionals and the public," the statement said in part.

For people who have received the Johnson & Johnson shot, those who have developed severe headache, abdominal pain, leg pain or shortness of breath within three weeks after vaccination should contact their health care provider, according to the statement.

The statement also noted that these adverse events "appear to be extremely rare."

"It's a very rare event. You're talking about 1 per million, and when you give millions of doses of vaccines, you will see events like this that you couldn't see in the clinical trial just because you didn't have millions of people enrolled," Dr. Carlos del Rio, executive associate dean of the Emory University School of Medicine at Grady Health System, [told CNN's John Berman and Poppy Harlow](#) on Tuesday morning.

"But I want to congratulate the CDC and the FDA for very quickly jumping on it, halting the vaccinations until we know more, and really trying to understand what's going on," del Rio said. "I think vaccine safety has always been a priority -- and I think this is exactly the right move until we understand what's going on and what's the way forward."

Del Rio added that the blood clotting may be connected to how [the Johnson & Johnson vaccine is an adenovirus vector vaccine](#) -- the same type as AstraZeneca's coronavirus vaccine.

The AstraZeneca vaccine isn't in use in the United States, but has been authorized in more than 70 countries. The European Medicines Agency recently concluded that unusual blood clots with low blood platelets should be listed as "very rare side effects" of the AstraZeneca vaccine. While advising the public to look out for the signs of clots, the regulators said the benefits of the shot were still worth the risk.



"The adenovirus vector vaccine may have something to do with it," del Rio said. The two other Covid-19 vaccines authorized for emergency use in the United States -- Pfizer's and Moderna's -- are mRNA vaccines, which are a different type. He added that he still recommends people to get vaccinated against Covid-19.

### Federal health channels to stop using J&J vaccine immediately

The new announcement from the FDA and CDC means all federal health channels -- mass vaccination sites, community health centers and the like -- that were previously administering the Johnson & Johnson vaccine will immediately stop for the time being, according to a federal health official.

The agencies are recommending that states do the same, but it will be up to the individual states to make that decision because they are given a separate allocation of doses.

The pause happened because this type of blood clot is not listed on the list of potential adverse side effects that were part of the emergency use authorization for J&J. While officials are stressing it is rare, they want health care providers to have time to understand what potential side effects are and how to best treat them.

The CDC and FDA came to a decision late last night, a federal health official said.

## University of Oxford study hails asthma drug as breakthrough in fight against Covid-19

By Robert Matthews

Source: <https://www.thenationalnews.com/uae/science/university-of-oxford-study-hails-asthma-drug-as-breakthrough-in-fight-against-covid-19-1.1202274>

Apr 12 – Treating Covid-19 patients at home with a commonly used inhaled steroid called **budesonide** can speed up their recovery, according to UK trial results on Monday.

Doctors said could change the way the disease is treated around the world.

Researchers behind the trial, known as PRINCIPLE, said the findings were only an interim analysis at this stage but could lead doctors to prescribe budesonide inhalers to Covid-19 patients who were not unwell enough to be admitted to hospital.

"For the first time we have high-quality evidence of an effective treatment that can be rolled out across the community for people who are at most risk of developing more severe illness from Covid-19," said Prof Richard Hobbs of the University of Oxford, who co-led the trial.

"This is a significant milestone for this pandemic," he said.

### Which drug is used in the treatment?

The corticosteroid budesonide, which is used to treat common types of lung disease such as asthma and chronic obstructive pulmonary disease. Invented in the 1970s, it is cheap, safe and can be prescribed by family doctors to be taken at home through an inhaler.

### How does it work ?

Corticosteroids are known to combat over-reaction of the disease-fighting immune system, a key threat to Covid patients.

One such drug, dexamethasone, has already made headlines as the first to cut the death rate among the most seriously ill Covid patients.

Budesonide appears to be capable of combating the disease in its earliest stages. Researchers suspect that the drug is not only anti-inflammatory, but also attacks the virus itself and hinders its entry into healthy cells.

### What were the key results ?

More than 1,700 people who tested positive for the coronavirus were involved in the study, all of whom were at higher risk of admission to hospital, being either at least 65 years old, or 50 to 65 with proven co-morbidities such as diabetes or cancer.



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The 751 people randomly chosen to receive the drug typically reported recovering from Covid in 11 days, about three days faster than the 1,028 who took the standard approach of staying in bed and taking paracetamol.

Those using the inhaler treatment stayed well once recovered and may also be substantially less likely to end up in hospital.

But the team behind the study, based at the University of Oxford, stress that the life-saving effects of the drug will only become clear following further analysis.

People wait outside a Nike Town shop on Oxford Street in London, on the first morning of reopening after England's latest lockdown. AP Photo

### How reliable is the evidence ?

The results have yet to be published in a refereed journal. But both the design of the study and its outcomes have already been vetted by a team of independent experts.

A bigger concern is that the people in the trial knew if they were getting the drug, and also decided when they had recovered from infection.

This raises the possibility of a so-called placebo effect, with people benefiting simply because they knew they are getting the new drug treatment.

### When will the new treatment be approved for use?

The final result from the study are expected later this year, after which the UK authorities will make a decision about whether to approve this new use for budesonide.

That the drug is already widely used and its side effects well understood is likely to accelerate the decision.

### What impact could it have worldwide?

The team stress there is no evidence the drug can protect against getting Covid in the first place. Even so, said Professor Chris Butler – joint chief investigator and himself a recovered Covid patient – a drug that speeds recovery will be welcomed by vulnerable patients experiencing the misery of early-stage infection.

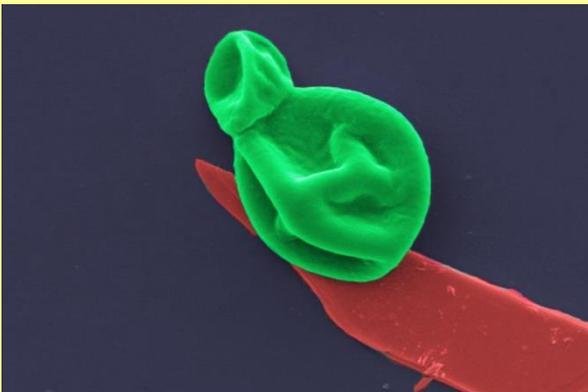
“We therefore anticipate that medical practitioners around the world caring for people with Covid-19 in the community may wish to consider this evidence when making treatment decisions.”

*Robert Matthews is visiting professor of science at Aston University, Birmingham, UK.*

## Black phosphorus coating kills superbugs then self-destructs

Source: <https://newatlas.com/medical/black-phosphorus-superbugs/>

Apr 13 – Bacteria are becoming more and more dangerous, as they evolve resistance to our best drugs. New weapons against these so-called “superbugs” are desperately needed. Now, researchers at RMIT have developed a coating that quickly kills bacteria and fungi, then dissolves within 24 hours – and best of all, the mode of attack is something they can't develop defenses against.



A colored microscope image, showing a fungal cell (green) perched on a segment of black phosphorus (red) (RMIT University)

The discovery of penicillin was one of the most important scientific breakthroughs of the 20th century, making potentially lethal infections easily treatable. But decades of overuse and misuse has worn away our upper hand in the battle, as bacteria develop resistance to each antibiotic we make. It's now getting to the point where certain strains are [immune to](#)

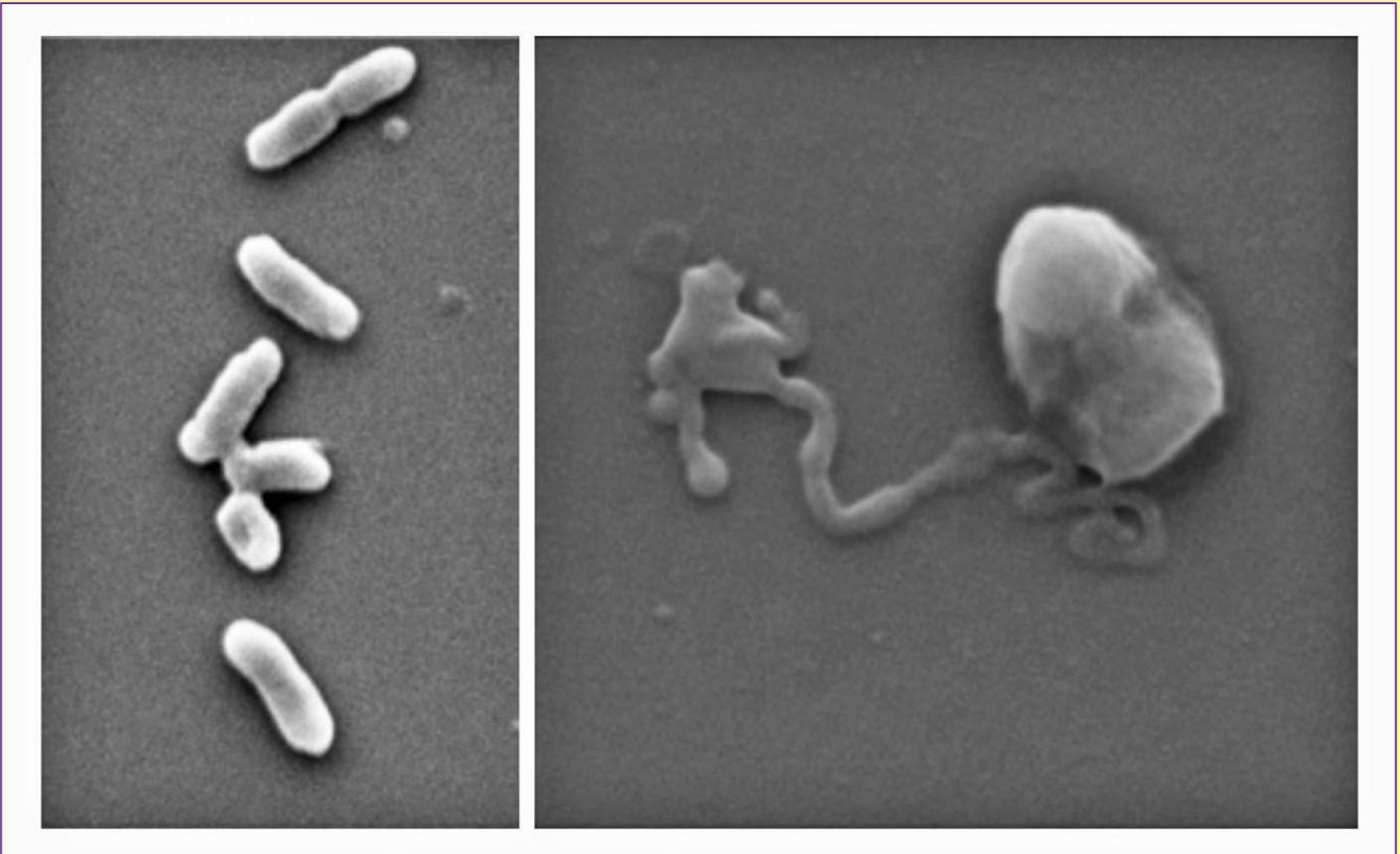
[everything](#) we can throw at them, threatening to cast us back to “a [dark age of medicine](#)” in the coming decades.

To try to turn the tide back in our favor, scientists are regularly developing or discovering [new antibiotics](#), but that just kicks the problem further down the road. Other research is



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investigating non-chemical alternatives that the bugs won't be able to become resistant to – physical attacks that use [intense lighting](#), [liquid-metal shredders](#), [poisoned arrows](#), or [molecular drills](#) to tear into them.



*E. coli* bacteria before (left) and after (right) exposure to black phosphorus (RMIT University)

And that's the kind of technique that the RMIT team has now created. The key is black phosphorus (BP), an ultra-thin material that's mostly being studied for use as a possible [silicon replacement](#) in electronics. Its antimicrobial functions have also been noted, but not previously investigated. Ironically, one of BP's biggest disadvantages in electronics turns out to be useful in medical applications. "BP breaks down in the presence of oxygen, which is normally a huge problem for electronics and something we had to overcome with painstaking precision engineering to develop our technologies," says Sumeet Walia, co-lead researcher on the study. "But it turns out materials that degrade easily with oxygen can be ideal for killing microbes – it's exactly what the scientists working on antimicrobial technologies were looking for. So our problem was their solution."

As the BP breaks down, it produces [reactive oxygen species](#), which damage the outer membrane of bacteria and fungi, ultimately killing them. The BP itself disintegrates completely, so it wouldn't accumulate in the body where it can harm human cells.

In the lab, the team tested thin layers of BP against five bacteria, including *E. coli* and the superbug MRSA, and five fungi, including *Candida auris*. They found that within two hours, up to 99 percent of the cells were killed, and within 24 hours the BP itself had broken down entirely.

This shows that the material could be used to make coatings for "medically-relevant surfaces," such as wound dressings or implants, which would quickly kill off any potential infections before dissolving away itself. Importantly, this technique shouldn't contribute to further antimicrobial resistance.

"Our nanothin coating is a dual bug killer that works by tearing bacteria and fungal cells apart, something microbes will struggle to adapt to," says Aaron Elbourne, co-lead researcher on the study. "It would take millions of years to naturally evolve new defenses to such a lethal physical attack. While we need further research to be able to apply this technology in clinical settings, it's an exciting new direction in the search for more effective ways to tackle this serious health challenge."

►► The research was published in the journal [Applied Materials & Interfaces](#).



## Fauci: No Such Thing as Herd Immunity

Source: <https://www.govtech.com/em/emergency-blogs/disaster-zone/fauci-no-such-thing-as-herd-immunity.html>

Apr 13 – “Dr Anthony Fauci, chief medical adviser to President Joe Biden, has said that herd immunity is an ‘elusive concept’ and there is no definitive percentage of the population that needs to be vaccinated to achieve it.

“He told BBC Radio 4 Today that a return to normality would be gradual, and is ‘not going to be like a light switch going on and off.’”

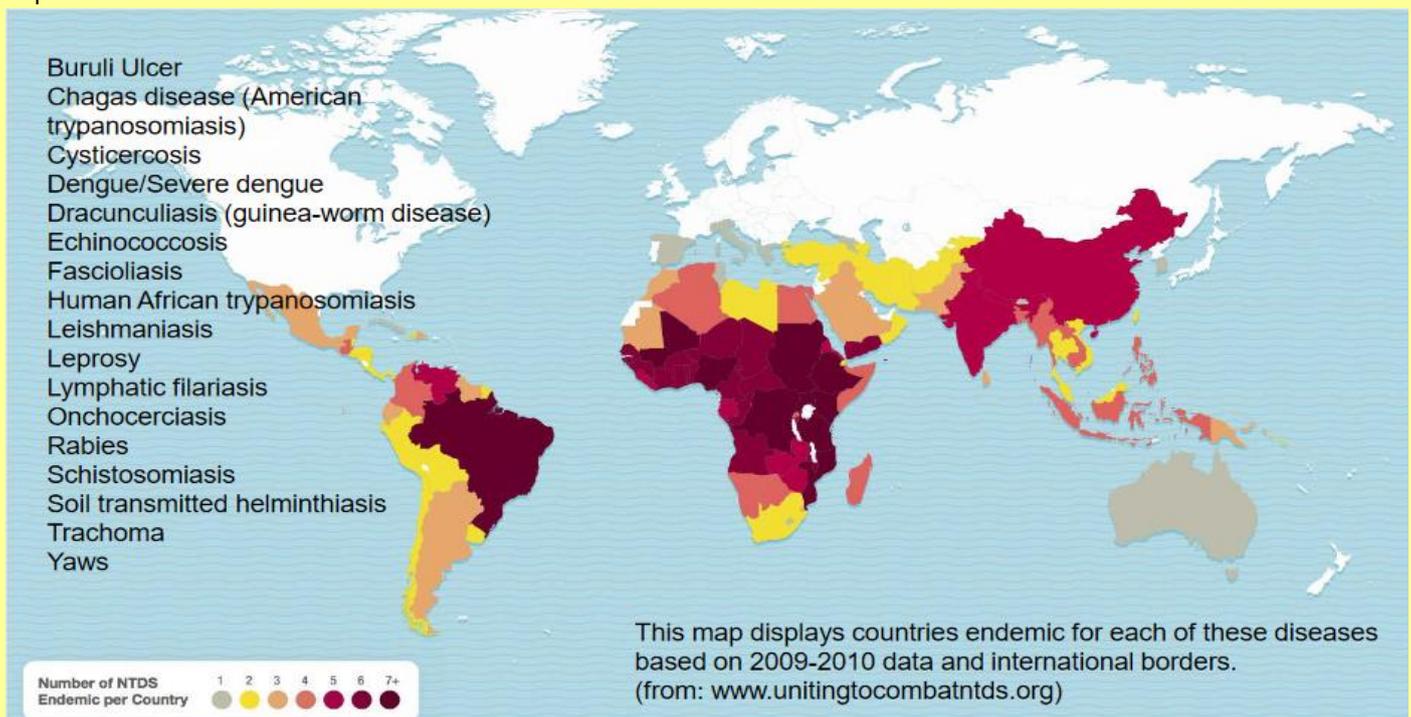
**This, then, is the reality of our future.**

- There is no immediate end in sight
- The idea of herd immunity protecting us all at some point (if Fauci is right) will not happen
- The virus will continue to mutate, with new variants continuing to appear due to the pandemic continuing here in the U.S. and around the world
- We don’t know how long the current vaccines will provide protection to those who are vaccinated
- Likely, a vaccine booster will be needed in the future to address the more radical nature of the new variants
- At some point, hopefully, the World Health Organization (WHO) will declare the pandemic over, but it is not happening anytime soon
- We are in a “long haul” COVID-19 reality

## Neglected tropical diseases are the landmines of global health

By Albert Picado and John H Amuasi

Source: <https://www.theguardian.com/global-development/2021/apr/14/landmines-global-health-who-roadmap-eliminate-neglected-tropical-diseases>



Apr 14 – The common denominator of poverty and the dearth of prevention efforts is largely what binds these diseases together, even though they may be extremely disparate in presentation and approaches to solutions – snakebite v schistosomiasis, for example. Currently, the [WHO identifies 20 NTDs](#) and the differences between them make it difficult to talk about them all together.

How can we succinctly describe 20 different conditions that are caused by parasites, bacteria, viruses, fungi and toxins? How can we summarise complex transmission cycles involving multiple vectors – mosquitoes, sandflies or dogs? And routes – oral, , through the



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skin or congenital? How can we explain in a simple way the diversity of control strategies, including mass drug-administration campaigns, multiple vector-control tools, active screening of cases, dog vaccinations and facilitating the use of footwear? Most vitally, how can we illustrate the devastating impact that NTDs have on individuals and communities across [Africa](#), Latin America and Asia? And how can we explain to funders, governments, researchers, aid organisations and the public why we should invest money, time and effort to control and eliminate them?

Here's an analogy that might help.

Neglected tropical diseases (NTDs) are the landmines of global health. Landmines have been described as “indiscriminate weapons of mass destruction in slow motion” and are well known thanks to movies and international awareness campaigns.

Landmines are designed to incapacitate, injure or kill their victims, and especially affect poor rural communities, where people are trying to make a living through activities that place them in direct contact with the ground, expose them to the elements and ultimately to pathogens, vectors and animal reservoirs; such as herding, farming or collecting water.

Landmine survivors often suffer permanent disability, with physical, mental, social and economic consequences. Landmines have a dire impact on victims' caregivers, families and communities. Children are often the victims of landmines and women and girls are more likely to give up their jobs or drop out of school to take care of the injured. As Michelle Bachelet, the UN high commissioner for human rights, [said at the 2019 mine ban convention](#): “Landmines continue to kill, burn and damage limbs and other body parts in horrific ways. They cause lifelong impairments, including visual and auditory impairments. They destroy livelihoods [...] and even impede national economic recovery.”

Similar language can be used to describe the impact of NTDs. Though medically diverse, NTDs can slowly kill, blind, disfigure and debilitate their victims. They cause untold suffering to victims and caregivers in the poorest communities and contribute to perpetuating a cycle of disease, stigma and poverty.

Collectively, NTDs killed more than 80,000 people and caused the loss of more than 18m [disability-adjusted life years](#) (a measure of the burden of disease burden, expressed as the years lost to ill health, disability or early death) in 2019 alone. Unfortunately, these staggering figures, which are grossly underestimated, still do not get NTDs the kind of attention they deserve.

The 1997 mine ban treaty represents an international commitment and responsibility to eliminate landmines around the world. The roadmap for NTDs sets a similar goal – to “control and eliminate the NTDs by 2030”.

Nonetheless, the resources allocated to help people suffering from NTDs [remain scarce](#). Despite recent successes (for example, 33 countries have eliminated at least one NTD since 2012) and communication efforts (30 January has been declared World NTD Day), we have largely turned a blind eye to these conditions.

A clear and powerful message on the terrible impact that NTDs have on individuals and communities would help to raise awareness and engender the required international commitment to control and eliminate these “slow-motion, indiscriminate weapons of mass destruction” by 2030.

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*John H Amuasi is executive director of the African Research Network for Neglected Tropical Diseases in Ghana.*

## The World Should Treat Pandemics Like It Treats Chemical Weapons

By Nina Schwalbe and Susanna Lehtimäki

Source: <https://foreignpolicy.com/2021/04/14/pandemic-treaty-who-tedros-china-transparency-inspections-data-covid-19-coronavirus/>



Apr 14 – While the world is still in battling COVID-19, it's already time to start preparing for the next pandemic—above all, how to prevent it. As we've unfortunately seen, governments improvising reactively have little chance of containing a determined virus. Disjointed action based on too little information allowed a local outbreak of an unknown pathogen in Wuhan, China, to grow into a full-blown pandemic. **The obvious lesson is that the international community needs a new approach to preventing future pandemics, including a way to quickly verify outbreak data by independent teams of investigators.**

In short, we need to take pandemic containment as seriously as we take other dangers of mass destruction, such as nuclear proliferation and chemical weapons. Global treaties to prevent the spread of these weapons offer a toolbox that can be used or adapted to help prevent the spread of viruses as well.

In January, the [World Health Organization called](#) for a new pandemic treaty, but it looks likely to fall far short of these goals. Next month, a draft of the accord will be presented at the World Health Assembly, the organization's annual meeting of member states. Despite the good intentions, the treaty is already destined to fail to change how outbreaks will be handled



in the future. That's because the treaty fails to address the main obstacle to pandemic preparedness: the refusal by some countries, notably China, to submit to full transparency, access, and inspections.

The lack of ambition is evident in the fact that the World Health Assembly is attended by health ministers, not heads of government. What's more, a treaty negotiated under the auspices of the World Health Organization, which has little authority of its own and instead reflects the interests of its member states, will be unlikely to make the sweeping changes that are urgently needed.

COVID-19 made clear what needs to change—and why the odds of those changes happening, unfortunately, are low.

When the novel coronavirus was first detected in Wuhan, China, in late 2019, the world's response was based on [the International Health Regulations](#) (IHR), a 40-year-old pact modernized in 2005 following the SARS outbreak. The IHR requires the 194 WHO member states to submit annual reports of their outbreak preparedness, but most importantly functions as a global response mechanism whenever there is an outbreak. It requires national health authorities to notify the WHO as soon as there is an outbreak that could potentially spill over its borders. Once the WHO declares an outbreak a “public health emergency of international concern,” globally coordinated mitigation efforts begin.

But the global response to COVID-19 broke down even before it got started. From the very beginning, there was no way to press China to share its outbreak findings in real time, other than good faith and goodwill. The WHO relies on the data and information voluntarily provided by the country in which the outbreak occurred; official visits by WHO scientists to gather data for outbreak investigations require the country's consent. In this case, China was not forthcoming. It was [the WHO country office](#) in China that picked up a media statement from the Wuhan health authorities on Dec. 31, 2019. By that time, it appears that the disease was already circulating widely and although the WHO made multiple requests for information, it didn't receive an answer from the Chinese side until Jan. 3. As pressure over its handling of the virus grew, Beijing clamped down. Instead of information flowing upward and outward, China obfuscated. The WHO, dependent on Chinese information yet unwilling to criticize Beijing for refusing to cooperate, faltered—in particular, [when it did not declare](#) a public health emergency of international concern at its meeting on Jan. 22-23. The rest, sadly, is history. The gaping holes in the world's collective pandemic preparedness and response have been laid bare for all to see.

**The only way to plug those holes is to give the global community greater authority to conduct independent reviews of countries' pandemic preparedness, and to investigate whenever a country is suspected of not complying with its pandemic obligations, most importantly to immediately supply data on the outbreak.** The current plan, set to be presented next month, is to model a new pandemic treaty on the 2003 WHO Framework Convention on Tobacco Control, a broad global effort to curb tobacco consumption that has had [no significant effect](#). Unfortunately, dishing up old, ineffective ideas in public health fails to take the pandemic threat seriously. And the WHO plan opens no avenue for dealing with those opposed to new powers to enforce pandemic rules, particularly China.

What should a new pandemic treaty look like if the world is to be better prepared the next time an outbreak strikes? Luckily, there is no need to reinvent the wheel. [There are several successful mechanisms](#) already used elsewhere in the international system that we can learn from and apply to pandemics, including agreements covering human rights, trade in goods and services, and the containment of chemical and nuclear weapons.

**Once an outbreak occurs, the two most important factors in containing it are the speed of the response and the availability of data on the disease.** Empowering early, informed interventions is key for any new pandemic treaty. Therefore, we must create a system that promotes transparency and action so that evolving threats are known before they metastasize.

During the current pandemic, the WHO, which lacks the power to incentivize or sanction states, didn't have the muscle to take action on its own. It could not compel China to share data and could not conduct an investigation of its own. When Beijing dragged its feet by restricting access and data, the WHO's response was slow to nonexistent. It wasn't until a full month after the first official report from Wuhan and a personal [visit](#) by WHO Director-General Tedros Adhanom Ghebreyesus to Beijing that the outbreak was finally classified as a public health emergency of international concern. It took another six weeks, with the virus ricocheting around the world, for the WHO to classify the outbreak as a pandemic. More than a year and two million deaths later, China has yet to share the raw data from the original outbreak in Wuhan.

The current public health regime has no way to sanction noncompliance with international agreements and reporting requirements other than naming and shaming the offending states. That this falls short should be obvious by now. What's more, powerful states like China that have the muscle inside the WHO and other international institutions to derail investigations and bury reports. A [recent report](#) by the Wall Street Journal found that China has resisted all efforts to probe the origins of the pandemic. Beijing has delayed any investigation for months, demanding veto rights over who conducts it and the right to review it before publication. China has also rejected the idea of an investigation in principle, insisting it be referred to as a “collaborative study” instead.



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Enforcing pandemic response compliance therefore requires the ability to independently trigger investigatory visits and data verification—without the explicit consent of the state involved. This independent authority already exists in other areas. The [International Atomic Energy Agency](#) can visit nuclear sites and the [Organization for the Prohibition of Chemical Weapons](#) can do in-country inspections as well. Granting the power for unannounced visits would provide an early warning mechanism and, in the context of a disease outbreak, help identify the origin and early circulation of pathogens and assess whether the state has done enough to contain it. That would likely require the treaty to be concluded at the level of the United Nations, and not a member-controlled organization like the WHO.

**Even if the majority of on-site inspections of nuclear facilities or chemical weapons sites occur with the consent and collaboration of the state, the mere capacity to initiate visits without consent incentivizes compliance.** That kind of incentive for early reporting and more transparency would have been transformative during the early phases of the coronavirus outbreak. Just as important is for any pandemic treaty to enshrine the right of investigators to move freely—with access to any place, person, or document. This would make a profound difference in our ability to respond to pandemics.

Besides inspection and investigation procedures, the other key area for a functioning pandemic regime is an independent assessment of each country's pandemic preparedness plans and information sharing procedures. The current thinking is for the new pandemic treaty to include a peer-review process. Peer review, however, is rarely independent and often subject to political pressure, particularly from influential countries like China. We've already seen China increasingly use its influence at every level of the United Nations system to control access and information. Making the review external, using independent experts instead, under the auspices of an international treaty, not just a WHO-negotiated accord, would make the process more likely to be impartial—and states more likely to follow the rules.

To ensure any future pandemic treaty has the teeth to do its job, the international community needs to err on the side of more authority, not less; more independence, not less; more audacity, not less. By elevating the pandemic treaty to the level of the United Nations—the highest level of authority, one step up from the WHO—it would allow the WHO to focus on its much-needed role of technical support, monitoring, and research. It could concentrate on its normative and standard-setting role, supporting countries to develop strong public health systems to prevent future pandemics. Giving pandemic response the political weight of the U.N., and not just one of its agencies, would get the world's attention and signal the seriousness of the undertaking.

Bold action is required to improve pandemic preparedness and response. If we fail to elevate pandemic preparedness to the highest level of global political decision making, we will have failed to learn the lessons of COVID-19—and history will repeat itself.

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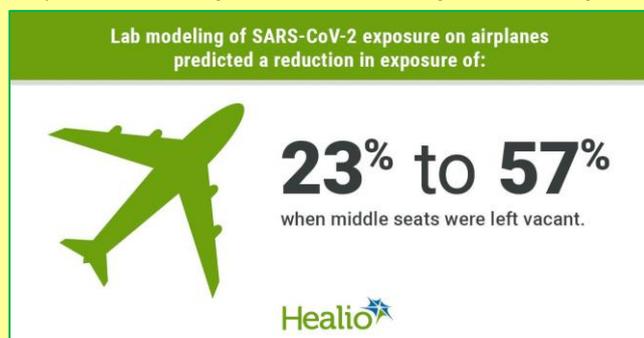
*Elliot Hannon, Aisling Reidy, Andrew Painter, and Sara Darehshori contributed to this article.*

## Leaving middle seat vacant on planes can reduce SARS-CoV-2 exposure

Source: <https://www.healio.com/news/infectious-disease/20210414/leaving-middle-seat-vacant-on-planes-can-reduce-sarscov2-exposure-study-shows>

Apr 15 – Leaving the middle seat vacant on airplanes reduced exposure to SARS-CoV-2 by up to 57% in a laboratory-based modeling study, according to results published in *MMWR*.

“Physical distancing of aircraft passengers, including through policies such as middle seat vacancy, could provide additional reductions in SARS-COV-2 exposure risk,” **Byron W. Jones, PhD**, director of the National Gas Machinery Laboratory at Kansas State University, and colleagues wrote.



Source: Dietrich WL, et al. *MMWR Morbid Mortal Wkly Rep.* 2021;doi:10.15585/mmwr.mm7016e1.

“This study could help inform future modeling of transmission risk, which might encompass determinants that were not fully explored here such as

mask use, virus characteristics and host characteristics, [such as vaccination status](#),” they wrote.



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The study had three components, including a lab experiment that used bacteriophage MS2 virus as a substitute of SARS-CoV-2 to model the relationship between seating proximity on aircrafts and virus exposure.

According to the researchers, bacteriophage MS2 “has frequently been used as a surrogate for pathogenic viruses in aerosolization studies.” In their study, Jones and colleagues used it “to approximate the airborne dispersion of SARS-CoV-2” during an experiment in which mannequins were seated in a mock cabin and exposed to MS2 aerosol from different sources in the cabin.

Compared with full occupancy scenarios, the researchers observed a 23% reduction in exposure for a single passenger who was seated in the same row and two seats away from the SARS-CoV-2 source, as opposed to being seated in an adjacent middle seat. Quantified to an entire 120-passenger cabin, rather than to a single passenger, the reductions ranged from 35% to 39.4%.

In a scenario involving a three-row section with a mix of SARS-CoV-2 sources and other passengers, there was a 57% reduction in exposure with vacant middle seats, the researchers reported.

They noted several limitations of the study, including the high humidity in the laboratory and the use of spray bottles to distribute droplets.

“The extent to which exposure reduction might decrease transmission risk is not yet understood,” Jones and colleagues wrote. “Current CDC guidelines recommend against travel for persons who have not been vaccinated and require [masking for all persons](#) while on aircraft.”

**EDITOR'S COMMENT:** Very good study. It will help people travel in a more comfortable way. Regarding the virus' protection; 200 to 300 people of all ages and all health statuses in a confined space will travel safer just because there is an empty seat between them? It is a joke, right? I read somewhere that the virus is airborne – meaning it can fly taking advantage of air currents within the cabin. There are a few studies indicating that the in-flight ventilation system is quite effective (most of these studies are done by airlines – this one in a lab). Bottom line: do not underestimate the mentality of people.

## COVID Vaccine 'Side Effect' or Functional Neurological Disorder?

Source: <https://www.medscape.com/viewarticle/949294>



Apr 14 - The development of [unusual movements after COVID-19 vaccination](#) may be a result of functional neurological disorder rather than being a direct adverse effect of the vaccine, it has been suggested.

Writing in a "Viewpoint" [published online](#) in *JAMA Neurology* April 9, two neurologists and a psychiatrist report the recent circulation of videos on social media about major neurologic adverse events, including continuous movements of the trunk and limbs or walking difficulties after administration of the COVID-19 vaccine. Some of these videos have been viewed millions of times by the public, they note.

While these videos may be unsubstantiated, and it is not definitively known if the COVID-19 vaccine was administered in these cases, it was reported in the news that at least one patient was told by their physician that the diagnosis was conversion disorder, also known as functional neurological disorder (FND), the authors note.

In addition, the Functional Neurological Disorder Society [released a statement](#) in January pointing out that the conditions described in these videos are seemingly consistent with FND, they add.

"We thought it would be useful to explain more about what functional neurological disorder is, as many people are not familiar with it," lead author David Kim, MD, told *Medscape Medical News*. "We wanted to provide some contextual information about the condition, as these reports may not necessarily mean the vaccine is unsafe."

Kim, who is part of the division of cognitive behavioral neurology at Massachusetts General Hospital, Boston, explained that in FND, physical symptoms can be brought about after events such as [head injury](#), surgery, vaccination, other medical procedures, or life events such as loss of employment.

"Many different factors can bring these symptoms on and while there are definitely cases associated with stressful events, it is not necessarily stress-induced," he said. "However, the event itself does not cause the condition, rather it is the reaction of the patient to the event."

FND is now viewed as a true brain-based disorder, Kim noted. "While in the past it has been described as psychosomatic, we are now moving away from that terminology, towards the idea of a neurological disorder that affects function. It is a neuro-psychiatric disorder on the borderline between neurology and psychiatry."

The authors believe that some of these cases of unusual movements reported after COVID vaccination are likely to be FND.



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"In these cases, it is not the substance in the vaccine that is causing the condition, but the common side effects that can occur after vaccination such as aches and chills bring the attention of the patient to their bodily functions and this reaction can become maladaptive, triggering FND," Kim said.

"We believe that healthcare professionals should be more aware of FND at the current time. They need to know that the general public are aware that some people are experiencing movement disorders after COVID vaccination, and that this conversation is happening on social media," he commented. "If they see patients with these symptoms, they could consider FND to be one possibility."

The authors emphasize that because they have not seen the individual patients, they cannot comment on any specific cases.

"But as some of these videos circulating can be consistent with the condition being FND, and especially with news reports indicating that at least one patient was given that diagnosis, we wanted to raise awareness of this condition among health professionals," Kim added.

He explained that, in the past, FND has been a diagnosis of exclusion but now it is diagnosed with a clinical history and physical examination, looking for appropriate rule-in signs. Ancillary testing such as neuroimaging, electrophysiological studies, and blood tests are often used to rule out other conditions.

"Neurologists have a lot of training in this condition as it is the second-most common reason for a patient to visit a neurologist after [headache](#)," Kim noted.

It is managed with education, counseling, physical rehabilitation and cognitive behavioral therapy. "A key part of the therapeutic process is working with the patient to explain the diagnosis. If they understand the condition, they do better. Patients can learn distraction techniques to allow more fluid movements," he reported.

"As neurologists, and healthcare professionals more broadly, we must explain transparently and nonjudgmentally the nature of FND, including that these symptoms are real but not the direct result of toxic vaccine effects," the authors write.

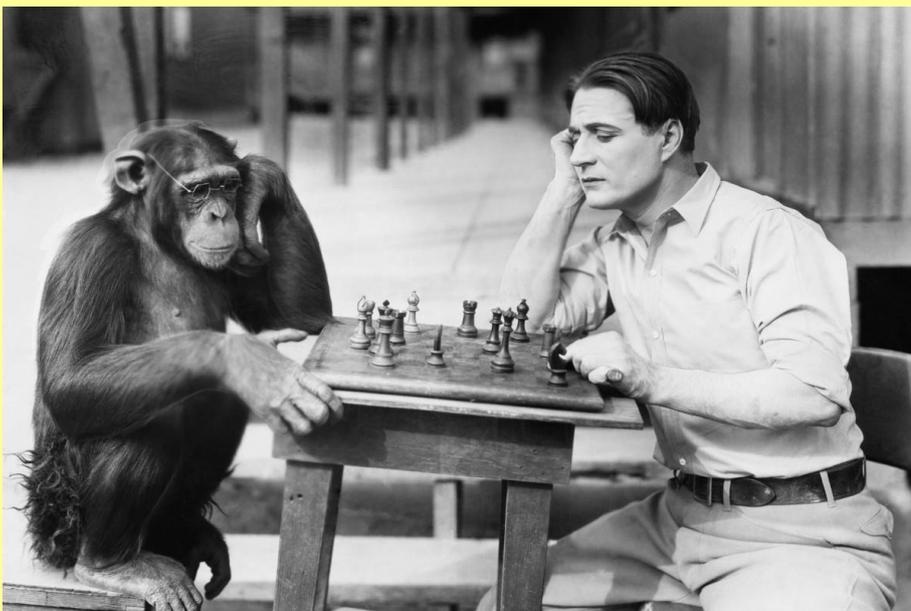
"Transparency and effective communication are needed in our society more than ever, and a condition as prevalent and potentially debilitating as FND can no longer remain marginalized and in the shadows. Effective communication will help educate the public and reduce fears so that patients can make informed decisions for themselves on receiving the vaccine to reduce the risk of COVID-19," they conclude.

►► *JAMA Neurol.* Published online April 9, 2021. [Full text](#)



## Controversial 'Chimera' Embryos Made by Scientists Are Part Human, Part Monkey

Source: <https://www.sciencealert.com/controversial-chimera-embryos-made-by-scientists-are-part-human-part-monkey>



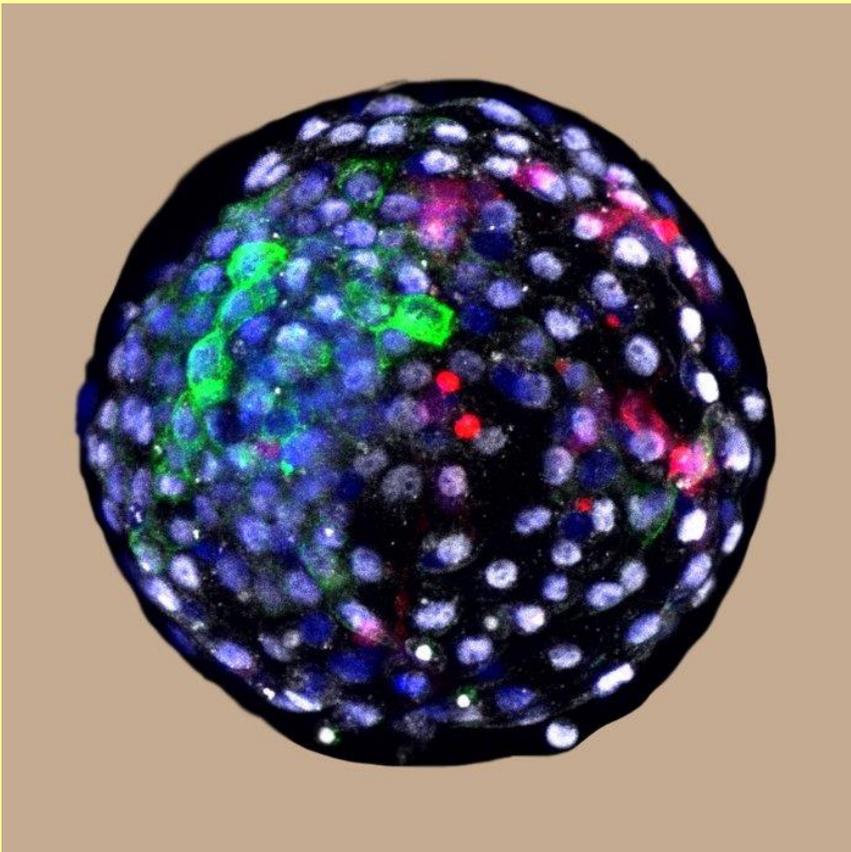
Apr 16 – If you could cross a monkey with a human, what might that creature tell us? We are beginning to find out.

In a pioneering and controversial experiment, scientists successfully created just such a hybrid: a chimeric combination of monkey and human cells, existing together in a living embryo that otherwise would never have been conceived by nature alone. Ethically fraught science? Yes. Mad science? No.

While research into human-animal hybrids has a [long and questionable history](#), in recent years researchers have pursued chimeric organisms to probe questions of biology that

stand to offer significant gains in fields such as regenerative medicine.





A chimera human-monkey blastocyst. (Weizhi Ji/Kunming University of Science and Technology)

For example, if we were somehow able to master growing [human organs in pig tissue](#), it might go a long way to solving the huge [organ shortage](#) that costs human lives everyday.

To that end, a team led by gene expression expert Juan Carlos Izpisua Belmonte from the Salk Institute in California [made headlines in 2017](#), creating the first pig-human hybrid embryo, with a view to one day being able to produce transplantable human organs from the animals.

As it happened, much like in similar experiments with [sheep-human hybrids](#), the amount of successfully integrated human cells was very low, suggesting certain incompatibilities between the pig and human biology at a molecular level.

To try again with something a little closer to home, Izpisua Belmonte – together with a team led by primate reproduction biologist Weizhi Ji from the Kunming University of Science and Technology in China – conducted new experiments with macaque monkey (*Macaca fascicularis*) embryos, injecting them with human [stem cells](#), to gauge

how these distant-but-related animal cells might coexist as one.

In each of the monkey [blastocysts](#) studied, 25 human extended pluripotent stem cells (hEPSCs) were injected – a form of stem cell with the ability to contribute to both the embryo and the surrounding tissues that will support its development.

Using fluorescent tagging, the researchers were able to see that the human cells had successfully integrated in 132 of the macaque embryos, and after 10 days, 103 of the chimeric embryos were still alive and developing.

However, the survival rate began to diminish, and by day 19, only three chimeras were still alive, at which point all the hybrid embryos were terminated in line with the experimental parameters. The results overall showed a more successful integration than the pig-human chimera of 2017.

In addition, genetic sequencing of the blastocyst cells via a technique called [transcriptome analysis](#) revealed new clues about cellular communication inside the hybrids, which could greatly expand our understanding of how to make part-human chimeras succeed.

"From these analyses, several communication pathways that were either novel or strengthened in the chimeric cells were identified," [Izpisua Belmonte says](#).

"Understanding which pathways are involved in chimeric cell communication will allow us to possibly enhance this communication and increase the efficiency of chimerism in a host species that's more evolutionarily distant to humans."

Be that as it may, this kind of research makes many in the scientific community uneasy, meddling with both human life and concepts of animal welfare in ways that some consider either unethical or uncomfortably borderline.

While Izpisua Belmonte and his team [emphasize](#) that the research was conducted with the "utmost attention to ethical considerations and by coordinating closely with regulatory agencies", some have suggested these particular experiments may have been conducted in China to [get around legal issues](#) that might have prevented the work elsewhere.

"We are doing the experiments with monkeys in China because, in principle, they cannot be done here because of lack of infrastructure," one of the study authors, developmental biologist Estrella Núñez Delicado from Spain's Universidad Católica San Antonio de Murcia told Spanish newspaper [El País](#) in 2019 when news of the study first broke.

In this case, all the embryos were destroyed within 20 days of their creation, but questions swirl around what would happen if such embryonic organisms were let to live longer,



potentially developing the rudiments of a nervous system, or even aspects of [consciousness](#) or emotions.

Philosophical questions are not new in science, but such is the pace of development in research like this, that each successive advancement throws up fresh uncertainties and scientific possibilities that often haven't been considered before.

"New research often pushes up against the limits of existing thinking about ethics; this research is no exception," ethicists Henry T. Greely and Nita A. Farahan [explain in a commentary](#) published alongside the study.

"While human/non-human chimeras involving living or fetal animals have been discussed for nearly 20 years, little to no ethical discussion has focused on putting human cells into non-human blastocysts (let alone non-human primate blastocysts)."

▶▶ The findings are reported in [Cell](#).

## Only 0.008% of Vaccinated People in The US Have Caught COVID-19, New Data Reveal

Source: <https://www.sciencealert.com/75-million-americans-have-been-fully-vaccinated-5-800-got-covid-and-74-died>

Apr 16 – More than [one in five Americans](#) have been fully vaccinated against [COVID-19](#). But vaccinated people can still get the [coronavirus](#), though infections are exceedingly rare and typically quite mild.

Of the 75 million people across the US who were fully vaccinated as of Tuesday, some 5,800 had still tested positive for COVID-19, in what's known as a "breakthrough infection," according to new data from the Centers for Disease Control and Prevention (CDC).

A few of those infections in vaccinated people were severe. About 400 of the 5,800 people with breakthrough infections, or 7 percent, required hospitalization, and 74, or 1.3 percent, died from the disease, the CDC said in a statement.

The report is another reminder that, as [Dr. Anthony Fauci](#) and [other public-health experts](#) have been stressing for months, vaccination is not a one-and-done way to [end the pandemic](#). Wearing masks and social distancing remain critically important until we have enough immunity to stop the [virus](#)' circulation.

### 'The vaccine is working as expected'

These breakthrough infections are to be expected and are in line with how other vaccines work, the CDC said.

"We expect thousands of vaccine breakthrough cases will occur even though the vaccine is working as expected," the statement said.

"With the number of breakthrough cases, I think the important thing is to look at what the denominator of vaccinated people is," Fauci, the top infectious-disease expert in the US, [said during a White House press briefing](#) last week.

Breakthrough infections have occurred in about 0.008 percent of the people who've had their COVID-19 shot(s) and allowed them two full weeks to take effect. Fatal breakthrough cases have been very rare; the Minnesota Health Department [tallied zero deaths in the first 89 breakthrough infection cases](#) in the state.

"It's important to know that even if someone is vaccinated and then goes on to be one of the few unfortunate people to develop a breakthrough case, there still can be some level of protection provided by the vaccine," Kris Ehresmann, the department's infectious-disease director, said during a briefing in March.

The breakthrough rate of infections in Minnesota at that time was about 0.01 percent.

The new figures from the CDC also suggest that the authorized COVID-19 vaccines are nearly perfect at preventing death, as [clinical trials had suggested](#): With 74 fatalities in 75 million people fully vaccinated, the vaccines appeared to be 99.99 percent effective.

Some people who are vaccinated and subsequently get infected may not even know it either, as about a third of the breakthrough infections (29 percent) were asymptomatic, discoverable only with a test, the CDC said.

### 40 percent of the breakthrough infections were in fully vaccinated people over 60

The risk of a breakthrough infection might not be equal among everyone who's been vaccinated. The CDC said about 40 percent of the breakthrough infections reported had been discovered in people over 60, a demographic in which [vaccines are often less effective](#).

"It is likely that elderly individuals, particularly if they are frail and have underlying conditions, might not have responded as well to the vaccine," Fauci said.

"When someone is already elderly and may or may not have an underlying condition, that it is unfortunate but not surprising that you might have a couple of deaths."



The CDC said it created a nationwide "vaccine breakthrough database" for state health departments to help the federal government monitor cases.

"People who have been fully vaccinated should keep taking precautions in public places like wearing a mask, staying at least 1.83 metres apart from others, avoiding crowds and poorly ventilated spaces, and washing their hands often," the CDC said.

## COVID-Related Inflammatory Syndrome Tied to Neurologic Symptoms in Kids

Source: <https://www.medscape.com/viewarticle/949386>

Apr 15 – About half of children with pediatric inflammatory multisystem syndrome temporally associated with SARS-CoV-2 (PIMS-TS) have new-onset neurologic symptoms, research shows.

These symptoms involve the central and peripheral nervous systems but do not always affect the respiratory system. In addition, neurologic symptoms appear to be more common in severe presentations of this syndrome.

"These new data consolidate the initial findings in our *JAMA Neurology* publication on the neurological problems that children with PIMS-TS can present with, even in the absence of respiratory systems," study investigator Omar Abdel-Mannan, MD, clinical research fellow at University College London Institute of Neurology and senior resident at Great Ormond Street Hospital for children in London, United Kingdom, told *Medscape Medical News*.

He added that the findings are in keeping with other recent research studies on PIMS-TS, which is known more commonly in the United States as multisystem inflammatory syndrome in children (MIS-C).

The findings will be presented April 18 at the American Academy of Neurology (AAN) 2021 Annual Meeting.

### Neurologic Manifestations Common

Many children and adults with COVID-19 have developed neurologic manifestations. PIMS-TS is a severe, postinfectious, immune-mediated disorder characterized by persistent fever and extreme inflammation.

Patients may have acute [diarrhea](#) or vomiting, rash or bilateral [conjunctivitis](#), and low blood pressure. They should be examined by a pediatric specialist, and most children with this disorder need intensive care.

To report the neurologic manifestations in children with PIMS-TS, the researchers retrospectively examined data for children and adolescents younger than 18 years who had the disorder and presented to a single center between April 4, 2020, and September 1, 2020.

A total of 46 patients (median age, 10.2 years) were included in the analysis. Thirty (65.2%) were male, and 37 (80.4%) were of non-White ethnicities.

Twenty-four (52.2%) patients had new-onset neurologic symptoms, which included [headache](#) (n = 24), encephalopathy (n = 14 patients), dysarthria/dysphonia (n = 6), hallucinations (n = 6), ataxia (n = 4), peripheral nerve involvement (n = 3), and seizures (n=1). Laboratory and imaging results provided further information. One patient had 118 leukocytes in cerebrospinal fluid. Children with neurologic involvement had higher levels of peak inflammatory markers and were more likely to be ventilated and require inotropic support in the PICU ( $p < 0.05$ ).

Four of 16 patients who underwent brain MRI had splenium signal changes. Of 15 patients who underwent electroencephalogram (EEG), 14 had an excess of slow activity. Four of 7 patients who underwent [nerve conduction studies](#) and electromyography (EMG) had myopathic and neuropathic changes.

Central neurologic problems of the brain and peripheral nerve involvement rarely occur at the same time in children.

"This makes it highly possible that the syndrome is secondary to cytokine release in response to the SARS-CoV-2 virus, as there is significant clinical overlap with both genetic and acquired forms of another immune-mediated condition known as hemophagocytic lymphohistocytosis," said Abdel-Mannan.

The researchers found no demographic differences between children with neurologic involvement at presentation and those without.

"However, the numbers are small given the rarity of this condition, which makes it difficult to extrapolate associations and differences between the two groups, and will require future collaborative larger scale studies to look at what potentially makes some children more susceptible to neurologic involvement than others," said Abdel-Mannan.

Excluding potential causes of the symptoms other than COVID-19 also is important, he added.

The preponderance of ethnic minorities in the current study population mirrors that in other PIMS-TS cohorts in other countries, said Abdel-Mannan. It reflects the higher incidence of COVID-19 in ethnic minority groups. However, presentation, investigations, and management did not differ between white and nonwhite children in the current study.



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"Although PIMS-TS patients with neurologic involvement are initially sicker, our center's preliminary follow-up data up to six months post discharge from hospital demonstrates that most of these children make an almost complete functional recovery, which is reassuring," said Abdel-Mannan.

The data underscore how important it is that clinicians be aware that children with PIMS-TS can present with neurologic symptoms, even in the absence of respiratory involvement, he added.

The researchers will soon begin a multicenter research study that will involve longitudinal clinical and cognitive assessments and advanced neuroimaging. The objective will be to determine whether all children with PIMS-TS, or only those with neurologic symptoms, are at risk of chronic longer-term neurocognitive and psychiatric outcomes.

### Unanswered Questions

Commenting on the findings for *Medscape Medical News*, John B. Bodensteiner, MD, professor of neurology and pediatrics at Mayo Clinic Medical School, Rochester, Minnesota, said they help flesh out the range of neurologic involvement that PIMS-TS entails.

"It's not a surprise to us as neurologists, but it's not been emphasized in the general literature and in the public health sector," he said.

The study's most important implication is that neurologic conditions are not uncommon among children with PIMS-TS, Bodensteiner added.

"We have no idea how long or what the long-term effects of that are," he said. Not enough time has elapsed to enable a clear understanding of the syndrome's lasting effects on cognition, he said, "but I think this certainly raises a flag that this is a real entity. This is nothing to sniff at."

He noted that the study has the limitations of any retrospective case series. The researchers did not perform prospective and systematic evaluations of children with the syndrome.

The findings also raise unanswered questions.

"They had 14 kids with encephalopathy, but not all of them got the same evaluation," said Bodensteiner. Although the researchers mention peripheral nerve involvement in three children, they do not describe it. "They said that the EMG showed myopathic and neuropathic changes, but peripheral nerve involvement wouldn't give you myopathic changes, so maybe there's some direct involvement of the muscle in this inflammatory process."

The study also focused on a select group of patients, said Bodensteiner. "These are all patients admitted to Great Ormond Street Hospital, and we don't know what percentage of kids who get COVID are hospitalized, which is an important issue."

It is necessary to know what proportion of children with COVID-19 develop encephalopathy and MRI changes, he added. The findings do confirm that this coronavirus-related inflammatory condition is real and may have long-term sequelae. "We should be careful about kids getting this disease," said Bodensteiner.

## Pharmacies recall a model of a surgical mask with graphene

Source: <https://spainsnews.com/pharmacies-recall-a-model-of-a-surgical-mask-with-graphene/>

Apr 16 – The General Council of Pharmaceutical Colleges has issued a statement requesting the cessation of marketing and use of the Type IIR surgical masks with [graphene](#) manufactured by [Shandong Shenquan New Materials Co. Ltd, China](#). They take this



measure based on the recommendation sent yesterday by the Spanish Agency for Medicines and Health Products, on the cessation of marketing and use of type IIR surgical masks with graphene manufactured by Shandong Shenquan New Materials Co. Ltd, China, as a preventive measure against the risk that they may harm health.

This note indicates that the Spanish Agency for Medicines and Health Products (AEMPS), as a result of the recent publication of the Canadian health authorities, which reports on the possible risks due to the presence of [graphene or graphene biomass](#) in masks, has launched an investigation into the matter.

"Currently it has been identified

that in Spain type IIR surgical masks with biomass graphene are being marketed from the manufacturer Shandong Shenquan New Materials Co. Ltd, China. The AEMPS, as a precautionary measure, has requested the voluntary cessation of commercialization to the



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importing and distributing company of these surgical masks with graphene biomass from the manufacturer Shandong Shenquan New Materials Co. Ltd, China”, said the statement.

The Agency also announces that it continues with the investigation of the potential risk of inhalation of graphene particles due to the use of these surgical masks and the risk that, in this case, it may pose. And as a precautionary measure, he recommends not using surgical masks that contain graphene.

For health professionals and users, the AEMPS recommends “the non-use of surgical masks containing graphene and, in the event that they are aware of an incident related to the use of this product, notify it through the NotificaPS notification portal.

And with respect to distributors and sales establishments, the AEMPS recommends not using surgical masks that contain graphene. “If you have knowledge of an incident related to the use of this product, notify it through the NotificaPS notification portal; or in the case of having surgical masks that contain graphene, do not distribute them and remove them from sale”.

In the case of having surgical masks containing graphene from a manufacturer other than Shandong Shenquan New Materials Co. Ltd, China, you are urged to inform the AEMPS by email including the information of the manufacturer and the company that has supplied you the product or if you have knowledge of an incident related to the use of this product notify it through the notification portal.

In communities such as the Basque Country, Castilla y León, Madrid and Andalusia, they have ordered the withdrawal of all [masks](#) of graphene from the Shengquan brand, not only the surgical IIR, disposable graphene and biomass, from the manufacturer Shandong Shengquan, distributed by Amevisa SAU, and the FFP2 Healfiber, from the same manufacturer, which supplies the Basque distributor Iturri SA.



## The Importance of “Biological Destruction” in Responsible Coverage of Xinjiang

Source: <http://www.homelandsecuritynewswire.com/dr20210416-the-importance-of-biological-destruction-in-responsible-coverage-of-xinjiang>

Apr 16 – Recent news coverage of the [ongoing situation](#) in Xinjiang has focused on whether or not those events meet the international legal definition of genocide. Declarations by both the [Trump](#) and [Biden](#) administrations, [Canada](#), and the [Netherlands](#) have all stated that China’s treatment of the Uighurs constitutes genocide. Thoughtful and well-researched media coverage of the Xinjiang crisis is extremely important. Jackson Neagli writes in [Lawfare](#) that the majority of nonacademic pieces seem to presume, however, that *if* genocide is occurring, it must be a particular kind of genocide—the kind with torture and mass killings, like we saw in the Holocaust, Yugoslavia or Rwanda. As a recent [article](#) in *The Economist* put it, “‘genocide’ means killing a people. China’s persecution of the Uyghurs is horrific .... But it is not slaughtering them.”

It’s not just the *Economist*: There is a [common disconnect](#) between popular definitions of genocide—which typically draw comparisons to atrocities like the Holocaust—and the more nuanced definition of genocide in international law, established by the 1948 Convention on the Prevention and Punishment of the Crime of Genocide (to which China is a party) and restated in the Rome Statute for the International Criminal Court (to which China is not).

Neagli notes that the Genocide Convention, and relevant provisions of the Rome Statute, articulate a much broader definition of genocide than is commonly understood. Thus, Article II of the [Genocide Convention](#), and Article 6 of the [Rome Statute](#), identify five *actus rei*, each independently sufficient to constitute genocide. Among those guilty acts are birth prevention and the forcible transfer of children, both of which carried out by the Chinese government in Xinjiang.

He writes that while there have indeed been allegations of [death](#) and [torture](#) in China’s [archipelago](#) of “vocational training centers” in Xinjiang, which would satisfy subsections (a) and (b) of the Genocide Convention. He adds:

The existing evidence potentially supporting a finding of genocide in Xinjiang largely goes to so-called “biological destruction,” the amalgamation of sections (d) (birth prevention) and (e) (forcible transfer of children) under Article II of the Genocide Convention. An unnamed American official [recognized as much](#), noting that these provisions undergirded the State Department’s rationale for applying the genocide label.



However, Euro-American news coverage of birth control efforts in Xinjiang (for example, [here](#) and [here](#)) tends to focus on the events as existing *alongside* genocide, rather than as evidence of genocide itself.

Neagli notes that given how unlikely it is that an international tribunal would hold the Chinese state or officials responsible for atrocities in Xinjiang,

it may seem pedantic to highlight the relative lack of emphasis on “biological destruction” in Euro-American media. There are, however, two reasons why the media coverage of events in Xinjiang remains important.

First, as Foreign Policy [noted](#), there is a pervasive misconception of genocide as limited to mass killings. Without more nuanced, accessible analysis of the definition of genocide in international law, this misconception is likely to persist, and, as a result, heinous acts of biological destruction will not be appropriately condemned as genocide.

Second, the failure to consider biological destruction is especially concerning in light of an emerging discourse describing the situation in Xinjiang as “[cultural genocide](#),” a term that is not mentioned in the Genocide Convention and that remains debated by international criminal law scholars. “Cultural genocide” has been named in only one international instrument—the nonbinding 1982 UNESCO Declaration of San José. Even more concerning is the description of events in Xinjiang as “[demographic genocide](#),” another term that doesn’t appear in the text of the Genocide Convention but that, under any reasonable reading, would appear to fall within subsection (d) on prevention of births or (e) on transfer of children, rendering the “demographic” qualifier superfluous. These constructions are likely to further complicate an already delicate area of international law, with the result that the condemnatory power of “genocide”—that is, “[the crime of crimes](#)”—will be irreversibly diluted.

## Our Pandemic Trash Is Killing Wildlife on a Devastating Scale, Scientists Warn

Source: <https://www.sciencealert.com/face-masks-protect-humans-but-they-re-a-deathtrap-for-everything-else>

Apr 16 – Early into the [pandemic](#) it became clear that something was wrong: the first signs of a tangential and potentially deadly threat emerging in the wake of [COVID-19](#).

It was an old problem, in truth, but one given fresh potency as humans scrambled to protect themselves from the [coronavirus](#). As production of single-use face masks and other disposable Personal Protective Equipment (PPE) like medical gloves exploded, so too did their presence in the environment.

That presence is one that ensnares and ultimately extinguishes wildlife, scientists report in a [new study](#) documenting the deadly effects of ‘COVID-19 litter’ on animals in their natural habitat.

“PPE litter, also referred to as COVID-19 litter, mainly consists of single-use (usually latex) gloves and single-use face masks, consisting of rubber strings and mostly polypropylene fabric,” a team of researchers from the Netherlands [explains in a new paper](#).

“Both masks and gloves pose a risk of entanglement, entrapment and ingestion, which are some of the main environmental impacts of plastic pollution.”

It is not a small problem. By one estimate, an astounding [3 million face masks](#) are used every minute during the COVID–19 pandemic, most of which are of the disposable variety, neither designed [nor recommended](#) for repeat use.

For months, scientists have warned of the ramifications of this mountain of PPE trash finding its way into the environment, describing it as a [disaster that might last generations](#).

It’s not just litter on land, either, but [in the oceans too](#), and in mind-boggling volume: over [1.5 billion face masks](#) may have washed into the ocean last year alone, some think.

Now, we’re getting a clearer picture of what this plastic pollution does when it comes into contact with animals, and it’s not pretty.

In the study, sparked by the discovery of a perch trapped in the finger of a latex glove, a team led by biologists Auke-Florian Hiemstra from Naturalis Biodiversity Center and Liselotte Rambonnet from Leiden University scoured the internet and social media, collecting reported observations of interactions between animals and PPE litter from the beginning of the pandemic.

They discovered birds using COVID-19 trash for their nests, a dead American robin (*Turdus migratorius*) entangled in a face mask, a gull with a mask wrapped around its leg for weeks, and other birds unable to remove masks from their talons or beaks.

Bats, hedgehogs, pufferfish, and crabs – all kinds of animals were found tangled up with masks and gloves, some of them living and hobbled, others perished, likely due to the PPE they themselves couldn’t discard.

Sometimes, animals unwittingly eat the plastic, like the dead Magellanic penguin (*Spheniscus magellanicus*), found on a beach in Brazil, with an ingested face mask later discovered in its belly.





Photo: Sandra Ebersole



Photo: Clean this beach up



Photo: RSPCA Essex



Photo: Auke-Florian Hiemstra



Photo: Auke-Florian Hiemstra



Photo: Operation Mer Prosper



Photo: Egriopvang het Streekop



Photo: Jacopo Casali



Photo: Steve Shipley



Photo: Nicholas Hayman



Photo: Argonauta Institute for Coastal and Marine Conservation

Domestic animals like dogs and cats have made the same mistake, and sometimes even people do too, the researchers found: "A six-year-old child ingested parts of a presumed blue face mask, accidentally baked into a McDonalds chicken nugget," [the team writes](#).

To keep collecting data and raise awareness of the issue, the researchers set up a website ([covidlitter.com](https://covidlitter.com)) where people can share their own observations of this grim phenomenon – in the hope that by better understanding the extent of this pervasive pollution, we can help find effective ways to counter it.

"The pandemic is not over yet, and the amount of PPE used may only increase, and will continue to threaten wildlife way beyond the time access to a vaccine becomes available," [the authors explain](#).

"In addition to this, the already littered items will degrade into micro- and nanoplastics and stay in the environment for hundreds of years."

Of course, the real issue here goes beyond disposable PPE in the COVID era, as this is just another example of the even bigger problem of [plastic pollution](#) generally, stemming from how people use and discard [single-use items](#) (although even that doesn't capture the [true complexity of the plastic predicament](#)).

Nonetheless, to the extent that we can control this in terms of the PPE context here and now, the researchers urge people to cut up disposable gloves and snip the straps on face masks before throwing them away, as doing so could help prevent wildlife later becoming ensnared.

Much better still – avoid single-use PPE wherever safe and possible to do so, and choose reusable alternatives whenever you can (which haven't actually been seen hurting any animals at all, the researchers point out).



"People may suffer from the coronavirus pandemic," [the team says](#), "but nature is getting sick of our plastic."

►► The findings are reported in [Animal Biology](#).

## Trained Dogs Can Detect COVID-19 With Surprising Accuracy by Sniffing Your Pee

Source: <https://www.sciencealert.com/trained-dogs-are-able-to-smell-covid-19-in-human-pee>



Apr 16 – Dogs can sniff out [SARS-CoV-2](#) in urine samples with 96 percent accuracy, according to a proof-of-concept study. No more swabs being jammed up your nose? Not quite, as the "dog test" is a long way off from practical applications. That's because the dogs could only distinguish between positive and negative results in samples that they had trained with; they failed to detect SARS-CoV-2 when presented with completely new samples. Dogs are known to be able to sniff out scents that are specific to various diseases, and previous studies have shown that SARS-CoV-2 also has a strong signature that dogs can detect in saliva and sweat samples. In fact, dogs have already been deployed to detect [COVID-19](#) at a Dubai airport, according to the study. But it wasn't known whether dogs could detect the [virus](#) in urine samples, where the virus load is typically lower, according to the study. To figure this out, a group of researchers first trained eight Labrador retrievers and one Belgian Malinois to recognize the scent of a synthetic substance known as the universal detection compound (UDC), which is an odor that isn't found naturally in the environment. They put the compound on one of 12 ports of a "scent wheel" and rewarded the dogs whenever they reacted to the port containing UDC. Once they learned to recognize the UDC, the researchers then used the scent wheel to train the dogs to react to urine samples taken from SARS-CoV-2-positive patients. The samples were taken from seven individuals who had tested positive for SARS-CoV-2 – two adults and five children – as well as six kids with negative SARS-CoV-2 tests. In training, the dogs were given two scenarios, one in which the scent wheel contained the target odor in one port and a control or distractor odor in the others, and one where the scent wheel contained all control or distractor odors. The virus was inactivated with heat or detergent to render it harmless to the dogs. The researchers found that after three weeks of training, all the dogs could identify positive SARS-CoV-2 samples with 96 percent accuracy, on average. The overall specificity was 99 percent, meaning that there were barely any false positives; but the overall sensitivity was 68 percent, meaning there were some false negatives.



The reason for the lower sensitivity may be because of the strict way they conducted the tests; if the dogs pass a port with a positive sample once without responding, that was labeled as a miss, [according to a statement](#).

"This is not a simple thing we're asking the dogs to do," senior author Cynthia Otto, the director of the University of Pennsylvania School of Veterinary Medicine Working Dog Center, said in the statement.

"Dogs have to be specific about detecting the odor of the infection, but they also have to generalize across the background odors of different people."

Indeed, the dogs struggled in the trials a bit. They tended to discriminate between the actual patients' scents and not their infection status and they were also confused by a sample from a patient who had recently recovered from COVID-19 but had a negative test result, according to the statement.

"The dogs kept responding to that sample, and we kept telling them no," Otto said in the statement. "But obviously there was still something in the patient's sample that the dogs were keying in on."

But because the dogs were trained repeatedly on the same samples from the same patients, they were unable to generalize to completely new samples, which is key for real-world applications.

In future studies, researchers should train dogs on diverse samples and not repeatedly test the dogs on samples from the same individuals, according to the statement.

**Now, the researchers are conducting what they call "the T-Shirt study" in which they're training dogs to detect whether or not someone is infected with SARS-CoV-2 and whether someone is vaccinated based on odors left on shirts the people wore overnight.**

"We are collecting many more samples in that study – hundreds or more – than we did in this first one, and are hopeful that will get the dogs closer to what they might encounter in a community setting," Otto said.

►► The findings were published April 14 in the journal [PLOS One](#).

## Dysnatremia is a Predictor for Morbidity and Mortality in Hospitalized Patients with COVID-19

By Ploutarchos Tzoulis, Julian A Waung, Emmanouil Bagkeris, et al.

*The Journal of Clinical Endocrinology & Metabolism*, dgab107

Source: <https://academic.oup.com/jcem/advance-article/doi/10.1210/clinem/dgab107/6148869>

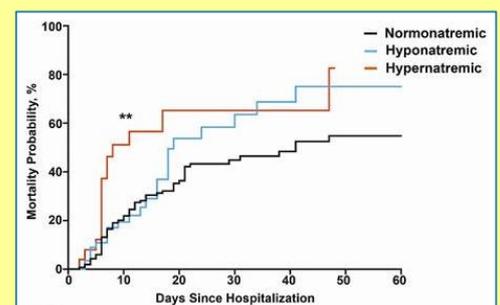
Dysnatremia is an independent predictor of mortality in patients with bacterial pneumonia. There is paucity of data about the incidence and prognostic impact of abnormal sodium concentration in patients with coronavirus disease 2019 (COVID-19).

**Objective** – This work aimed to examine the association of serum sodium during hospitalization with key clinical outcomes, including mortality, need for advanced respiratory support and acute kidney injury (AKI), and to explore the role of serum sodium as a marker of inflammatory response in COVID-19.

**Methods** – This retrospective longitudinal cohort study, including all adult patients who presented with COVID-19 to 2 hospitals in London over an 8-week period, evaluated the association of dysnatremia (serum sodium < 135 or > 145 mmol/L, hyponatremia, and hypernatremia, respectively) at several time points with inpatient mortality, need for advanced ventilatory support, and AKI.

**Results** – The study included 488 patients (median age, 68 years). At presentation, 24.6% of patients were hyponatremic, mainly due to hypovolemia, and 5.3% hypernatremic. Hypernatremia 2 days after admission and exposure to hypernatremia at any time point during hospitalization were associated with a 2.34-fold (95% CI, 1.08-5.05;  $P = .0014$ ) and 3.05-fold (95% CI, 1.69-5.49;  $P < .0001$ ) increased risk of death, respectively, compared to normonatremia. Hyponatremia at admission was linked with a 2.18-fold increase in the likelihood of needing ventilatory support (95% CI, 1.34-3.45,  $P = .0011$ ). Hyponatremia was not a risk factor for in-hospital mortality, except for the subgroup of patients with hypovolemic hyponatremia. Sodium values were not associated with the risk for AKI and length of hospital stay.

**Conclusion** – Abnormal sodium levels during hospitalization are risk factors for poor prognosis, with hypernatremia and hyponatremia being associated with a greater risk of death and respiratory failure, respectively. Serum sodium values could be used for risk stratification in patients with COVID-19.



## CureVac's COVID-19 Vaccine Attracts Rising Interest

Source: <https://www.medscape.com/viewarticle/949341>

Apr 16 – **German** biotech firm CureVac said it has seen the number of requests for its experimental COVID-19 vaccine increase over the past few days, as concerns over rare side effects have hit some other coronavirus shots.

A CureVac spokesman said on Thursday that requests have been coming in from various quarters, including governments and international organisations but he declined to elaborate. The group is to hold an analyst call on fourth-quarter results at 1400 GMT. The European Union in November secured up to 405 million doses of CureVac's two-shot messenger-RNA-based vaccine, which has yet to win regulatory approval, the company's only large supply contract so far.

Europe's choppy vaccine rollout hit more trouble this week after Johnson & Johnson (J&J) suspended shipments of its adenovirus-vector COVID-19 shot and Denmark said it would drop a similar vaccine from AstraZeneca over very rare cases of blood clotting.

In many European countries, AstraZeneca's shot has been limited to the elderly as the side effect in question, clotting in the brain, has primarily been seen in young and middle-aged vaccine recipients.

CureVac said in a statement on Thursday that it would start testing its COVID-19 vaccine on adolescents as young as 12 at the end of the month, as it gets ready to publish initial efficacy results for adults in the second quarter.

The spokesman reiterated the group - which is backed by investors Dietmar Hopp, the Gates Foundation, GlaxoSmithKline as well as the German government - hoped to file for regulatory approval at the end of May or early June.

CureVac said it would initially enrol about 40 adolescents aged 12 to 17 in Peru and Panama, the first stage of a broader study in this age group.

Its ongoing pivotal Phase 2b/3 study known as Herald, and initiated in December, has completed recruitment with over 40,000 adult participants in Europe and Latin America, the company said on Thursday.

Nasdaq-listed CureVac repeated it aims to produce up to 300 million doses of the vaccine in 2021 and up to 1 billion in 2022.

## Pakistan working on single-dose Covid-19 vaccine with China's help: Official

Source: <https://timesofindia.indiatimes.com/world/pakistan/pakistan-working-on-single-dose-covid-19-vaccine-with-chinas-help-official/articleshow/82071209.cms>

Apr 14 – A senior Pakistani official has said that the country was working to develop its own single-dose coronavirus vaccine with China's support, a [media report](#) said on Wednesday. Executive Director of [National Institute of Health \(NIH\)](#), Major General Aamer [Ikram](#), said this during a briefing to the National Assembly (NA) Standing Committee on National Health Services on Tuesday, The [Express Tribune](#) reported.

"We are going to make a single-dose vaccine for Covid-19. We conducted the clinical trial of Chinese Covid-19 vaccine CanSinoBio in Pakistan," he said. Later talking to the media, Ikram said Pakistan was among the first countries to take part in the clinical trial of CanSinoBio vaccine.

He said Pakistan had requested China to transfer the technology for the vaccine and the raw material for the vaccine is going to arrive this month.

"We hope that we will be able to take some measures for preparation of the vaccine by the end of April.

"Our team is ready to undertake this task while a Chinese team has also arrived in Pakistan. The Chinese team will oversee our team at the NIH," he said.

Briefing the parliamentary panel, Ikram said the NIH plant, which was closed a few years back, has been made functional again and once the plant is ready, the process for manufacturing the Covid-19 vaccine will begin.

"The NIH is going to make its own single-dose vaccine in the near future," the official said.

The NA committee lauded the NIH's efforts and declared it good news for the nation.

Pakistan has so far administered vaccines to 1.3 million people but still needs to go a long way before its 220 million people will be inoculated.



## CanSinoBIO Announces Approval for its Single-Dose COVID-19 Vaccine Convidecia™ in Hungary

Source: <https://www.prnewswire.com/news-releases/cansinobio-announces-approval-for-its-single-dose-covid-19-vaccine-convidecia-in-hungary-301252978.html>

Mar 22 – CanSinoBIO Biologics Inc. ("CanSinoBIO") (HKEX: 06185) today announced that the Hungarian National Institute of Pharmacy and Nutrition (OGYÉI) granted emergency use authorization for its Recombinant Novel Coronavirus Vaccine (Adenovirus Type 5 Vector) ("Ad5-nCoV", trade name: Convidecia™). The approval is based on the vaccine's interim results for Phase III clinical trial and marks the first approval of Convidecia™ in an European Union member state.

"We are pleased to see the authorization by the Hungarian authority for our vaccine, which marks an important step forward in the global fight against the COVID-19 pandemic. As CanSinoBIO continues to receive approvals from various governments across different continents, we are focusing on ramping up production capacity to deliver our one-shot vaccines quickly and safely to countries that are in desperate need of mass protection from this pandemic," said Dr. Xuefeng YU, Chairman and Chief Executive Officer of CanSinoBIO.

On February 25, 2021, Convidecia™ was granted a conditional marketing authorization by the National Medical Products Administration of China ("NMPA"), the first of its kind authorized in China. Globally, Convidecia™ received authorization for emergency use by the Federal Commission for Protection against Sanitary Risks of Mexico and the Drug Regulatory Authority of Pakistan for adults aged 18 and above in February 2021.

### Convidecia™ Production, Access and Distribution

The Company continues to invest in and expand its production capacity by building its own manufacturing facility and partnerships to meet the increasing demand of Convidecia™. In August 2020, CanSinoBIO entered into a strategic partnership with Shanghai Pharmaceuticals, China's second largest pharmaceutical company, in fast expanding production capacity, storage and supply chain management of COVID-19 vaccines.

CanSinoBIO has signed a purchase agreement with Mexico to supply 35 million doses. The Company has also been discussing with authorities in Pakistan, Malaysia, Hungary and many other countries about delivery and distribution with local partners of millions of doses in the future.

### Benefits of Single-Shot Regimen

CanSinoBIO is committed to bringing affordable, timely and mass immune protection to the global population by significantly shortening the vaccination cycle and reducing the burden placed on healthcare systems and medical workers.

Convidecia™ provides protection against severe COVID-19 disease and prevention of COVID-19-related medical interventions for a broad range of age groups above 18, including those over the age of 60.

Convidecia™ can be stably transported between 2°C and 8°C and stored for at least three months. It is estimated to remain stable for over two months at 25°C and for over three weeks at 37°C, making it more accessible to regions with insufficient storage facilities.

### Multi-center Study Provides Phase III Efficacy Data

Since September 2020, CanSinoBIO has been conducting a multicenter Phase III clinical trial in Pakistan, Mexico, Russia, Chile and Argentina and dosed more than 40,000 volunteers over 18 years old. The trial was led by global principal investigators ("PI"), global



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co-PIs and country co-PIs from seven countries including Canada, Mexico and Russia, and strictly complies with high ethical standards and rigorous scientific principles.

The interim analysis and data of the Phase III clinical trial disclosed by NMPA, reflect that Convidecia™ was 65.28% effective overall in preventing all symptomatic COVID-19 disease 28 days post-vaccination, and 68.83% in preventing all symptomatic COVID-19 disease 14 days post-vaccination. Convidecia™ has an efficacy of 90.07% in preventing severe COVID-19 disease 28 days post-vaccination, and 95.47% in preventing severe COVID-19 disease 14 days post-vaccination. The Phase III clinical trial results announced by the Pakistani authority showed an efficacy rate of 100% against severe COVID-19 disease and 74.8% at preventing all symptomatic COVID-19 disease in Pakistan.

"We are encouraged by the results announced by the countries where we have been conducting clinical trials of our vaccine. We appreciate the dedication and support from the global principal investigators, co-principal investigators, volunteers, governments and everyone else who has been contributing throughout the process," said Dr. Tao ZHU, Executive Director and Chief Scientific Officer of CanSinoBIO.

In early 2020, Convidecia™ was the first candidate vaccine to publish positive results from Phase I and Phase II clinical studies in *The Lancet*, one of the world's most distinguished medical journals. In August 2020, CanSinoBIO became the first company in China to be granted a patent for its COVID-19 vaccine in China. CanSinoBIO plans to publish its Phase III results in a peer-reviewed medical journal in due course.

### About CanSinoBIO

Incorporated in 2009, CanSinoBIO (SHSE: 688185, HKEX: 06185) commits to research, production and commercialization of innovative vaccines for China and global public health security. It possesses four integrated platform technologies including adenovirus-based vectors, conjugation, protein design and recombination and formulation. As of today, it has established a robust pipeline of 16 vaccines preventing 13 diseases, including a globally innovative Ebola virus vaccine (Adenovirus Type 5 Vector) approved in 2017 as well as the Recombinant Novel Coronavirus Vaccine (Adenovirus Type 5 Vector) conditionally approved in 2021. Additional information can be found online at [www.cansinotech.com](http://www.cansinotech.com)

## Rare and dangerous 'Chapare' virus found in Bolivia; can spread from person to person

Source: <https://www.businesstoday.in/latest/trends/chapare-virus-fatal-new-ebola-like-virus-emerges-in-bolivia-can-spread-among-people-say-scientists/story/422253.html>

Nov 2020 – Scientists have discovered another deadly virus in Bolivia that can spread from one human to another.

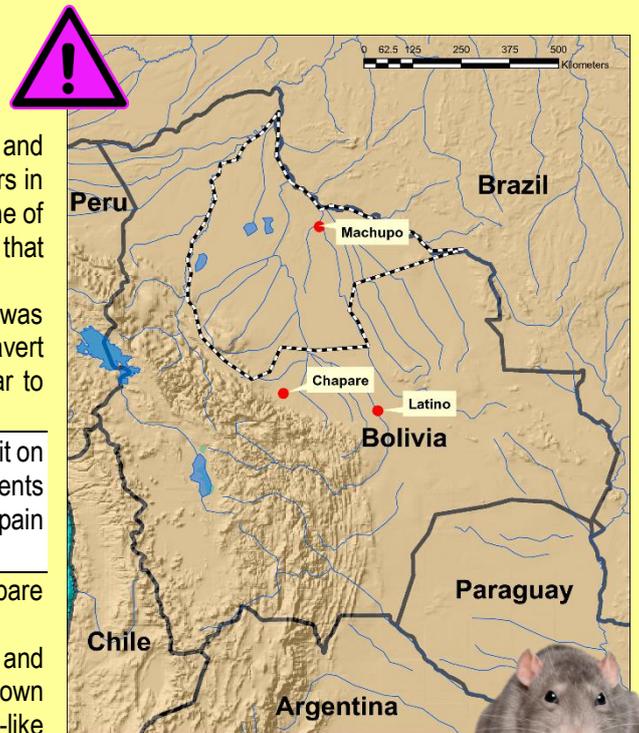
According to researchers from the US Centers for Disease Control and Prevention, two patients transmitted the virus to three healthcare workers in Bolivia's de facto capital, La Paz, last year. After contracting the virus, one of the patients and two medical workers died. The scientists are of the view that the rare virus causes hemorrhagic fevers, such as Ebola.

The Chapare virus, named after the region where it was first observed, was discovered due to the ongoing efforts of scientists around the globe to avert future pandemics like COVID-19. It causes a hemorrhagic fever similar to Ebola.

The virus is believed to be carried by **rats**, who in turn may have passed it on to humans. Caitlin Cossaboom, an epidemiologist with the CDC, said patients suffered fever, abdominal pain, vomiting, bleeding gums, skin rash, and pain behind the eyes after contracting the rare virus.

In Bolivia, a small outbreak of the virus was documented in the Chapare region 370 miles east of La Paz in 2004.

Maria Morales-Betoulle, a pathologist at the CDC, claimed that the new and rare virus in Bolivia is similar to the Chapare virus. However, little is known about this virus apart from the fact that it causes Ebola or Dengue fever-like symptoms with links to rodents and their droppings.



Researchers also said it was possible the virus had circulated for some years undetected because it could easily be misdiagnosed as dengue. Scientists said they needed to continue to study the virus to understand its capacity to cause outbreaks. Scientists identified the new virus because of close international cooperation between American health authorities, Bolivian health authorities, and scientists with the Pan American Health Organisation branch of the World Health Organisation.

## Combating the Corona Virus with Regensburg High-Tech

Source: <https://www.biopark-regensburg.de/en/press-releases-details/combating-corona-with-regensburg-high-tech.html>

Apr 2021 – The company 2bind GmbH, located at BioPark Regensburg, is part of a research project at the location which has the goal of developing an active substance to combat COVID-19.

2bind GmbH settled at BioPark Regensburg is one of the worldwide leading service providers for biophysical analysis in the field of the development of active substances. The rapidly growing company works together successfully with seven of the top 10 leading pharma companies and top-notch universities such as MIT and Stanford University. Based on its proven expertise 2bind is considerably involved in a research project that uses high-tech in the search for a potential active substance. This is led by Gernot Längst, cofounder of 2bind GmbH and Professor of Biochemistry at the University of Regensburg. Supported by computer models and artificial intelligence (AI) the nucleocapsid protein of the SARS-CoV-2 virus is being tested. This is responsible for packaging the virus RNA correctly into the virus particle. If it is successful in interrupting this process the virus multiplication would also be stopped. The project on the development of a COVID-19 medicine is being supported by the Fraunhofer Institute for Toxicology and Experimental Medicine (ITEM), Working Group Dr. Kamran Honarnejad (High throughput drug and target discovery) and the Working Group of Ralf Wagner, Professor of Molecular Biology (Virology), Institute for Medical Microbiology and Hygiene located at the University Hospital, "In Regensburg a highly-regarded biotechnology location has arisen", explained Dr. Thomas Schubert, Managing Director of 2bind GmbH. "The ideal position of the BioPark directly on the university campus simplifies direct collaboration between research groups and companies in complex projects like ours enormously", underlined Längst.

Whilst ITEM is searching for candidates as active substances in a substance library with thousands of substances by means of high throughput in cellular test systems, both 2bind GmbH as well as Prof. Längst's Working Group are concentrating on the biochemical and biophysical characterization of active substance candidates predicted by AI. "Of the first 10 substances that we have received from Prof. Längst's laboratory as candidates full of potential, three nevertheless inhibit multiplication of the virus in cell culture", stated Prof. Wagner. "We are enthusiastic about the dynamics of the interaction and the project progress and hope that we can make a decisive contribution in achieving the development of a new medicine to combat COVID-19", concluded Prof. Längst.

## iCAIR® consortium delivers first results on the way to inhalable drugs against SARS-CoV-2

Source: <https://www.item.fraunhofer.de/en/press-and-media/press-releases/icair-delivers-first-results.html>

Apr 08 – In May 2020, the international consortium iCAIR® started a research project aimed at developing therapeutics against SARS-CoV-2. The Helmholtz Centre for Infection Research (HZI), which joined forces with the consortium's core team last year, is also closely involved in this project. The HZI researchers under the leadership of Prof. Ulrich Kalinke have expanded the iCAIR® outstanding talent pool: they boast a successful track record in antiviral drug research, in particular against human pathogenic RNA viruses, and have compound libraries as well as test models and primary virus isolates. In addition, a team from Fraunhofer ITMP led by Prof. Carsten Claussen and Dr. Ole Pless is on board as a temporary project partner. The iCAIR® research team already can report promising results, which were presented by iCAIR® coordinator Prof. Armin Braun and others at Fraunhofer ITEM's virtual workshop "Models of Lung Disease" in January.

While the first vaccines against SARS-CoV-2 have now been approved in Europe and other countries, drugs for specific and efficient treatment of COVID-19 have as yet only limited availability – but are urgently needed. Because of the typical long drug development timelines, the approach of iCAIR® researchers is based on drug repurposing – the use of drugs that have already been approved for other therapeutic purposes.

To begin with, researchers from Griffith University's Institute for Glycomics (IfG), HZI and Fraunhofer ITMP screened substance libraries for suitable drug candidates. The first scientific results have already been accepted for publication: research at IfG led by Prof. Michael Jennings began with a biophysical and computational approach to specifically



search for compounds that can block the interaction between the SARS-CoV-2 spike protein and its receptor ACE2. Activity of the identified drug candidates was then confirmed in [binding and cell infection experiments by iCAIR researchers](#).

Through experimental screening of more than 5000 substances, the project partner Fraunhofer ITMP identified nearly [20 promising compounds](#) that are active against SARS-CoV-2 at low concentrations (below 1  $\mu\text{M}$ ). Among these drug candidates are camostat and nafamostat – two protease inhibitors whose efficacy had already been demonstrated in cell culture models. In a [study](#) recently accepted for publication, conducted by the group of Prof. Stefan Pöhlmann at the German Primate Center (DPZ) in collaboration with iCAIR® researchers, this efficacy has now also been confirmed in human precision-cut lung slices (PCLS) infected with SARS-CoV-2. The two compounds camostat and nafamostat, originally used as pancreatic drugs, inhibit the human protease TMPRSS-2, which the virus requires to successfully enter the host cell, with nafamostat showing higher efficacy.

The iCAIR® project partners have already started safety and efficacy tests with nafamostat. They are using different cell and tissue culture models for this – including the PCLS model established at Fraunhofer ITEM. Future efficacy testing will also take into account the new SARS-CoV-2 variants which are currently spreading ever more rapidly. Drug candidates that pass safety and efficacy testing are being further developed for inhaled administration – for example in the Fraunhofer projects RENACO and DRECOR. Inhaled drug delivery was chosen because, firstly, this route of administration allows high local drug concentrations to be achieved in the lungs, the primary target organ of SARS-CoV-2, and secondly, localized drug administration should result in fewer side effects. After completion of a GLP inhalation toxicology study, the way will be open for a first clinical trial phase with inhaled nafamostat. If things go well, it will be possible to take this step still in 2021.

►► For further up-to-date information on the partners and projects of the international research consortium iCAIR®, please refer to the [iCAIR® website](#).

## Evidence of COVID-19 airborne transmission “overwhelming” say experts

Source: <https://newatlas.com/health-wellbeing/covid19-sars-cov-2-airborne-transmission-aerosol-evidence-study/>



Apr 19 – A new review article published in *The Lancet* has presented 10 key scientific reasons why SARS-CoV-2, the virus that causes COVID-19, is predominantly spread through the air. The research adds to a growing chorus of experts saying the evidence for airborne transmission is “overwhelming” and the sooner global health authorities admit this, the sooner more effective measures to better protect the public can be implemented.

Perhaps one of the most vociferous debates over the past 12 months has been over exactly how most people catch COVID-19. As the pandemic spread across the globe in early 2020 the general perspective from most public health experts was that SARS-CoV-2 primarily spread by droplet transmission.

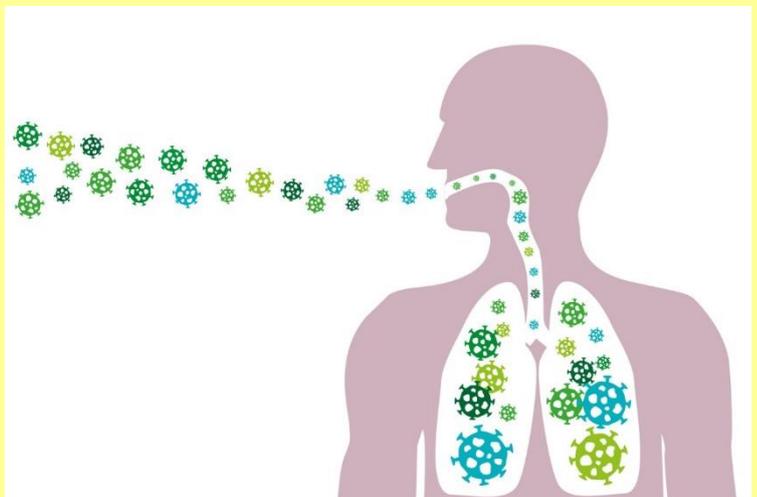
This belief hinged on a traditional binary between droplet and aerosol viral transmission. Aerosol particles have classically been defined as smaller than 5 micrometres ( $\mu\text{m}$ ). They can remain suspended in the air for extended periods of time and can travel significant distances from a source.

Respiratory droplets, on the other hand, are larger particles, often propelled from a source by coughing or sneezing.

These particles fall to the ground in seconds and typically don't travel further than six feet (1.8 m) from a source.

The general presumption from early last year was that SARS-CoV-2 primarily spreads via respiratory droplets, and this led to public health advice recommending basic measures such as social distancing, hand washing and frequent cleaning of surfaces. However, as 2020 progressed, more and more case studies presented scenarios whereby large numbers of people were infected in superspreading events despite being significant distances away from a viral source.

A new review published in *The Lancet*, led by Trish Greenhalgh from the University of Oxford, is arguing there is consistent and strong evidence to suggest SARS-CoV-2 is predominantly transmitted through airborne routes. The researchers lay out 10 streams of evidence from



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the past year that overwhelmingly support this hypothesis. The review also claims respiratory droplet transmission of this novel virus is based on flawed and outdated models of viral transmission.

The assessment references a large volume of evidence from the past 12 months, including numerous cases studies documenting long-range transmission of the virus between people in adjacent hotel rooms and superspreading events in indoor venues that cannot be explained by droplet transmission. The researchers argue particles as large as 100  $\mu\text{m}$  are known to remain suspended in the air for extended periods of time and the old fixed definition of aerosol particles as less than 5  $\mu\text{m}$  has led to misunderstandings of how

SARS-CoV-2 is spread.

“The flawed assumption that transmission through close proximity implies large respiratory droplets or fomites was historically used for decades to deny the airborne transmission of tuberculosis and measles,” the researchers write in the study. “This became medical dogma, ignoring direct measurements of aerosols and droplets which reveal flaws such as the overwhelming number of aerosols produced in respiratory activities and the arbitrary boundary in particle size of 5  $\mu\text{m}$  between aerosols and droplets, instead of the correct boundary of 100  $\mu\text{m}$ .”

The researchers are far from alone in their call for widespread acknowledgment of airborne SARS-CoV-2 transmission. In early February the editors of the prestigious science journal *Nature* criticized public health bodies and the World Health Organization for failing to effectively communicate the predominance of airborne transmission.

[The editorial](#) recognized a growing acceptance of COVID-19 being spread through the air while suggesting continued

recommendations for surface disinfection and other droplet transmission prevention measures are confusing the public and leading to huge investments in expensive disinfection efforts that shift resources away from measures such as improving ventilation in indoor spaces.

“This lack of clarity about the risks of fomites – compared with the much bigger risk posed by transmission through the air – has serious implications,” [the journal editors write](#). “People and organizations continue to prioritize costly disinfection efforts, when they could be putting more resources into emphasizing the importance of masks, and investigating measures to improve ventilation. The latter will be more complex but could make more of a difference.”

The Centers for Disease Control and Prevention (CDC) in the United States is a useful case in point. The CDC still suggests COVID-19 is primarily spread through respiratory droplets. [Its current advice](#) claims direct contact is the most common vector for infection, although its information has more recently been updated to note, “COVID-19 can sometimes be spread by airborne transmission.”

A [recent case study](#) published by the CDC described a COVID-19 cluster last year in an Australian church. The study reports 12 people were infected across two days of church services. The primary case patient was a member of the church choir and all the epidemiological evidence points to airborne spread as the best explanation. Nevertheless, the study also notes, “this investigation only provides circumstantial evidence of airborne transmission.”

Co-author on the new *Lancet* article Zeynep Tufekci, a writer and sociologist from the University of North Carolina, Chapel Hill, says many of our current precautions based on the droplet transmission hypothesis are still effective. Distancing and masks, for example, are vital tools to prevent infection, but she argues some key public health policies are diverting resources from implementing more useful measures.

“Even after a whole year, we still see the widespread practice of unnecessary levels of cleaning to the detriment of public health, use of plexiglass indoors that is far from sufficiently protective and, depending on air flows, may even be contraindicated, instead of attention to ventilation and aerosol risks,” says Tufekci. “We cannot fix this situation without accurately informing the public so that people feel empowered to make decisions to better protect themselves across different contexts, and adjusting guidelines globally to fit the best available evidence.”

A recent editorial published in [The BMJ](#) argues traditional scientific definitions of viral transmission need urgent revision. Co-authored by Linsey Marr, an expert in airborne transmission of viruses, the article agrees many of our current infection control measures

 MYTH	 FACT
1) Aerosols are droplets with a diameter of 5 $\mu\text{m}$ or less	1) Aerosols can be up to 100 $\mu\text{m}$ in size
2) Everything larger than 5 $\mu\text{m}$ falls within 1-2 m	2) A 5 $\mu\text{m}$ aerosol can travel hundreds of meters
3) If it's short range, then it can't be airborne	3) Short-range transmission is dominated by aerosols
4) The virus is only 0.1 $\mu\text{m}$ in size so masks won't work	4) Virus is carried in aerosols larger than 0.1 $\mu\text{m}$
5) Aerosols only matter for aerosol generating procedures	5) Talking and coughing are aerosol generating procedures

Slide courtesy of Prof. Linsey Marr

From our published paper in the Journal of Hospital Infection: J.W. Tang, W.P. Bahnfleth, P. Blyvssen, G. Buonanno, S.J. Dancer, J.L. Jimenez, J. Kurmiski, Y. Li, S. Miller, C. Sekhar, L. Morawska, L.C. Marr, A.K. Melikov, W.W. Nazaroff, P.V. Nielsen, R. Teller, P. Wargoeki. Dismantling myths on the airborne transmission of severe acute respiratory syndrome coronavirus (SARS-CoV-2). *J. Hosp. Inf.*, 110, 89-96, 2021. <https://doi.org/10.1016/j.jhin.2020.12.022>



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are useful and shouldn't change even with a broader agreement over the predominance of airborne transmission. However, a big problem with the current focus on droplet transmission is a lack of emphasis regarding indoor ventilation. Marr and colleagues suggest more attention needs to immediately be paid to ventilation and air filtration technologies for indoor spaces. This will help future-proof our indoor spaces from this and other viruses that may arise. "Covid-19 may well become seasonal, and we will have to live with it as we do with influenza," the researchers write in [The BMJ](#). "So governments and health leaders should heed the science and focus their efforts on airborne transmission. Safer indoor environments are required, not only to protect unvaccinated people and those for whom vaccines fail, but also to deter vaccine resistant variants or novel airborne threats that may appear at any time."

▶▶ The new study was published in [The Lancet](#).

### Greece – "Virus Terminator" Mask developed at Thessaloniki University

Source: <https://www.keeptalkinggreece.com/2020/12/07/virus-terminator-mask-thessaloniki-university/>

Dec 2020 – A high-tech device, a personal protective mask combined with a antimicrobial and antiviral system (PPE), that sterilizes both the inhaled and the exhaled air has been developed at the Aristotle University of Thessaloniki. The "mask virus terminator" is awaiting approval from the relevant services and is expected to be a game changer in the protection of the medical and nursing staff in the country.



The mask with full face coverage, is named "VITER1 GR", from "Virus Terminator Greece" and converts passive protection against SARS-CoV-2, into active, using special LED lamps, which produce sterile UV-



C radiation, emitted into the inhaled air, while in the same way it sterilizes the exhaled air with absolute safety for the user.

The device is the result of the partnership between the Department of Medicine of the School of Health Sciences of the Aristotle University of Thessaloniki headed by Professor of Orthopedics Panagiotis Givisis and the Department of Electrical and Computer Engineering of the Aristotle University of Thessaloniki, headed by Professor Christos Antonopoulos.

**EDITOR'S COMMENT:** It looks like a modification of a PAPR system used in CBRN operations with certain modifications related to inhaled air cleaning. I cannot see clearly if the mask is sealed when in contact with the face (right photo above). Perhaps there is an inner face contour that seals the mask (left photo). Nevertheless, it is an innovative prototype that needs further improvement (i.e., what is the weight of the apparatus carried in the back [blue arrow]?)

#### How the mask works

The device consists of a full-face mask (snorkeling type), with skin-friendly medical silicone material. The quality and purity of the inhaled and exhaled air are controlled by an activated carbon filtration and sterilization circuit by means of appropriate ultraviolet radiation. The



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amount of inhaled air is also regulated by controlling the flow rate. Sterilization is dual through independent passages, for both inhaled and exhaled air.

**The specific wavelength used in the device, while maintaining its germicidal action, converts any ozone into oxygen, making the use of the device completely safe.**

The inhaled air, before entering the mask internally, is filtered with a special replacement activated carbon filter and then exposed to ultraviolet radiation through the attached system, killing the unwanted germs, viruses and other pathogens that are harmful.

In addition, when leaving the device and shortly before entering the mask, the air passes through a special filter to retain the remains



of dead germs and viruses.

In the same way, the exhaled air is sterilized, which in a different way reaches the complete autonomous unit for the treatment of inhaled and exhaled air.

### “The virus becomes a prey”

Behind every important discovery lies human curiosity and the search for practical solutions to everyday or even more complex issues. For Professor Panagiotis Givisis, the idea was simple in its approach: “How can SARS-CoV-2 from a predator become prey, how can passive protection against the coronavirus become active?”.

Professor Givisis who works at the hospital “Papanikolaou” has a complete picture of the suffocating pressure

received by the health system has sought an “aggressive “response to an insidious feature of the pandemic: the existence of a large number of asymptomatic carriers silent infection of many members of the medical and nursing staff and weakening of the hospitals at the most critical moment of the health battle.



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“The answer was a mask, which will sterilize the exhaled air, so that potential asymptomatic users do not affect their colleagues, who use conventional protection measures, and do not increase the viral load in hospitals,” Givisis told state-run news agency [amna](#).

### Production and availability

The device has already received a patent rating number from the Industrial Property Organization and the US Patent Office. The production will be in cooperation of the private sector. Company BYTOX A.E. has fully funded the implementation of the program and has undertaken the production of the device. BYTOX A.E. is in agreement with the medical equipment company G.Samaras, Medical Gas Solutions, based in Thessaloniki and export activity in 89 countries, for the industrial production of the device. In addition to hospitals, the device is also for use in “ISO Cleanroom” type areas, as well as where there is a need for protection from infectious agents.

## ‘Ripe for fraud’: Coronavirus vaccination cards support burgeoning scams

Source: <https://www.washingtonpost.com/health/2021/04/18/scams-coronavirus-vaccination-cards/>

Apr 19 – One listing offered eBay customers an “Authentic CDC Vaccination Record Card” for \$10.99. Another promised the same but for \$9.49. A third was more oblique, offering a “Clear Pouch For CDC Vaccination Record Card” for \$8.99, but customers instead received a blank vaccination card (and no pouch).

All three listings were posted by the same eBay user, who goes by “asian jackson” — using an account registered to a man who works as a pharmacist in the Chicago area — and all were illegal, federal regulators say. The account sold more than 100 blank vaccination cards in the past two weeks, according to The Washington Post’s review of purchases linked to it.

The listings are a “perfect example” of burgeoning scams involving [coronavirus](#) vaccination cards that could undermine people’s safety, as well as the success of the nation’s largest mass vaccination effort, said North Carolina Attorney General Josh Stein. Individuals might use them to misrepresent their vaccination status at school, work, or in various living and travel situations, potentially exposing others to risk.

For months, officials have been a step behind the scammers, who have openly discussed [strategies to fake the cards](#) on social media, sold them on sites such as eBay, and pulled blank photos off state websites. Federal officials’ decision to use paper cards that can be easily photocopied or even printed off a template, rather than a digital tracking system, worsened those risks.

“This is exactly the scenario that you want to guard against. It undermines the entire effort by having falsified cards out there,” said Jennifer Kates, who oversees global health policy for the Kaiser Family Foundation and reviewed asian jackson’s eBay listings. “It certainly bolsters the argument for a digitized mechanism — which isn’t a tamper-proof system, but certainly a more secure one.”

“Paper *anything* is ripe for fraud,” said Nenet Day, an assistant special agent in charge at the Department of Health and Human Services’ inspector general’s office who oversees whistleblower tips. Day said she has reviewed dozens of reported vaccination-card scams that range from Americans stealing blank cards to sharing tips on how to fake a card on social media. She described the trend as among the most frustrating chapters in a 20-year career that included responding to the 9/11 terrorist attacks as an FBI agent.



## Should I take some aspirin before and after the vaccination?

Source: <https://www.bbc.com/news/uk-wales-56764182>

Jo Jerome, chief executive of Thrombosis UK: “Expert haematologists advise against taking aspirin after AstraZeneca Covid-19 vaccine because it will not affect the occurrence of the very rare vaccine-associated thrombosis and thrombocytopenia (VATT), which is driven by an immune response to something in the AstraZeneca Covid-19 vaccine.

“Furthermore, one of the problems with VATT is a low platelet count which means there is increased risk of bleeding. Aspirin will make this worse.

“Outside of VATT in healthy people, aspirin’s bleeding problems outweigh any benefits in reducing clots. Aspirin does have enormous benefit in reducing the risk of further arterial clots, however, in those who have had clots.”

Public Health Wales: “Public Health Wales does not support taking aspirin before and after the vaccination, any concerns should be discussed with your GP ahead of your vaccination.”



## 'Hands of love': warm latex gloves mimic human touch for COVID-19 patients in Brazil

Source [video]: <https://www.scmp.com/video/coronavirus/3130252/nurses-brazil-help-isolated-patients-fight-covid-19-warm-latex-gloves>

Apr 19 – The fight against COVID-19 is a lonely one with patients forced into isolation in intensive care wards, removed from family and friends.

But two nurses in the small city of Sao Carlos, in Sao Paulo state, have discovered a way to help with a millimeter of latex and some warm water that mimics human touch.

Semei Araújo Cunha and Vanessa Formenton improvised the technique they call "little hands of love" while working in the Santa Felicia Emergency Care Unit.

They fill latex medical gloves with warm water in a hospital shower, tying them off like water balloons.

Cunha demonstrated how she puts the gloves on an unconscious man fighting for his life against COVID-19, placing one glove on each side of the hand.



"The patient feels comforted as if someone were holding hands with them," Formenton said.

The man is one of several patients sharing a small hospital room, each person hooked to an array of machines tracking their vitals with a cacophony of beeps and alarms.

The two nurses developed the method about a month ago, as the current brutal surge in COVID-19 was gaining speed. Brazil is now leading the world in daily average COVID-19 deaths and is second only to the United States in the total death toll.

Warming patients' hands have several benefits beyond the emotional support it

can provide, they say, including increased blood flow.

Cold hands can result in incorrect readings of patients' blood oxygen levels, falsely showing that oxygen levels are low. The gloves ensure that doesn't happen.

Hospitals around the city are now using the technique, with staff praising the "hands of love" for delivering immediate results. "It's unbelievable that you can see how fast the change in the patient is, it's magnificent," Cunha said.



## Fewer COVID-19 Infections Detected in Women Who Take Certain Vitamins, Study Claims

Source: <https://www.sciencealert.com/fascinating-study-finds-women-who-take-certain-vitamins-catch-covid-19-less-frequently>

Apr 20 – While in some countries the vaccine rollout is well underway, many of us still live amidst the risks of the [COVID-19 pandemic](#) without protection, and need all the help we can get.

An interesting study by an international team of researchers has now found a small association with supplement use, indicating fewer COVID-19 infections in women who are taking certain types of vitamins. But don't rush to the pharmacy just yet.

Firstly, it's important to remember that the [potential merits of multivitamins are extremely limited](#). Doctors generally advise that most people get enough micronutrients in their [diet to keep healthy](#), and in the past studies on the health benefits of vitamin supplements without a diagnosed deficiency have [been a truly mixed bag](#).

Despite that, in the early days of the pandemic, vitamins were one of the [many items](#) that flew off pharmacy shelves.

"The UK supplement market increased by 19.5 percent in the period leading up to the national 'lockdown' in early March 2020, with a 110 percent rise in sales of vitamin C and a 93 percent rise in sales of multivitamin supplements," [the team wrote](#).

"Likewise, zinc supplement sales increased by 415 percent over the 7-day period ending 8 March, at the height of COVID-19 concern in the USA."

Supplements can have a role to play in supporting our health. Zinc is one of the few micronutrients linked with [shortening the disease course of the common cold](#); those on vegan diets are recommended to take B12 vitamins to [help combat deficiency](#). But staving off infections is where it gets tricky.

The researchers took data from an app launched by [health science company Zoe](#) back in early 2020 called the 'COVID-19 Symptom Study app', which asked participants a wide range of questions, including whether they used vitamins such as probiotics, garlic, fish oils, multivitamins, vitamin D, vitamin C, or zinc. They also asked if they'd been tested for [SARS-CoV-2](#) and what the results were. A total of 445,850 subscribers from the UK, US and Sweden had answered the questionnaire before 31 July 2020, giving the team plenty of data to analyze.

In the UK, where the vast majority of those surveyed were based, just under half took some kind of supplement. Around 6 percent of those that took supplements tested positive to SARS-CoV-2, while 6.6 percent of those who didn't take supplements tested positive. That's a difference of around 2,500 people.

"In the UK cohort, users regularly supplementing their diet with multivitamins had a lower risk of testing positive for SARS-CoV-2 by 13 percent, with vitamin D had a lower risk by 9 percent, with probiotics had a lower risk by 14 percent and with omega-3 fatty acids had a lower risk by 12 percent," [the researchers wrote](#).

"There were no significant associations in those supplementing with zinc, vitamin C, or garlic."

There are plenty of caveats here to take note of. Firstly, this is an observational study based on self-reports, which means there is no causal proof that vitamins resulted in fewer COVID-19 diagnoses.

The team adjusted for age, sex, BMI and a number of other factors, and tried to account for 'healthy user bias', which is the idea that those who take vitamins are likely to be healthier in other ways too, which could conflate the results.

Even after all that, the results were still there, but interestingly, once the team had split up the results by sex, for men there was no difference linked to supplements, while in women the results were present across all ages and BMI groups.

The results were also slightly different between the US and Sweden, finding that omega-3 supplements didn't appear to help Swedish women, and probiotics and vitamin D appeared to help US men.

"In the largest observational study on SARS-CoV-2 infection and dietary supplement use to date on over 400,000 app users from three different countries, we show a significant association between users of omega-3 fatty acid, probiotic, multivitamin or vitamin D supplements and lower risk of testing positive for infection with SARS-CoV-2," the team wrote.



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"Females who purchase vitamins may also be more health-conscious than males, such as having greater use of wearing face masks and hand-washing. Indeed, in our data, we found that women tended to wear masks more often than males."

After all that, the results show a very modest difference; for example, taking vitamins only lowered the absolute risk of getting COVID-19 by less than 1 percent in the UK study participants.

But on population levels, even tiny percentage points can save lives, so it's imperative that we work out whether it really is the vitamins making a difference.

The researchers have called for a large [clinical trial](#) to test the potential effects in a more controlled setting. For now, if you're yet to receive a vaccine, masks, good hygiene, and social distancing are still likely to keep you much safer than any vitamin could.

"This study wasn't primarily designed to answer questions about the role of nutritional supplements in COVID-19," [says Sumantra Ray, a nutritionist from Cambridge who wasn't involved in the study.](#)

"This is still an emerging area of research that warrants further rigorous study before firm conclusions can be drawn about whether specific nutritional supplements might lessen the risk of COVID-19 infection."

►► The research has been published in [BMJ Nutrition Prevention & Health](#).

## Will curcumin nanosystems be the next promising antiviral alternatives in COVID-19 treatment trials?

By Douglas Dourado, Danielle T Freire, Daniel T Pereira, et al.

*Biomed Pharmacother*; 2021 Apr 6;139:111578

Source: <https://pubmed.ncbi.nlm.nih.gov/33848774/>



### Abstract

The COVID-19 has become of striking interest since the number of deaths is constantly rising all over the globe, and the search for efficient treatment is more urgent. In light of this worrisome scenario, this opinion review aimed to discuss the current knowledge about the potential role of curcumin and its nanostructured systems on the SARS-CoV-2 targets. From



this perspective, this work demonstrated that curcumin urges as a potential antiviral key for the treatment of SARS-CoV-2 based on its relation to the infection pathways. Moreover, the use of curcumin-loaded nanocarriers for increasing its bioavailability and therapeutic efficiency was highlighted. Additionally, the potential of the nanostructured systems by themselves and their synergic action with curcumin on molecular targets for viral infections have been explored. Finally, a viewpoint of the studies that need to be carried out to implant curcumin as a treatment for COVID-19 was addressed.

## Toilet flushing can create infectious aerosols even when the lid is closed

Source: <https://newatlas.com/science/toilet-flushing-aerosols-public-restroom-study-coronavirus/>

Apr 20 – An experimental study has quantified the volume of aerosol particles generated by flushing toilets in a public restroom. The real-world research suggests even with lids closed flushing toilets can increase levels of ambient aerosol particles, heightening the risk of airborne disease transmission in poorly ventilated public spaces.

In 2003, during the peak of Hong Kong's SARS outbreak, [321 cases rapidly appeared](#) in a single housing estate. Comprehensive investigations of the outbreak ultimately homed in on the primary case, a man visiting one of the apartment blocks.

On the day the man was visiting he had diarrhea and used a toilet in one of the apartments. Tracking subsequent cases, [the investigation discovered](#) the most likely route of viral transmission to other residents was via aerosolized particles discharged into sewage pipes.

Early in 2020, as the COVID-19 pandemic spread around the world, case studies resembling the earlier Hong Kong SARS cluster began to appear. One early cluster in a Chinese apartment building, for example, was widely analyzed and a [recently published study](#) concluded fecal aerosol transmission was possibly the cause.

It certainly is not news to suggest a large volume of micro-organisms is present in feces. But what happens to those microbes when they are struck by the water pressure of a flushing toilet?

[A simulation study](#) published last year used computational fluid dynamics to model the generation and spread of aerosol particles during toilet flushing. The researchers described their results as "alarming," finding the flushing process creates and propels significant numbers of aerosol particles.

A new study, from a team of researchers at Florida Atlantic University, set out to quantify the volume of aerosols produced by flushing toilets in real-world conditions. To do this the researchers turned a medium-sized restroom on their university campus into an experimental laboratory.

Closed-lid toilet flushing, open-lid toilet flushing and urinal flushing were all investigated. Aerosol particles were detected for at least 20 seconds up to 5 ft (1.5 m) above the toilet after flushing.

While more particles were found to be generated by urinal and open-lid toilet flushes, the researchers still detected notable volumes of aerosols in the air after a toilet was flushed with a closed lid. As many public restrooms do not have lids on toilet seats it is suggested installing lids may help reduce aerosol dispersion but smaller particles can still escape through gaps in the lid.

Perhaps more concerning were the overall levels of ambient aerosols that were found to accumulate in the space after three hours of flush experiments.

"After about three hours of tests involving more than 100 flushes, we found a substantial increase in the measured aerosol levels in the ambient environment, with the total number of droplets generated in each flushing test ranging up to the tens of thousands," says co-author on the new study, Siddhartha Verma.

The researchers tracked aerosol particles smaller than three micrometers in size, which can remain suspended in the air for several hours depending on a room's airflow. The restroom was fitted with two working air vents, however, this was not effective at dispersing the accumulating particles.

"The significant accumulation of flush-generated aerosolized droplets over time suggests that the ventilation system was not effective in removing them from the enclosed space even though there was no perceptible lack of airflow within the restroom," notes Masoud Jahandar Lashaki, another co-author the study. "Over the long-term, these aerosols could rise up with updrafts created by the ventilation system or by people moving around in the restroom."

The new study solely focuses on the potential for biomatter to be aerosolized by a flushing toilet and does not prove infectious diseases can be spread through the air in public restrooms. Nor does it suggest this is proof COVID-19 is spread this way.



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The researchers do, however, cite a number of well-reported case studies describing viral gastroenteritis, norovirus and other pathogens being spread by aerosolized particles present in public toilets. Traces of SARS-CoV-2 have also [been found in fecal samples](#), suggesting this is a hypothetically plausible mode of transmission.

"The study suggests that incorporation of adequate ventilation in the design and operation of public spaces would help prevent aerosol accumulation in high occupancy areas such as public restrooms," explains co-author Manhar Dhanak. "The good news is that it may not always be necessary to overhaul the entire system, since most buildings are designed to certain codes. It might just be a matter of redirecting the airflow based on the restroom's layout."

►► The new research was published in the journal [Physics of Fluids](#).

### Let's have a drink outside!

Source: <https://www.youtube.com/watch?v=4q0Qs9l2nFo>

### Masks, masks, masks ...

Source: <https://www.sciencealert.com/double-masking-is-great-but-you-have-to-do-it-the-right-way>

Double masking may not be necessary if you already have a well-fitted mask, found a recent study published as a research letter in [JAMA Internal Medicine](#).

Researchers at the University of North Carolina at Chapel Hill tested several mask combinations on volunteers, from a single cloth mask to doubled-up surgical masks. They found that wearing a full-coverage mask, such as a bandanna or gaiter, over a surgical mask provided the best filtration.

"[This] leads us to understand that double masking is most effective because of the improved fit that it offers, not because of the additional layers," lead author Emily Sickbert-Bennett wrote in an email to Insider.

Layering a cloth mask over a surgical mask also improved the fit and filtration, the study found. However, the same combination with the surgical mask on top provided no additional benefit compared to wearing a single surgical mask alone.

### Why India is facing oxygen shortage during 2nd Covid wave

Source: <https://www.indiatoday.in/coronavirus-outbreak/story/explained-why-india-is-facing-oxygen-shortage-during-2nd-covid-wave-1793435-2021-04-21>

Apr 22 – The second wave of the Covid-19 has left infected patients gasping for breath as hospitals in some states continue to face an acute shortage of medical oxygen. [Many hospitals in Delhi](#) and few other states are currently operating on the edge due to a shortage of medical oxygen.

Over the past few weeks, many breathless Covid-19 patients have died due to the unavailability of medical oxygen in hospitals situated in Delhi, Uttar Pradesh, Maharashtra, Gujarat and Madhya Pradesh.

A flurry of SOS messages on Twitter and other social media platforms show the severity of the oxygen shortage in these states. Meanwhile, [opposition party leaders](#) and affected citizens have slammed the Centre and state governments for the shortage of medical oxygen, which is necessary for hospitals to keep critical Covid patients alive.

#### ARE OXYGEN EXPORTS TO BLAME?

Oxygen export data from the Department of Commerce showed that the [country exported twice as much oxygen to the world during the first 10 months of FY21](#) in comparison to the previous financial year.

India had exported 9,301 metric tonnes of oxygen across the world between April 2020 and January 2021. In comparison, the country had exported only 4,502 metric tonnes of oxygen in FY20. The oxygen supplied was in liquid form and can be used for both industrial and medical use.

However, the demand for oxygen in India was not as high during the aforementioned period. During the first wave, the demand for liquid medical oxygen (LMO) increased from 700 metric tonnes per day (MTPD) to 2,800 MTPD. But during the second wave, it has skyrocketed to



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5,000 MTPD. It was only in the second week of April when demand for medical oxygen in India witnessed a five-fold jump, according to Crisil.

While many are blaming the government over India's FY21 oxygen exports, the fact that the country produces over 7,000 metric tonnes of liquid oxygen per day indicates that the problem lies somewhere else.

### UNEVEN DISTRIBUTION AND RAPID COVID SURGE

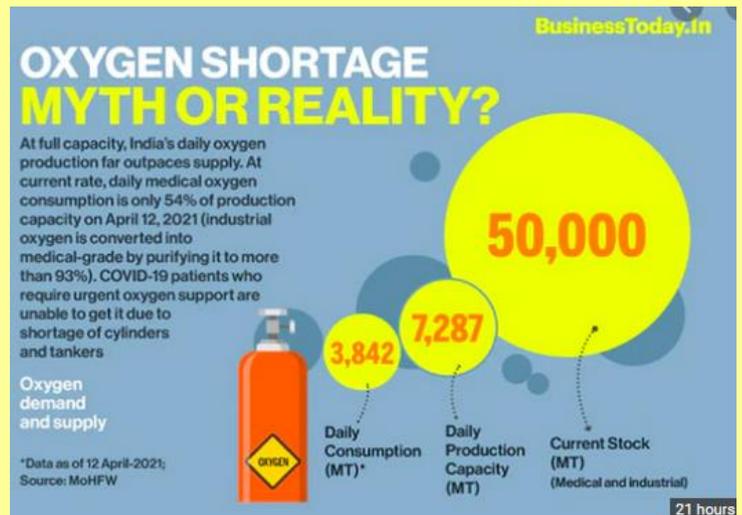
Demand for medical oxygen skyrocketed in India soon after Maharashtra started witnessing a [sharper of Covid-19 cases since February](#). The situation worsened as the second Covid wave hit with blistering force in March.

Indian Council of Medical Research (ICMR) Director General Balram Bhargava had pointed out earlier that [shortness of breath has emerged as a major concern](#) among Covid-19 patients during the second wave. This is why the need for medical oxygen has almost doubled.

At the moment, India produces more than 7,000 metric tonnes of liquid oxygen per day, which is enough to support the current requirement of medical oxygen. However, uneven supply and logistical issues have led to an oxygen crisis in some states.

Inox Air Products Director Siddharth Jain has told [Moneycontrol.com](#) that India has enough oxygen production to meet the existing demand but added that some states are facing a shortage due to distribution issues. The company produces over 50 per cent of the medical oxygen requirement in the country. Some other major manufacturers are Linde India, Goyal MG Gases Pvt Ltd, National Oxygen Limited.

"When you look at it from an all-India perspective, we are very



### Rising demand...

**West Bengal:** up by four to five times

**Rajasthan:** up from 1,500-2,000 cylinders per day to 8,000-9,000 cylinders per day

**Punjab:** 181 patients requiring oxygen in July to 10,544 patients on oxygen as on Sept 10

**Karnataka:** up from 100-150 metric tons pre-Covid to Rs 500 metric tons

**UP:** up from about 250 cylinders per day to 800-900 cylinders per day



### ...and prices

**Uttar Pradesh:** up from Rs 130 to Rs 315 to Rs 350 for small cylinder, security amount against cylinder up from Rs 5,000 to Rs 10,000

**Bihar:** 10 litre cylinder price up from Rs 7,000 to Rs 8,500

**Gujarat:** Rs 8.5 for one litre of oxygen gone up to Rs 28-35

cases come down soon in these states as it will help meet rising demand in others.

"I am only praying that, when the Uttar Pradesh and Delhi wave begins, cases in Gujarat and Maharashtra go down. Then, we will be able to manage the oxygen demand," he said.

He said that there is enough stock to meet the current demand but added that the situation may get out of control if cases rise from 2,50,000 per day to 5,00,000. "Then we will have a problem," Jain added.

comfortable as a country. At present, 7,200 metric tonnes per day (MTPD) of oxygen is manufactured in India in liquid form, which is supplied to hospitals. The current demand is 5,000 MTPD only," Jain told the publication.

100 Indian Rupee = 1.1 euro

Jain further highlighted that the shortage in medical oxygen supply is being faced primarily across states in Western India like Maharashtra, Gujarat and Madhya Pradesh. He added that demand has now started picking up in Delhi and Uttar Pradesh due to a sharp rise in Covid-19 cases.

"The issue is that supply is available in places that are very far away from the demand. We are trying to find a way to transport the same," Jain said.

Jain said that critical cases are very high in states like Maharashtra and Gujarat. He "hopes" that the



It is worth mentioning that states that have seen the sharpest surge of Covid-19 cases are primarily facing an oxygen crisis. Maharashtra is one such state as it requires more medical oxygen than what it produces at the moment. Meanwhile, Madhya Pradesh does not even have oxygen manufacturing plants and is relying on other states for oxygen supply.

### SHORTAGE OF CYLINDERS, TANKERS

If India continues to witness a sharp surge in daily Covid-19 cases, the oxygen shortage could be felt by more states. On Wednesday, India reported [nearly 3,00,000 Covid-19 cases and over 2,000 deaths](#) — both figures are the highest recorded in India since the pandemic began in 2020.



To add to the woes, logistical issues in supplying oxygen has also become a major issue for companies that manufacture liquid oxygen.

The 24×7 availability of cryogenic tankers — necessary for transporting liquid oxygen — is difficult given the fact that many hospitals are facing a shortage at the same time. The need of the hour is to manufacture more cryogenic tanks, which can take up to four months.

The shortage of such tankers has led to a significant delay in inter-state transportation of oxygen from manufacturers to hospitals. It may be noted that medical facilities and healthcare centres located in remote areas face a bigger crisis due to longer transportation time.

In such a scenario, the [use of trains to supply oxygen to states are also likely to ease the shortage](#) that some states are facing. The decision to let suppliers use argon and nitrogen tanks for oxygen supply will also help ease the shortage in some states.

The government's decision to import 50,000 metric tonnes of oxygen is also likely to help mitigate the demand crisis in the next few days as operations have already started.

The Centre has also sanctioned the installation of 162 Pressure Swing Adsorption (PSA) oxygen plants in public health facilities across states. The plants will augment medical oxygen capacity by 154.19 metric tonnes, according to the health ministry.

“Out of 162 PSA plants sanctioned by the union government, 33 have already been installed - five in Madhya Pradesh, four in Himachal Pradesh, three each in Chandigarh, Gujarat, and Uttarakhand, two each in Bihar, Karnataka, and Telangana; and one each in Andhra Pradesh, Chhattisgarh, Delhi, Haryana, Kerala, Maharashtra, Puducherry, Punjab, and Uttar Pradesh,” the health ministry added.

Despite these efforts, a lot will depend on whether the country manages to [reduce daily Covid-19 infections over the next few weeks](#). If the chain of infections is not broken by the end of May, India could witness an alarming oxygen crisis.

## New Tech Makes Detecting Airborne Ebola Virus Possible

Source: <http://www.homelandsecuritynewswire.com/dr20210421-new-tech-makes-detecting-airborne-ebola-virus-possible>

Apr 21 – Natural outbreaks of the Ebola virus, while severe, are typically isolated and usually affect no more than a few hundred people at a time. However, from 2014-2016, infections from this deadly virus caused more than 11,000 deaths in West Africa. During this time, several cases of Ebola virus disease were also diagnosed in other countries, including the United States, due to infected travelers from West Africa that had unknowingly harbored and incubated the virus while en-route to their respective destinations.

By the time a person infected with Ebola virus becomes symptomatic, they are typically starting to shed the virus. During an outbreak, health care workers and family members of patients are often the first to respond and provide care. In this role, they are at a high risk of becoming infected with the virus as well. Therefore, it is important to understand how we can best prevent transmission in both clinical and home settings.

Human-to-human transmission of the Ebola virus occurs primarily through direct contact and exposure to the blood or other bodily fluids of infected patients. However, there have been new infections that occurred without documented contact between a patient and health care provider or family member. While these cases are uncommon, it is possible that a small fraction of the cases of Ebola virus infection may be the result of exposure to small droplets or aerosols containing the virus.



Laboratory studies have shown that the Ebola virus can remain infectious outside of the body for long periods of time. The virus can survive in blood samples on various surfaces for several days, even in hot and humid conditions that would typically kill most other viruses and bacteria. In an aerosolized form, the Ebola virus can survive for over an hour. Additionally, laboratory experiments have demonstrated that inhaling small amounts of Ebola virus can be fatal [1], and there are examples of Ebola virus disease being transmitted between individuals in close proximity, even though they had never been in direct contact with each other [2].

However, assessing the risk of transmission via droplets or aerosols is a complicated process. While the minimum amount of virus required to cause infection is thought to be very low, so far it has not been possible to determine a definitive value. This is because commonly used testing methods are often not sensitive enough to detect or measure the amount of infectious virus in the air. To address these challenges, researchers at the Department of Homeland Security (DHS) [Science and Technology Directorate's \(S&T\) National Biodefense Analysis and Countermeasures Center](#) (NBACC) designed and conducted a study to optimize methods for collecting and measuring very small amounts of Ebola virus in the air.

"Ebola can be both a national security and public health concern," [explained](#) Lloyd Hough, who leads S&T's [Hazard Awareness and Characterization Technology Center](#). "We're looking forward to applying these methods to better characterize the risks associated with Ebola virus, and are hopeful that others can benefit from these techniques as well."

NBACC researchers assessed and compared multiple devices designed for collecting microorganisms from the air. They concluded that filters made of gelatin were the best for collecting infectious Ebola virus from the air and were also the easiest and safest type of sampling device to use. The researchers utilized a cell line, developed by the Centers for Disease Control and Prevention, in an assay designed to measure the amount of infectious Ebola virus present in a sample. The cell line glows when infected by the virus, which enabled the researchers to differentiate Ebola virus infection from other causes of cell death.

After testing various sampling and assay methodologies, the NBACC researchers found that the combination of the gelatin filter samplers and improved assay was easier to use, more reliable, and nearly ten times more sensitive than the previous methods utilized to measure the amount of infectious Ebola virus in air samples. The results of these experiments have been published in two peer-reviewed journal articles [3,4], which will enable researchers at other institutions to understand and utilize these newly developed sampling and assay methodologies.

"Our ability to detect Ebola virus in air samples at levels that are ten-fold lower than what was possible with previous methods, will enable us to provide a better understanding of the aerosol hazard posed by this virus," said Mike Schuit, an investigator in the Aerobiology group at NBACC.

The new sampling and assay methodologies developed by NBACC researchers, as well as the data from associated studies, will be useful in a number of ways. For example, these methods are currently being employed in a study in partnership with the National Institute of Allergy and Infectious Diseases (NIAID) to determine the minimum amount of Ebola virus that needs to be inhaled in order to cause infection or death in an animal model of Ebola virus disease. This study will also determine whether infected animals produce aerosols containing Ebola virus when they breathe, which will help scientists to better understand the potential for natural aerosol transmission of the virus. Various DHS components and partners, along with the Department of Defense and the Department of Health and Human Services, will use these data to conduct hazard modeling and gain a better understanding of the potential risk for airborne transmission of Ebola virus and how it may impact health workers.

Taking lessons learned from the response to Ebola virus, the NBACC researchers are conducting similar studies with SARS-CoV-2, the virus that causes COVID-19. This includes studying the performance of aerosol samplers with SARS-CoV-2, and optimization of methodologies to detect small quantities of SARS-CoV-2 in the air. Furthermore, the NIAID partnership has been extended to examine how much virus it actually takes to start a new infection when aerosol particles containing SARS-CoV-2 are inhaled. As with the Ebola study, this study will also measure whether infectious virus is present in the exhaled breath of infected animals to better understand how COVID-19 spreads in human populations and inform strategies to prevent its continued spread.

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