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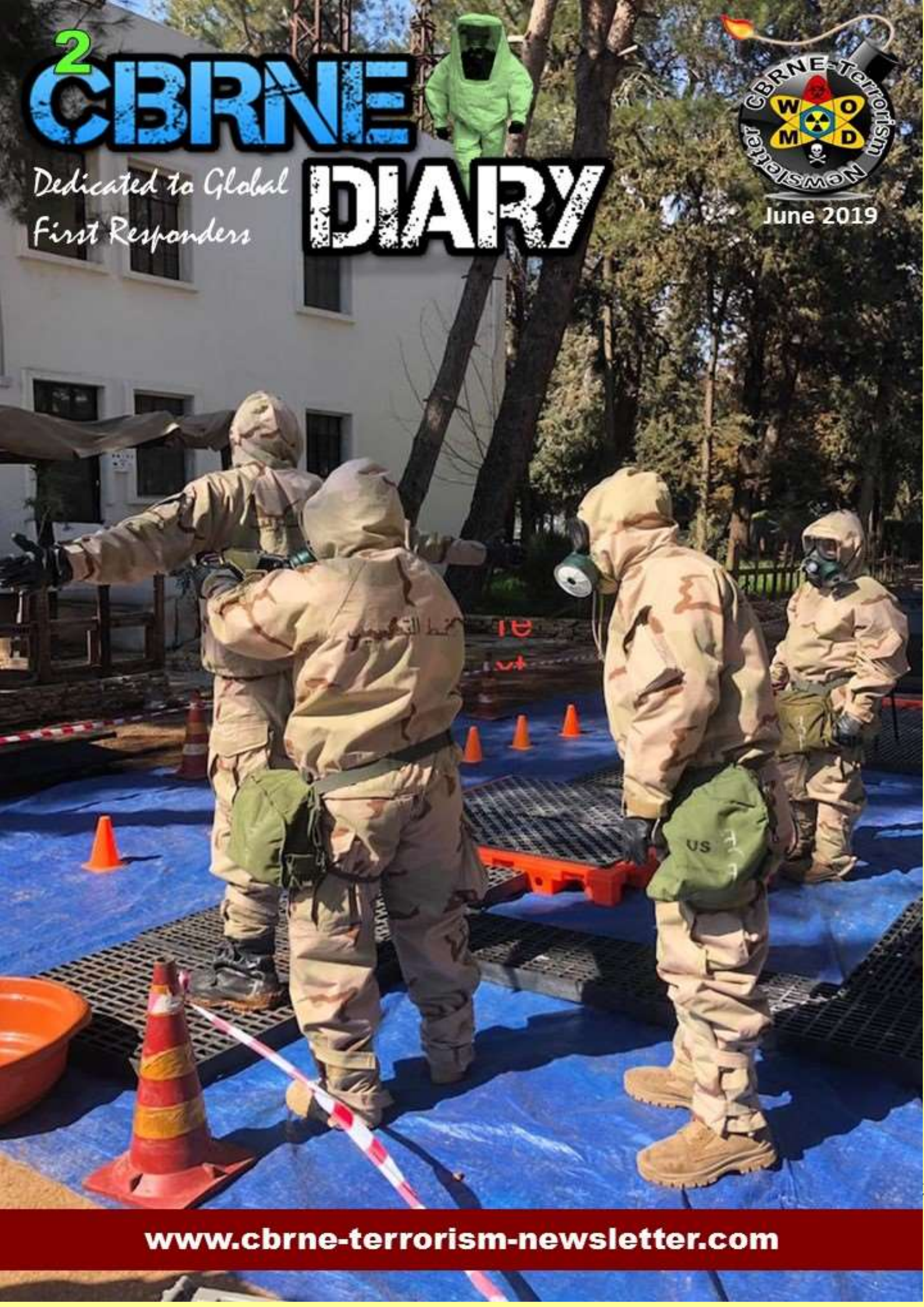
Dedicated to Global First Responders

CBRNE-Terrorism Newsletter

June 2019



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# C²BRNE DIARY– 2019©

**June 2019**

**Website:** www.cbrne-terrorism-newsletter.com

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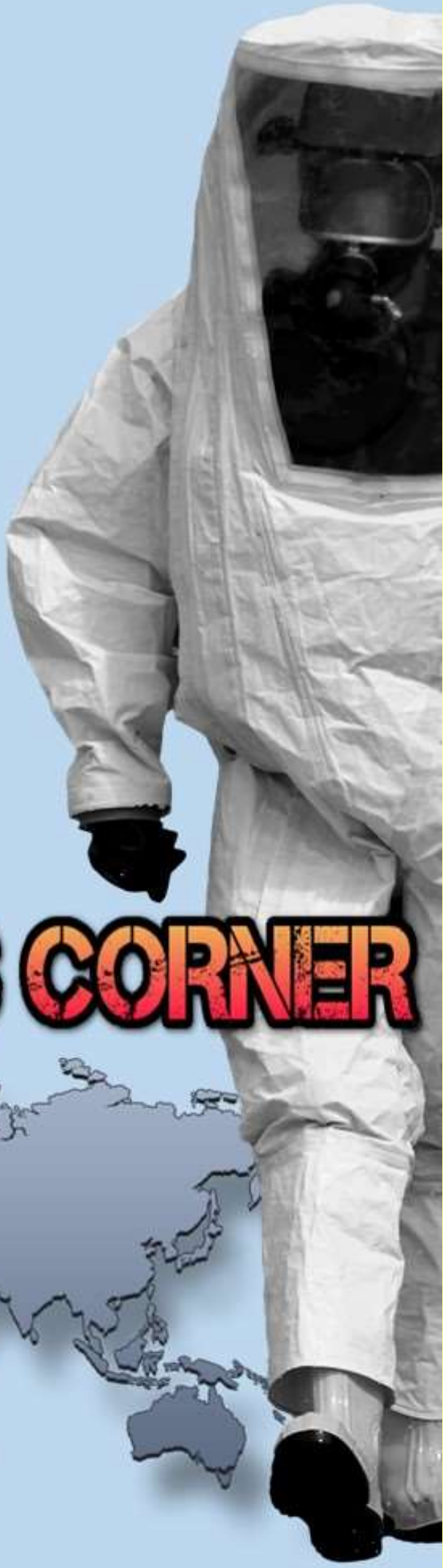


# EDITOR'S CORNER

## Editorial

**Brig Gen (ret'd) Ioannis Galatas, MD, MA, MC**

*Editor-in-Chief*
C²BRNE Diary

*Dear Colleagues,*

June was a goof quiet month perhaps because even the evil people need a break to refil their dirty minds with new ways for killing others. In that respect, first responders will do the same and fill their batteries since the war is not over and a new incident might happen tomorrow or the day after. In the meanwhile, Greece is a good destination if you want to enjoy sun, bleu clean waters and food that take all your worries away. Hundrends of destinations are waiting for you whether you prefer busy cosmopolitan islands or places ideal for family time and true relaxation.

Enjoy the summer first responders because tomorrow might be a busy day for all of us!

*The Editor-in-Chief*

# HIA launches biometric facial recognition in 2nd phase of smart airport program

Source: https://www.qatarliving.com/forum/news/posts/hia-launches-biometric-facial-recognition-2nd-phase-smart-airport-program

May 27 – Hamad International Airport (HIA), which was recently *ranked as the best airport in the world* by passengers, has embraced yet another advanced technology to make the experience of travelers even more convenient.

Under the second phase of its Smart Airport program, HIA will implement facial biometric recognition across all key passenger touch points.

Currently in its trial phase, this highly innovative system is a central piece of HIA's digital strategy and combines passengers' flight, passport, and facial biometric information in a single electronic record at the self-check-in kiosk or mobile app.


*Photo Credit: Twitter/ @hiaqatar*

With such technology embedded within HIA, only the passenger's face is required for verification at the self-service bag-drop, automated security gate, and the automated boarding gate allowing for a seamless airport experience.

Knowledge of exactly where the passengers are in their journey at the airport will also aim to help further improve the renowned on-time at HIA, according to a statement.

The successful completion of the first major phase of HIA's Smart Airport program has proven to be extremely popular, with up to 40 percent of the home carrier Qatar Airways' passengers opting for self-check-in and a further 20 percent selecting to self-bag-drop.

Hamad International Airport (HIA) launches the second phase of its innovative Smart Airport program which sets to initiate an exciting major digital transformation of the passenger journey through facial biometric recognition across all key passenger touch points #QNA

The quick process greatly enhances customer experience to allow greater number of passengers to be managed without physical expansion of the check-in facilities.

Chief Operating Officer at HIA, Engineer Badr Mohamed Al Meer, said, "Our approach to identity management is unique and holistic, in that we foresee wide-scale deployment of biometric capability across both mandated and voluntary passenger touch points while addressing customer data privacy concerns in line with relevant local and international regulations."
HIA's continued efforts and investment in cutting-edge technology through its Smart Airport program are recognized through its awards and accolades.
The airport ranked the *World's 4th Best Airport by SKYTRAX 2019*. HIA also ranked the second-best airport in the world for On-Time Performance in OAG's Punctuality League report.
The awards reflect HIA's commitment to the highest environmental standards and to responsible business practices as well as innovative facilities, five-star customer service, and state-of-the-art terminal.

## Doping Soldiers So They Fight Better – Is It Ethical?

Source: https://theconversation.com/doping-soldiers-so-they-fight-better-is-it-ethical-117236

May 27 – The military is constantly using technology to build better ships, warplanes, guns and armor. Shouldn't it also use drugs to build better soldiers?
Soldiers have long taken drugs to help them fight. Amphetamines like Dexedrine were distributed widely to American, German, British and other forces during World War II and to U.S. service members in Korea, Vietnam, Kuwait, Iraq and Afghanistan. In 1991, the Air Force chief-of-staff stopped the practice because, in his words, "Jedi knights don't need them." But the ban lasted only five years. DARPA, an agency that does cutting-edge research for the U.S. Department of Defense, is trying to make soldiers "kill-proof" by developing super-nutrition pills and substances to make them smarter and stronger. New drugs that reduce the need for sleep, such as modafinil, are being tested. Researchers are even looking into modifying soldiers' genes.

As a professor of health law and bioethics, I began studying the use of drugs to enhance performance in sports, and I soon became interested in the use of performance-enhancing drugs in the military. Most people think doping in sports is harmful cheating; shouldn't that be how doping in combat is viewed? The answer, I decided, was no: Doping in sports doesn't produce any meaningful social benefit, but using drugs to improve performance in the military could save lives and make it easier to complete missions.
But the military still needs rules for how performance enhancements should be used.

**Mandatory use**

Can soldiers be ordered to take enhancement drugs? What if the drugs have dangerous side effects? What if there hasn't been a lot of research on their long-term effects? It's also important to realize that the risks from performance-enhancing drugs are not only to the soldiers who use them; in 2004, pilots in Afghanistan who accidentally dropped a bomb that killed four Canadian soldiers blamed their mistake on being hopped up on amphetamines.
Soldiers generally have to follow orders, so it's important for their commanders to carefully think through whether use of these drugs should be mandatory or voluntary. Applying a set of principles that I developed to guide bioethical decision-making in the military, superiors should force troops to use enhancement drugs only when the advantages that the drugs

provide and the importance of the mission outweigh the risks to the user. Soldiers in the Gulf War were required to take drugs that hadn't been approved for the purpose for which they were given, which was to try to provide some protection in case Saddam Hussein's forces resorted to chemical or biological warfare. Congress stepped in and said that troops could be ordered to take drugs for such "off-label" purposes only if the president authorized it directly or declared a national emergency.
Opponents of doping in sports maintain that athletes who win races by doping should not be rewarded. Should we adopt the same policy in the military? Should soldiers who act bravely or shoot straighter with the help of drugs get promotions or medals? If the soldiers are ordered to use the drugs by their commanders, I suggest the answer should be yes, since it doesn't seem fair to punish them for doing something about which they had no choice, especially if the drugs they were ordered to use could have serious side effects.

**Voluntary use**
What if soldiers take performance-enhancing drugs on their own, or if using them is illegal? A study in 2014 reported that 67% of active-duty service members in all branches of the military took dietary supplements. In special forces like Navy SEALS, the percentage increases to over 75%.
What if these substances actually gave users a performance boost? The most popular doping drugs in sports are anabolic steroids, which are Schedule III controlled substances that can be purchased legally only by prescription. In most states these can't legally be prescribed for enhancement purposes.
You might think that the military should test soldiers to see if they were illegally using steroids just like athletes are tested in the Olympics, but currently the military is not allowed to do random drug testing or "unit sweeps" for steroids. In short, the jury is still out on whether the military should reward or punish military success achieved with the aid of self-help drugs.
A final concern is when performance-enhancing drugs give troops advantages over civilians. Soldiers in the reserves, and those who serve on bases but reside with their families, have both military and civilian lives. What if they compete in sports or intellectual contests with civilians? One solution is to require them to disclose that they are taking enhancement drugs, but this could violate military secrecy and help enemies figure out ways of combating the drugs' effects.
Some commentators argue that the effects of the drugs must be reversible, but soldiers may regard the advantages they get from the drugs as one of the benefits of being in the service; it could even be a recruiting incentive, like the prospect of being trained in a skill that can land them a good civilian job later.
Proper use of performance-enhancing drugs in the military could shorten wars and save lives. But with the development of more powerful drugs that increase strength and endurance and reduce the need for sleep and food, commanders need to carefully consider the risks to soldiers as well as the benefits for them and their mission.

## ISIS Claims Escalating Use of Wildfire Arson as Terror Tactic

**By Bridget Johnson**
Source: https://www.hstoday.us/subject-matter-areas/counterterrorism/isis-claims-escalating-use-of-wildfire-arson-as-terror-tactic/

May 28 – Long promoting the use of arson — both of occupied structures and of tinder-dry wildlands — as a cheap terror tactic that requires little skill but can inflict immense fear and harm, ISIS claims the terror group is behind a series of wildfires in Iraq and Syria.
In the group's official weekly newsletter, *al-Naba*, ISIS said the targets were "apostates" whose "hearts have long been burned" and vowed the blazes are "just the beginning."
ISIS also emphasized the economic impact of the fires, noting "many agricultural lands have been destroyed" and "tons of crops," including wheat and barley, went up in flames in the jihadists' "harvest of another kind."

ISIS noted at the beginning of the *al-Naba* article that it's summer; terror groups, in encouraging the use of wildfire arson in the past, have stressed that picking dry, hot, windy weather will intensify their efforts.

Iraq's Civil Defense Directorate said Monday 6,103 acres of farmland had burned in 136 separate fires over the past 18 days, spanning 11 provinces. The statement did not confirm nor deny ISIS' claim of responsibility, but the provinces most harmed — Salahuddin, Nineveh, Kirkuk, Diyala — correspond with areas already suffering under ISIS' escalating guerrilla campaign that has included kidnappings and murders.


"ISIS entered the village of Palani, where parts of my family belong, threatened farmers that they would need to pay taxes to prevent their grain fields from being set on fire," tweeted Kamaran Palani, a research fellow at the Middle East Research Institute, on May 21. "The men don't sleep at night defending the village & the women come back to the village during the day."

In Syria, farmers in Deir ez-Zour blame ISIS for setting wildfires and have been calling for more protection for their lands; ISIS claimed blazes in Al-Hasakah province, also along the Iraqi border. Syria Civil Defence, or the White Helmets, says the regime shelling of Khan Sheikhoun has sparked wildfires, while Assadists on social media have been accusing the U.S.-allied Syrian Democratic Forces of torching agricultural land.

In the *al-Naba* article, "Roll Up Your Sleeves and Begin the Harvest — May Allah Bless What You Reap," ISIS reminded "soldiers of the caliphate" that they "have before you, millions of acres… their plantations, fields and homes, as well as their economic foundation" to burn.

In threats directed at the West, ISIS and al-Qaeda have linked their calls for wildland arson to devastating fires occurring at that time, stressing to supporters that they can wreak similar havoc by intentionally sparking blazes as their method of jihad.

"O america, This is the punishment of bombing Muslims in Syria," stated a November threat from ISIS supporters that circulated online with an image of the California wildfires. "This is Allah's punishment for you. And in shaa Allah, you will see more fires.

At the time, official ISIS media also highlighted the damage and death toll of the wildfires in multiple issues of *al-Naba*.

In January 2017, ISIS' now-defunct *Rumiyah* magazine told would-be jihadists that "incendiary attacks have played a significant role in modern and guerrilla warfare, as well as

in 'lone wolf' terrorism," and said wildfires around Israel that month "demonstrated the lethality of such an effortless operation."
The magazine suggested targets for arson jihad to "include houses and apartment buildings, forest areas adjacent to residential areas, factories that produce cars, furniture, clothing, flammable substances, etc., gas stations, hospitals, bars, dance clubs, night clubs, banks, car showrooms, schools, universities, as well as churches, Rafidi [Shiite] temples, and so forth. The options are vast, leaving no excuse for delay." Jihadists were advised to time arson attacks "preferably in the later part of night to the early hours of morning when people are generally asleep," and were instructed how to block off exits in an effort to increase casualties. ISIS also specifically addressed wildfires, telling operatives to look for dry brush "as fire cannot endure in damp or wet environments."
Also, during last year's California wildfires, supporters of al-Qaeda — which has a lengthy history of promoting wildfire arson — circulated news photos from the blazes with the Quran verse, "They will question you about the mountains. Say: 'My Lord will scatter them as ashes.'"

***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. Previously she was an editorial board member at the Rocky Mountain News and syndicated nation/world news columnist at the Los Angeles Daily News. Bridget is a senior fellow specializing in terrorism analysis at the Haym Salomon Center. She is a Senior Risk Analyst for Gate 15, a private investigator and a security consultant. She is an NPR on-air contributor and has contributed to USA Today, The Wall Street Journal, New York Observer, National Review Online, Politico, New York Daily News, The Jerusalem Post, The Hill, Washington Times, RealClearWorld and more, and has myriad television and radio credits including Al-Jazeera and SiriusXM.*

## Annual Crisis Report for 2018

**Institute for Crisis Management**
Source: https://crisisconsultant.com/icm-annual-crisis-report/

## Eritrea removed from U.S. terror list

**By Salem Solomon**
Source: http://www.homelandsecuritynewswire.com/dr20190603-eritrea-removed-from-u-s-terror-list

June 03 – The United States has removed Eritrea from a list of countries uncooperative in the fight against terrorism, the latest in a series of diplomatic victories for the East African nation.
The U.S. State Department first placed Eritrea on a list of countries not cooperating fully with its anti-terrorism efforts in 2008. A year later, the country also faced U.N. sanctions for allegations that it supported al-Shabab, a terror group based in Somalia.

**Until Wednesday, Eritrea was the only African country on the list**, and it found itself alongside such pariah nations as Syria, North Korea and Iran. But government officials have long denied supporting terror groups, and a UN monitoring group was, for many years, unable to find evidence that Eritrea was backing al-Shabab.
Eritrean Minister of Information Yemane Gebremeskel took to Twitter to praise the change:

Herman Cohen, a former U.S. assistant secretary of state for African affairs, hopes the U.S. will take this opportunity to forge closer ties with Eritrea. "We should see Eritrea as a friendly, crucial strategic country, and we should take advantage of it and give them assistance in the economic area because they are looking to modernize their economy," he told VOA.

Cohen also said the country's location on the Red Sea, near Yemen and Gulf states, makes it an important military partner. "It's very important to have military people there who can observe what is going on in that very volatile, crucial area," Cohen said. "We used to have a military station in Asmara, the capital of Eritrea. I think it would be wonderful now if we could restore that."

The move is the latest thawing of hostilities between Eritrea and the rest of the world. Last year, Eritrea and Ethiopia announced an end to a 20-year dispute over their border, and the U.N. Security Council lifted sanctions on the country. And in March, a U.S. congressional delegation made the first such diplomatic visit to the country in 14 years.

Awet Weldemichael, an associate professor of history and global development studies at Queen's University in Kingston, Ontario, said Eritrea's removal from the list is a symbolic gesture, but U.N. sanctions, which lasted nearly a decade, had a more tangible impact on the country.

"[The sanctions were] consequential for Eritrea because [of] the restrictions on the use of the U.S. dollar and close scrutiny of its foreign transactions (that had previously been carried out in U.S. dollars) severely hampered the country's foreign transactions, even for legitimate and peaceful purposes," Weldemichael said in an email.

Since 2015, Weldemichael said, Eritrea has allowed Saudi and United Arab Emirates forces to use an Eritrea naval and air base to launch strikes against rebel forces in Yemen. This too may have raised the country's status as a valuable military partner in the eyes of the U.S., he added.

"There is already serious and consequential cooperation going on by proxy," he said of the U.S.-Eritrea partnership.

Eritrea remains a tightly controlled nation, without a democratically elected government and with severe restrictions on freedom of speech and religion. Thousands of young people have fled the country to avoid mandatory, indefinite military service.

But Cohen believes the country's economy is improving, pointing to increased activity at the ports of Massawa and Assab, the potential for cross-border trade with Ethiopia, and the nation's rich mineral wealth.

"Generally speaking, there is an upsurge of economic activity that's going on now. More mining companies are coming into Eritrea," Cohen said. "They have a very, very big mining potential. So now that the tensions have diminished and the hostility is diminished, I think things should really expand nicely."

***Salem Solomon** is a multimedia digital journalist with the Voice of America's Africa Division.*

# Piracy in Commercial Sea Lanes Remains Ever Present Danger

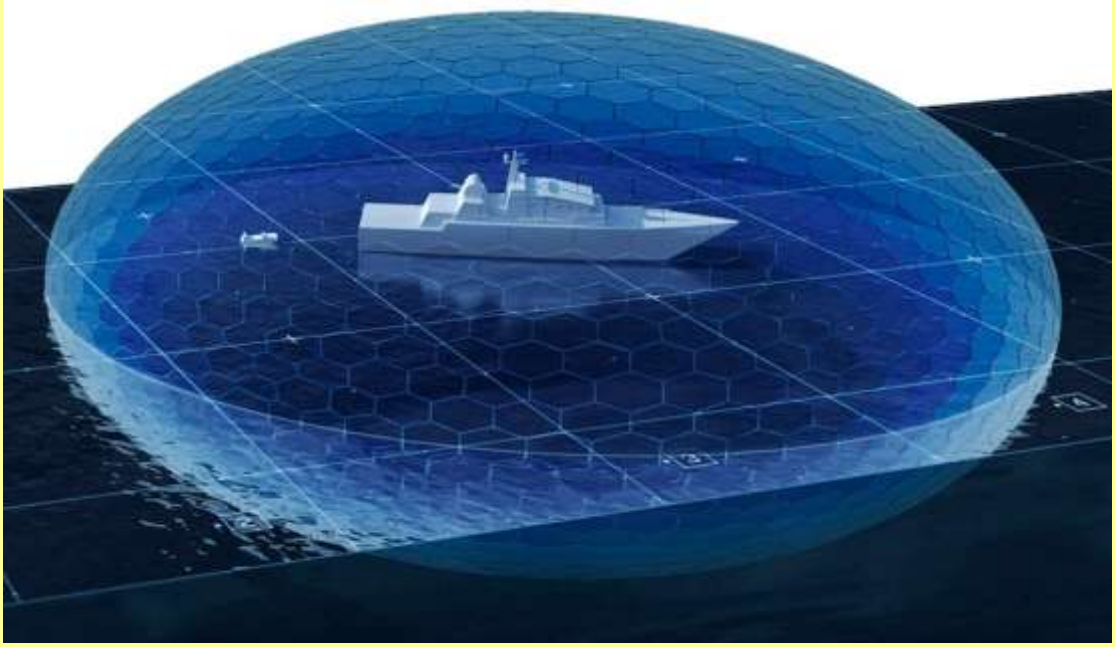
Source: https://maritimesafetyandsecurity.com/2019/05/23/piracy-in-commercial-sea-lanes-remains-ever-present-danger/

May 23 – So far, May has been a very busy and dangerous month in the commercial sea lanes with a number of worrying incidents reported by the **IMB Piracy Reporting Centre**.

In one incident in Callao Anchorage, **Peru**, around four to five robbers wearing face masks boarded an anchored LNG tanker via the hawse pipe. They took hostage the duty crew on routine rounds. Alarm was raised, the ship's whistle sounded and crew mustered. On hearing the alarm, the robbers took the duty crew's radio, pushed him and escaped in their boat. The incident was reported to Port Control and a patrol boat was dispatched to the anchorage area.

A few days before in the Lome Anchorage, **Togo**, armed persons boarded and hijacked an anchored chemical tanker and took its crew hostage. The Togo Navy received a call from the owners that their tanker had been attacked and immediately responded by dispatching

patrol boats to investigate. The tanker was intercepted 25nm from the anchorage area and forced to return to Lome port. The crew were reported safe and the armed persons were captured and handed over to the Authorities.



On the 12th May, around 4nm East of Pulau Mapur, **Indonesia**, four robbers armed with long knives boarded a general cargo ship underway. They took hostage the duty AB and entered into the Master's cabin. They tied up the AB and the Master and escaped with their personal cash and effects.
On the 5th of May approximately 48nm SW of Luba, Equatorial **Guinea**, pirates onboard a previously hijacked tug approached and boarded a heavy load carrier ship underway. Alarm sounded and the crew retreated into the citadel. Regional Authorities notified. A nearby Spanish Naval vessel and the Equatorial Guinean Navy responded to the incident resulting in the pirates escaping and the crews released. The tug and the ship were escorted by the Equatorial Guinean Navy to a safe port for further investigations.
These are just a few of the many incidents in May so far and clearly show that despite international efforts, piracy remains an ever-present danger.
**MARSS Automated Climber Detection** – CLiMBERguard automatically detects, tracks and classifies intruders scaling the side of a vessel or structure, immediately alerting operators to the climber and its location.
CLiMBERguard has been developed from the MARSS man-overboard detection technology to provide higher probability of detection and low false alarm rates for vessel security.

## Child spies should be recruited more often by MI5 and police, security minister says

Source: https://www.telegraph.co.uk/news/2019/06/11/child-spies-should-recruited-often-mi5-police-security-minister/

June 11 – Police and intelligence agencies should make greater use of child spies to investigate terrorists, gang violence, drug dealing and sexual exploitation, says the UK's security minister despite legal concerns over their safety.
Ben Wallace says there is "increasing scope" to recruit "juvenile"undercover agents because of the growing numbers of children involved in serious crime both as perpetrators and victims.

Records show the children - most aged 17 - have already been used as "covert human intelligence sources" (CHIS) by police in the past three years to provide information on murder, gang violence, drug dealing and the use of weapons.

The evidence emerged in a legal challenge in the High Court by campaign group Just for Kids Law who maintain there are a lack of safeguards to protect the children from potential physical and emotional harm. They claim the failings are a breach of the children's human rights.

The Home Office is defending the action, maintaining that they are only used when necessary and that they can play an important part in tackling serious crime.

In documents before the court, Mr Wallace said it was important to recognise young people could have "unique access to information that is important in preventing and prosecuting gang violence and terrorism."

The CHIS policy is overseen at the Home Office by a working group including police, intelligence agencies, the National Crime Agency (NCA) and lead officers for undercover policing.

"Given that young people are increasingly involved both as perpetrators and victims in serious crimes including terrorism, gang violence and county lines drugs offences and child sexual exploitation, there is increasing scope for juvenile CHIS to assist in both preventing and prosecuting such offences," said Mr Wallace.

The legal action followed moves by the Government to increase the amount of time that under 18s can operate undercover from one month to four months.

The Home Office maintains that one month can put unnecessary pressure on the children and their handlers to "get results" too quickly in order to secure renewal of the authorisation. Officials say operations would be reviewed each month to consider any welfare or safety concerns.

However, Caoilfhionn Gallagher, QC for Just for kids law, said in one "shocking" case a girl, 17, was recruited by police to spy on man who had sexually assaulted her and continued to do so while she was undercover. She subsequently became an "accessory to murder" when she witnessed a killing.

Ms Gallagher said there was an acute need for "stringent safeguards" in child spy cases. She contrasted the way child spies did not have the protection of an "appropriate adult" when children questioned by police over minor offences such as shoplifting did.

James Eadie, QC for the Home Office, said child spies had only been used in exceptional cases. In 2017, 2,773 informants were authorized overall, while in four years from 2015, only 17 were children.

It also said a child under 16 would be accompanied by a parent or guardian when meeting law enforcement and children could not be deployed to gather intelligence on their parents.

Neil Woods, a former undercover police officer, told the court such covert operations were highly dangerous. During his 13 years undercover, he said he had been aware of maiming, torture and burning of suspected informants.

"It is not yet adequately acknowledged how psychologically damaging spying is to an individual of any age," said Mr. Woods. "It causes me great concern that a child could be asked to maintain a lie for any length of time and suffer the psychological harm I have."

## Sensors may not make infrastructure safer

Source: http://www.homelandsecuritynewswire.com/dr20190606-sensors-may-not-make-infrastructure-safer

June 06 – Simply driving down the road gives you a sense for the current state of our infrastructure: crumbling and in need of repair. Aside from retrofitting or replacing current infrastructure with new construction and materials, new technology like sensors offers a

way for inspectors to peer inside the systems almost continuously.

But just placing a sensor on the side of a bridge doesn't automatically lead to cost savings and a safer bridge. Instead deploying these sensors is costly and depends on how a variety of factors work together in order to be beneficial.


CMU says that researchers from Carnegie Mellon University's Civil and Environmental Engineering (CEE) Department are studying the impact of information in decision-making for infrastructure systems, leveraging previous work with CEE alumnus Milad Memarzadeh. In a paper recently published in Structural Control Health Monitoring, CEE Professor Matteo Pozzi and Ph.D. student Shuo Li proposed a general framework that evaluates the benefit of applying sensing and monitoring systems to infrastructure based on information surrounding the infrastructure component.

Imagine you are a bridge inspector and you want to know what's going on inside of the structure. The different components of the bridge change state due to aging and degradation, so there is uncertainty about a component's current condition and how it will degrade over time. A sensor or monitoring system would provide a flow of information that would give you this information, and you could periodically check the state of the component with some level of precision. If used properly, the system could prevent a bridge collapse. At the same time, it could also save you from unnecessary repair when the bridge doesn't need it.

"It's not so obvious how much of an investment should be directed toward sensors, and how much should be directed to retrofitting and replacement," said Pozzi. "It's still ongoing work, assessing what structures should be monitored and how much to invest in each of them."

In a perfect world, we would apply sensors to every infrastructure system. But because funding resources are limited and sensing systems can be expensive to implement and maintain, instrumenting every bridge with a sensing system isn't the answer. Therefore, it's important to evaluate the actual value of the information that the sensors provide.

The framework proposed by Pozzi and Li found that there are several key factors that determine the value of sensing: how quickly the component degrades, what actions you can take for coping with the degradation, the economic costs related to maintenance, the

cost of repairs, the costs related to the failure or malfunction of the sensor itself, how precise the sensor is, how frequently the sensors give you a response, and how quickly you can react to the information from the sensor. For example, if a sensing system provides accurate information but the manager cannot react quickly to the information to mitigate the issue in time, it may not be worth the cost to have sensors. When resources are limited and it's complicated to allocate funds in complex infrastructure systems, the framework seeks to provide quantitative guidance.

"Investments in infrastructure can have a significant payoff through incremental safety and the reduction of congestion and problems due to the transportation network, for example," said Pozzi. "Among these investments, some could be allocated to retrofitting or replacing infrastructural components, and some could also be allocated to sensors. Our framework is geared toward entities that have to control and guarantee the safety of a built environment, to help them make important decisions regarding our infrastructure systems."

*— Read more in Shuo Li et al. "What makes long-term monitoring convenient? A parametric analysis of value of information in infrastructure maintenance," Structural Control and Health Monitoring (27 February 2019).*

## Deja Vu' of Iraq War Lies as Mike Pompeo Blames Iran for Tanker Attack Without Single Shred of Evidence

Source: https://www.commondreams.org/news/2019/06/13/deja-vu-iraq-war-lies-mike-pompeo-blames-iran-tanker-attack-without-single-shred

Secretary of State Mike Pompeo speaks from the State Department briefing room on June 13, 2019 in Washington, D.C. (Photo: Win McNamee/Getty Images)

June 13 – In a press conference that immediately evoked memories of the lead-up to the 2003 invasion of Iraq, U.S. Secretary of State Mike Pompeo on Thursday claimed Iran was behind alleged attacks on two oil tankers in the Gulf of Oman without presenting one single shred of evidence.

***"I remember the Iraq lies. I know this administration is truthless from top to bottom and all the way out both sides."***

***—Charles Pierce,* Esquire**

"This assessment is based on intelligence, the weapons used, the level of expertise needed to execute the operation, recent similar Iranian attacks on shipping, and the fact that no proxy

group operating in the area has the resources and proficiency to act with such a high-degree of sophistication," said Pompeo, who did not provide any details on the intelligence he cited.
After asserting Iran was also behind a litany of attacks prior to Thursday's tanker incident—once again without presenting any evidence—Pompeo said that,"Taken as a whole, these unprovoked attacks present a clear threat to international peace and security."
Pompeo—who has a long history of making false claims about Iran—did not take any questions from reporters following his remarks, which were aired live on America's major television networks.
"Mike Pompeo has zero credibility when it comes to Iran," Jon Rainwater, executive director of Peace Action, told *Common Dreams*. "He's long been actively campaigning for a confrontation with Iran. He has a track record of pushing bogus theories with no evidence such as the idea that Iran collaborates closely with al-Qaeda."
"Once again Pompeo is not waiting for the evidence to come in," Rainwater said, "he is picking facts to suit his campaign for confrontation with Iran."
Medea Benjamin, co-founder of anti-war group CodePink, characterized Pompeo's speech as a "deja vu" of former Secretary of State Colin Powell's infamous weapons of mass destruction speech before the U.N. in 2003, which made the case for the Bush administration's invasion of Iraq.
"Secretary Pompeo gives zero proof but insists that Iran is responsible for ship attacks in Gulf of Oman this morning," Benjamin tweeted. "Lies, lies, and more lies to make a case for war. Let's not be fooled into another disastrous war!"
In a column following Pompeo's speech, *Esquire*'s Charles Pierce wrote that he is "not buying this in the least."
"I remember the Iraq lies," Pierce wrote. "I know this administration is truthless from top to bottom and all the way out both sides. I don't trust the Saudi government as far as I can throw a bone saw. And this president feels very much like he's being run to ground at the moment and needs a distraction."
"And his Secretary of State is a third-rate congresscritter from Kansas who once advised American soldiers to disobey lawful orders, and who's fighting way above his weight class," added Pierce. "Also, too, John Bolton is eight kinds of maniac."
On Twitter, Trita Parsi—founder of the National Iranian American Council—echoed Pierce, writing: "A serial liar is president. A warmonger and a serial fabricator who helped get us into the disastrous Iraq war and who has sabotaged numerous attempts at diplomacy is the [national security] advisor."
"But go ahead, media, treat Pompeo's accusations as 'evidence'..." Parsi added.
As *Common Dreams* reported earlier, critics warned that the timing and target of the tanker attacks on Thursday suggests they could have been a deliberate effort to "maneuver the U.S. into a war" with Iran.
Iranian officials denied any responsibility for the attacks.
In a tweet following the explosions in the Gulf of Oman on Thursday, Iranian Foreign Minister Javad Zarif said, "Suspicious doesn't begin to describe what likely transpired this morning."
Rainwater of Peace Action said what is needed to calm the dangerous tensions of the current moment is an "impartial investigation" into the tanker incident.
But Pompeo's statement only served to escalate tensions further and move the U.S. and Iran closer to a military conflict, Rainwater said.
"At a time when the world desperately needs cooler heads to deescalate tensions in the Gulf, the U.S. Secretary of State is instead fanning the flames," Rainwater said. "Our elected officials need to push for diplomacy now to take us away from the brink of war."

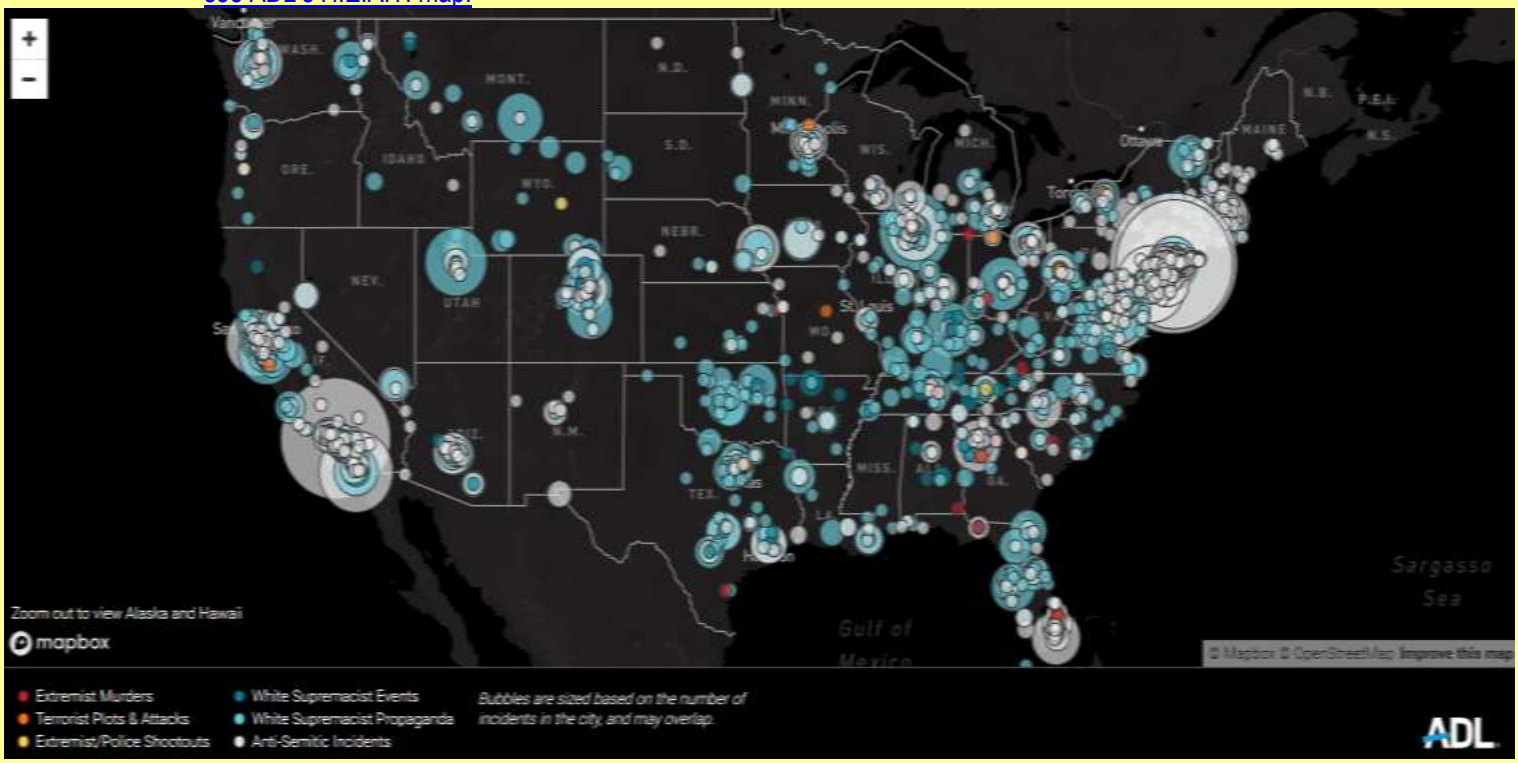
## Domestic Islamist extremism in the U.S.: 2018-2019

Source: http://www.homelandsecuritynewswire.com/dr20190614-domestic-islamist-extremism-in-the-u-s-20182019

June 14 – While white supremacists and other right-wing extremists are responsible for most extremist-related domestic murders committed in the past decade, terrorism and violence

inspired by Islamist extremism continues to pose a serious threat to Americans. Threat assessments consistently evolve; any known threat is deserving of careful attention.
At the near-midpoint of 2019, Islamist extremism remains a concern. As of June, law enforcement has foiled five Islamist extremist inspired plots in the United States, including a plot to attack federal buildings in Washington D.C., carry out a vehicular ramming at the National Harbor in Maryland, attack a white supremacist rally in California, attack a pro-Israel rally and the Israeli consulate in New York, and detonate explosives in Times Square in New York. Internationally, ISIS successfully planned and executed one of its deadliest attacks to date, killing 253 and injuring 500 more on Easter Sunday in Sri Lanka.
These events underscore that relatively modest attack trends do not mean the threat from any particular extremist ideology can be discounted. As described throughout this report, overall attacks within the United States are down, but the pervasiveness of the ideology makes for a continued threat.

**2018**
In 2018, ADL documented 13 arrests related to domestic criminal activity motivated by Islamist extremism. Four of the 13 arrests were linked to terror plots. The targets included a high school student's sleepover, a mall, a July 4th parade, and a synagogue. The remaining nine arrests involved individuals who allegedly attempted to provide material support to foreign terror organizations.
Compared to the 32 people arrested in 2017, the number of individuals arrested for domestic Islamist extremist criminal activity decreased in 2018 by approximately 40 percent. This slowing of activity is certainly notable, but it does not indicate that the threat of Islamist extremism in the United States has subsided. It is worthy of continued vigilance.
For a full and continuously updated list of domestic terror plots and attacks inspired by Islamist extremism, see ADL's H.E.A.T. map.




**Influence and criminal behavior**
Although the Islamic State lost significant territory to Coalition Forces in 2018, and its central propaganda efforts declined significantly, a robust subculture of propagandists inspired by Islamist extremist ideology persist on open-source and encrypted online platforms. This propaganda continues to influence Islamist extremist activity in the United States.

In 2018, two U.S.-based individuals were arrested for using social media to recruit for ISIS. On June 13, 2018, authorities arrested 45-year-old Waheba Issa Dais for hacking into Facebook accounts and using them to spread pro-ISIS propaganda, which encouraged people to join ISIS and build bombs and biological weapons. Similarly, 34-year-old Ashraf al-Safoo was arrested in Chicago on October 19, 2018, for spreading propaganda through a pro-ISIS online channel known as the Khattab Media Foundation. The organization was formed to bolster ISIS's propaganda efforts, and Safoo, as one of the group's co-directors, allegedly encouraged people to "help ISIS in any way possible, to include by offering money or themselves."

In addition to supporting foreign terror organizations' recruitment efforts, individuals arrested for Islamist extremist activity also reportedly attempted to travel abroad to join ISIS or Al Qaeda, facilitated the transfer of money to ISIS abroad and posted illegal bomb-making instructions online.

**Plots**

In 2018, there was only one U.S. murder motivated by Islamist extremism.

- Corey Johnson, a 17-year-old high school student, has been accused of a premeditated stabbing rampage during a sleepover at another house, during which he allegedly killed a 13-year-old boy and injured two others. Originally inspired by white supremacy and Nazism, Johnson demonstrated an affinity for radical Islamist ideas and apparently converted to Islam by late 2016. According to the Palm Beach County Sheriff's Office, Johnson was inspired by ISIS's beheading videos and calls to kill non-believers.

Johnson's attack was the only deadly Islamist extremist-motivated plot in 2018. However, three additional plots were meticulously planned and may have been inspired by online propaganda; all were foiled by law enforcement.

- In May 2018, 17-year-old Matin Azizi-Yarand was indicted for planning a mass shooting at a Frisco, Texas, shopping mall after recruiting an undercover agent to join him in the attack. Azizi-Yarand began communicating with the undercover agent in December 2017 and sent the agent ISIS propaganda. He told the agent via online messages that he had "only been reading ISIS magazine guides for performing operations and making bombs." While Azizi-Yarand's plans never materialized into an attack, he sent approximately $1,400 to the agent he believed to be an accomplice, earmarked for purchasing weapons and supplies for the attack.
- A few days before July 4, 2018, FBI officials arrested 48-year-old Demetrius Nathaniel Pitts for attempting to bomb the July 4th parade in Cleveland, Ohio, with the assistance of an undercover FBI agent he believed to be an Al Qaeda operative. After conducting reconnaissance on potential targets, Pitts made two videos showing him walking down streets of Cleveland, identifying potential targets that, according to him, could be taken "off the map." Pitts also used Facebook to comment on pictures of Al Qaeda activity, and he knew to create a video, claiming responsibility for his attack, which both ISIS and Al Qaeda instruct potential attackers to do in the attack's aftermath.
- During the last few weeks of 2018, the FBI arrested 21-year-old Damon Joseph in Toledo, Ohio, for plotting to carry out a mass shooting at a synagogue on behalf of ISIS. After Joseph shared photographs of weapons and ISIS propaganda on his social media account, he began corresponding with an undercover FBI agent he believed to be an ISIS operative. In multiple conversations with the undercover agent, Joseph expressed anti-Semitic views, claiming that "Jews are evil and they get what's coming to them" after the Tree of Life shooting in Pittsburgh, and "[He] doesn't feel bad at all considering what they're [the Jews] doing in Palestine." Joseph was arrested after he accepted two assault-style rifles from undercover agents.

As Joseph was allegedly planning an ISIS-inspired attack on a Toledo-based synagogue, he referenced Robert Bowers, the white supremacist Pittsburgh shooter, and his violent, anti-Semitic motivations, claiming he admired "what the guy did with the shooting actually," and that he saw himself carrying out a similar operation. Joseph's explicit admiration for the Pittsburgh shooter highlights the link between two diametrically opposed extremist ideologies, and the

danger posed by violent, anti-Semitic propaganda online, regardless of its extremist affiliation.
In 2019, three individuals suspected of plotting attacks inspired by Islamist extremism have espoused anti-Semitic ideologies. In January 2019, Hasher Jallal Taheb was charged with planning an attack on the White House with explosives and an anti-tank rocket, having previously discussed targeting a synagogue in Washington D.C. In April 2019, Mark Steven Domingo was arrested for allegedly planning an attack inspired by ISIS and attempting to detonate an improvised explosive device (IED) at a white supremacist rally in Long Beach, California. Domingo, seeking vengeance for the Christchurch shootings, reportedly strongly considered attacking Jews. This arrest is a potent reminder that Brenton Tarrant's shooting may continue to motivate attacks, and further underscores the anti-Semitism that infects many forms of extremism.
Most recently, in May 2019, 20-year-old Jonathan Xie was arrested in Basking Ridge, New Jersey, for attempting to provide material support to Hamas, lying on his application to join the U.S. Army and threatening to harm pro-Israel supporters. On his Instagram account, Xie claimed he was joining the Army "not to fight foe [sic] Jewish internets[sic] [believed to be a typo of "interests"] …But to learn how to kill." In further posts, Xie stated that he was "gonna[sic] go to the [expletive] pro-Israel march and [he's] going to shoot everybody." Xie's arrest serves as a reminder that foreign terror organizations' hateful ideologies can move Americans to violence. In this case, Hamas's expressed desire to destroy the state of Israel may have motivated Xie to target pro-Israel supporters in the United States.

**Trends**

The 2018 domestic Islamist extremist landscape was mostly consistent with that of previous years. In the past, women's involvement in Islamist extremist criminal activity has been less than men's. Typically, within foreign terror organizations, women have played the role of mothers and supporters— which consists largely of giving birth to and raising the next generation of fighters. However, ISIS in particular has encouraged women to take on more active and violent roles, including traveling abroad and fighting on the group's behalf, especially as its (male) fighters were either killed in battle or reclaimed by their home countries.
Additionally, of the 13 individuals arrested in 2018, 11 were U.S. citizens (approximately 85 percent), one was a foreign national and one was a lawful permanent or temporary resident. Both non-U.S. citizens were lawfully living in the United States at the time of their arrests. Saudi Arabian citizen Naif Abdulaziz Alfallaj was living in Weatherford, Oklahoma, when he was arrested in February 2018 for making false statements on his visa application and for making false statements to the FBI about attending an Al Qaeda training camp in Afghanistan in late 2000. Similarly, U.S. lawful permanent resident Waheba Issa Dais was arrested for attempting to provide material support to the Islamic State. Originally from Israel, Dais was residing in Cudahy, Wisconsin, at the time of her arrest.
To reiterate: All 13 individuals arrested for Islamist extremist activity in the United States in 2018 were lawfully residing in the United States at the time of their arrest. The most significant threat of 2018, therefore, appeared to come from individuals residing within United States borders.
Of note, however, is the shift in stated allegiance of U.S.-based individuals inspired by Islamist extremism. Of the 13 individuals arrested in 2018, four claimed to have been inspired by Al Qaeda, and nine were inspired by ISIS. Though the majority of the arrested individuals were inspired by ISIS, a small few sought inspiration from Al Qaeda instead, which may be explained by ISIS's steady loss of territory over the course of the year. This is significant when compared to 2017, when ISIS still had territory in Syria and Iraq. Of the 31 individuals arrested for domestic Islamist extremist criminal activity in 2017, only two cited Al Qaeda/its former affiliate, Jabhat al-Nusra, as a source of inspiration.
Although ISIS has lost its territorial stronghold and its recruitment has slowed, the threat of Islamist extremism remains high, as extremists are increasingly looking to other foreign terror groups, like Al Qaeda, for motivation. Moreover, ISIS's pervasive propaganda continues to radicalize the individuals it reaches online across social media platforms. It is clear from the 2018 arrests that this violent propaganda continues to reach and radicalize U.S.-based Islamist extremists.

As long as Islamist extremist groups persist abroad, and their propaganda infiltrates online platforms, they will be able to indoctrinate users worldwide with violent rhetoric and instruction.

# Qatar ranked the most peaceful country in MENA region: report

Source: https://www.qatarliving.com/forum/news/posts/qatar-ranked-most-peaceful-country-mena-region-report

June 13 – Adding to Qatar's list of ***top regional rankings*** is the latest by ***Global Peace Index (GPI)*** that places the country at the top of the most peaceful nations in the region.

Securing the 31st position internationally, in the latest GPI, Qatar has ranked 25 places higher than last year, leaving behind other Gulf countries including Kuwait, which stands at 43, the UAE which is at 53 and Oman at 69.

The index ranks 163 countries according to their level of peacefulness, by means of 23 different qualitative and quantitative indicators.

**Middle East & North Africa**

| Regional Rank | Country | Overall Score | Score change | Overall Rank |
|---|---|---|---|---|
| 1 | Qatar | 1.696 | -0.089 | 31 |
| 2 | Kuwait | 1.794 | -0.037 | 43 |
| 3 | United Arab Emirates | 1.847 | 0.031 | 53 |
| 4 | Oman | 1.953 | -0.021 | 69 |
| 5 | Jordan | 2.012 | -0.089 | 77 |
| 6 | Tunisia | 2.035 | 0.035 | 82 |
| 7 | Morocco | 2.07 | 0.053 | 90 |
| 8 | Algeria | 2.219 | 0.031 | 111 |
| 9 | Bahrain | 2.357 | -0.047 | 124 |
| 10 | Saudi Arabia | 2.409 | 0.027 | 129 |
| 11 | Egypt | 2.521 | -0.136 | 136 |
| 12 | Iran | 2.542 | 0.123 | 139 |
| 13 | Palestine | 2.608 | -0.011 | 142 |
| 14 | Israel | 2.735 | -0.021 | 146 |
| 15 | Lebanon | 2.8 | 0.01 | 147 |
| 16 | Sudan | 2.995 | -0.176 | 151 |
| 17 | Libya | 3.285 | 0.002 | 156 |
| 18 | Iraq | 3.369 | -0.067 | 159 |
| 19 | Yemen | 3.412 | 0.104 | 160 |
| 20 | Syria | 3.566 | -0.033 | 162 |
| REGIONAL AVERAGE | | 2.511 | -0.016 | |

The GPI report is created by the Institute for Economic and Peace and developed in consultation with international peace experts, institutes and think tanks. It analyzes countries on the absence of violence or fear of violence in three categories: safety and security, ongoing conflict, and militarization, according to *Gulf Times*.

Qatar has enjoyed the ***top ranking in the MENA region*** earlier between 2009 and 2017.

According to the GPI 2019, Qatar represents the third largest improvement in the region with regard to the change in score.

The UAE dropped 8 points in the new assessment year while Saudi Arabia retained its position at 129 as of last year. Bahrain was ranked 124 and Egypt 136.

In the Societal Safety and Security domain, Qatar was ranked the 20th best in the world and the best in the region.

Across the globe, there seems to be improvement in safety and security as indicated by the report. At least 85 countries present gains with 74 deteriorating.

The largest improvement reflects in the Political Terror Scale indicator, with improvements in 41 countries and deterioration in 27.

Every region in the world, except South America, showed improvement or no change on this indicator, with the largest improvements occurring in Costa Rica, Guinea-Bissau, Qatar, Somalia and The Gambia.

Global peacefulness has improved for the first time in five years, but the world continues to be less peaceful than a decade ago, the survey reveals.

For the first time in the last five years, the average level of global peacefulness improved very slightly. The average country score improved by -0.09 percent.

Iceland retains its top position as the most peaceful country in the world, a position it has held since 2008.

| RANK | COUNTRY | SCORE | CHANGE |
|---|---|---|---|
| 1 | Iceland | 1.072 | ⟷ |
| 2 | New Zealand | 1.221 | ⟷ |
| 3 | Portugal | 1.274 | ↑2 |
| 4 | Austria | 1.291 | ↓1 |
| 5 | Denmark | 1.316 | ↓1 |
| 6 | Canada | 1.327 | ⟷ |
| 7 | Singapore | 1.347 | ↑2 |
| 8 | Slovenia | 1.355 | ↑2 |
| 9 | Japan | 1.369 | ↓1 |
| 10 | Czech Republic | 1.375 | ↓3 |
| 11 | Switzerland | 1.383 | ↑2 |
| 12 | Ireland | 1.390 | ↓1 |
| 13 | Australia | 1.419 | ↓1 |
| 14 | Finland | 1.488 | ⟷ |
| 15 | Bhutan | 1.506 | ↑2 |
| 16 | Malaysia | 1.529 | ↑9 |
| 17 | Netherlands | 1.530 | ↑2 |
| =18 | Belgium | 1.533 | ↑3 |
| =18 | Sweden | 1.533 | ↓3 |
| 20 | Norway | 1.536 | ↓4 |
| 21 | Hungary | 1.540 | ↑1 |
| 22 | Germany | 1.547 | ↓4 |
| 23 | Slovakia | 1.550 | ⟷ |
| 24 | Mauritius | 1.562 | ↓4 |
| 25 | Romania | 1.606 | ↓1 |
| 26 | Bulgaria | 1.607 | ⟷ |
| 27 | Chile | 1.634 | ↑1 |
| 28 | Croatia | 1.645 | ↓1 |
| 29 | Poland | 1.654 | ↑3 |
| 30 | Botswana | 1.676 | ↑1 |
| 31 | Qatar | 1.696 | ↑10 |
| 32 | Spain | 1.699 | ↓3 |
| 33 | Costa Rica | 1.706 | ↑5 |
| 34 | Uruguay | 1.711 | ↑3 |
| 35 | Latvia | 1.718 | ↓5 |
| 36 | Taiwan | 1.725 | ↓2 |
| 37 | Estonia | 1.727 | ↓4 |
| 38 | Lithuania | 1.728 | ↓2 |
| 39 | Italy | 1.754 | ⟷ |
| 40 | Malawi | 1.779 | ↑4 |
| 41 | Indonesia | 1.785 | ↑14 |
| 42 | Mongolia | 1.792 | ⟷ |
| 43 | Kuwait | 1.794 | ↑7 |
| 44 | Ghana | 1.796 | ↓5 |
| =45 | Laos | 1.801 | ↑2 |
| =45 | United Kingdom | 1.801 | ↑5 |
| 47 | Panama | 1.804 | ↑2 |
| =48 | Timor-Leste | 1.805 | ↑12 |
| =48 | Zambia | 1.805 | ⟷ |
| 50 | Serbia | 1.812 | ↑5 |
| 51 | Albania | 1.821 | ↑2 |
| 52 | Sierra Leone | 1.822 | ↓18 |
| 53 | United Arab Emirates | 1.847 | ↓8 |
| 54 | Tanzania | 1.860 | ↓2 |
| =55 | Madagascar | 1.867 | ↑2 |
| =55 | South Korea | 1.867 | ↓9 |
| 57 | Vietnam | 1.877 | ↑5 |
| 58 | Senegal | 1.883 | ↓4 |
| 59 | Liberia | 1.889 | ↑4 |
| =60 | France | 1.892 | ↓2 |
| =60 | Namibia | 1.892 | ↓18 |
| 62 | The Gambia | 1.908 | ↑12 |
| 63 | Cyprus | 1.914 | ↓2 |
| 64 | Kazakhstan | 1.932 | ↑5 |
| =65 | Greece | 1.933 | ↑14 |
| =65 | North Macedonia | 1.933 | ↑23 |
| 67 | Montenegro | 1.939 | ↓8 |
| 68 | Moldova | 1.951 | ↓5 |
| 69 | Oman | 1.953 | ↑2 |
| 70 | Equatorial Guinea | 1.957 | ↓5 |
| 71 | Ecuador | 1.980 | ↓3 |
| =72 | Benin | 1.986 | ⟷ |
| =72 | Sri Lanka | 1.986 | ↓2 |
| =72 | Eswatini | 1.986 | ↑10 |
| 75 | Argentina | 1.989 | ↓8 |
| 76 | Nepal | 2.003 | ↑12 |
| =77 | Angola | 2.012 | ↑3 |
| =77 | Jordan | 2.012 | ↑20 |
| 79 | Rwanda | 2.014 | ↑24 |
| 80 | Peru | 2.016 | ↓7 |
| 81 | Bosnia & Herzegovina | 2.019 | ↑9 |
| 82 | Tunisia | 2.035 | ↓7 |
| 83 | Jamaica | 2.038 | ↑10 |
| 84 | Dominican Republic | 2.041 | ↑7 |

| RANK | COUNTRY | SCORE | CHANGE |
|---|---|---|---|
| 85 | Bolivia | 2.044 | ↓4 |
| 86 | Kosovo | 2.049 | ↑8 |
| 87 | Haiti | 2.052 | ⟷ |
| 88 | Paraguay | 2.055 | ↓12 |
| 89 | Cambodia | 2.066 | ↑8 |
| 90 | Morocco | 2.070 | ↓13 |
| 91 | Cuba | 2.073 | ↓7 |
| 92 | Guyana | 2.075 | ↓9 |
| 93 | Trinidad and Tobago | 2.094 | ↓7 |
| 94 | Mozambique | 2.099 | ↓9 |
| 95 | Kyrgyz Republic | 2.105 | ↑13 |
| 96 | Gabon | 2.112 | ↓1 |
| 97 | Belarus | 2.115 | ↑4 |
| 98 | Papua New Guinea | 2.118 | ↓2 |
| 99 | Georgia | 2.122 | ↑3 |
| 100 | Guinea | 2.125 | ⟷ |
| 101 | Bangladesh | 2.128 | ↓9 |
| 102 | Uzbekistan | 2.166 | ↑2 |
| 103 | Lesotho | 2.167 | ↑1 |
| 104 | Burkina Faso | 2.176 | ↓26 |
| =105 | Tajikistan | 2.196 | ↑12 |
| =105 | Uganda | 2.196 | ↑2 |
| 107 | Cote d' Ivoire | 2.203 | ↑4 |
| 108 | Togo | 2.205 | ↓9 |
| 109 | Djibouti | 2.207 | ↑4 |
| 110 | China | 2.217 | ↑2 |
| 111 | Algeria | 2.219 | ↓2 |
| 112 | Guinea-Bissau | 2.237 | ↑6 |
| 113 | El Salvador | 2.262 | ↑2 |
| 114 | Guatemala | 2.264 | ↓4 |
| 115 | Turkmenistan | 2.265 | ↑4 |
| 116 | Brazil | 2.271 | ↓10 |
| 116 | Thailand | 2.278 | ↓3 |
| 118 | Armenia | 2.294 | ↑3 |
| 119 | Kenya | 2.300 | ↑1 |
| 120 | Nicaragua | 2.312 | ↓54 |
| 121 | Rep of the Congo | 2.323 | ↑1 |
| 122 | Mauritania | 2.333 | ↑5 |
| 123 | Honduras | 2.341 | ↓7 |
| 124 | Bahrain | 2.357 | ↑5 |
| 125 | Myanmar | 2.393 | ↓2 |
| 126 | Niger | 2.394 | ↑6 |
| 127 | South Africa | 2.399 | ↓2 |
| 128 | USA | 2.401 | ↓4 |
| 129 | Saudi Arabia | 2.409 | ↓1 |
| 130 | Azerbaijan | 2.425 | ↑3 |
| 131 | Ethiopia | 2.434 | ⟷ |
| 132 | Zimbabwe | 2.463 | ↓6 |
| 133 | Eritrea | 2.504 | ↑6 |
| 134 | Philippines | 2.516 | ↑4 |
| 135 | Burundi | 2.520 | ↑1 |
| 136 | Egypt | 2.521 | ↑7 |
| 137 | Chad | 2.522 | ↓2 |
| 138 | Cameroon | 2.538 | ↓4 |
| 139 | Iran | 2.542 | ↓9 |
| 140 | Mexico | 2.600 | ↑1 |
| 141 | India | 2.605 | ↓4 |
| 142 | Palestine | 2.608 | ↓2 |
| 143 | Colombia | 2.661 | ↑2 |
| 144 | Venezuela | 2.671 | ↓2 |
| 145 | Mali | 2.710 | ↑2 |
| 146 | Israel | 2.735 | ↑1 |
| 147 | Lebanon | 2.800 | ↓26 |
| 148 | Nigeria | 2.898 | ⟷ |
| 149 | North Korea | 2.921 | ↑1 |
| 150 | Ukraine | 2.950 | ↑2 |
| 151 | Sudan | 2.995 | ↑3 |
| 152 | Turkey | 3.015 | ↓3 |
| 153 | Pakistan | 3.072 | ↓2 |
| 154 | Russia | 3.093 | ↓1 |
| 155 | Dem. Rep of the Congo | 3.218 | ⟷ |
| 156 | Libya | 3.285 | ↑1 |
| 157 | Central African Rep | 3.296 | ↓1 |
| 158 | Somalia | 3.300 | ↑1 |
| 159 | Iraq | 3.369 | ↑1 |
| 160 | Yemen | 3.412 | ↓2 |
| 161 | South Sudan | 3.526 | ⟷ |
| 162 | Syria | 3.566 | ↑1 |
| 163 | Afghanistan | 3.574 | ↓1 |

It is joined at the top of the index by New Zealand, Austria, Portugal, and Denmark. Bhutan has recorded the largest improvement of any country in the top 20, rising 43 places in the last 12 years.

Afghanistan has been ranked as the least peaceful country in the world, replacing Syria, which is now the second least peaceful. South Sudan, Yemen, and Iraq comprise the remaining five least peaceful countries.

This is the first year since the inception of the index that Yemen has been ranked amongst the five least peaceful countries.

## Gulf attacks demand facts

Source: https://www.timesunion.com/opinion/article/Editorial-Gulf-attacks-demand-facts-14007736.php

June 17 – **The Trump administration accuses Iran of attacks on oil tankers. Will Congress do its constitutional duty or cede it to a president with unprecedented credibility issues?**

The question America and the rest of the world ought to be asking following the attacks on oil tankers near the Strait of Hormuz ought to be, "Who did it?" Instead, everyone is left to wonder, "Is the Trump administration telling the truth or not?"

This is a perilous place to be, on the brink of armed conflict in a narrow body of water through which flows one-fifth of the world's oil and one-third of its liquefied natural gas, and unable to decide whether our president can be trusted to tell the truth.

President Donald Trump's disregard for facts is all too well documented. As of June 7, The Washington

Post had logged 10,796 false and misleading statements by him since he took office, from his claim of record crowds at his inauguration to his boast that the southern border wall he promised during the election is under construction (his latest campaign fundraising appeal on Monday claimed, "The Beautiful WALL is being built") to his assertion that he was "completely exonerated" in the report by the Justice Department's special counsel, Robert Mueller, into Russian interference in the 2016 election and obstruction by Mr. Trump of the probe.

This incessant dishonesty has eroded public trust. Poll after poll shows fewer than one in four Americans say Mr. Trump is credible. It's worse for government itself: The Pew Research Center in April found that on Mr. Trump's watch, just 17 percent of Americans trust government to tell the truth.

This isn't entirely a recent phenomenon. Public trust in government has been on a long decline since the 1960s, as a result of such deceptions, scandals and disappointments as Vietnam, Watergate, Iran-Contra and the false information about weapons of mass destruction that preceded the 2003 invasion of Iraq.

As vital as public trust is when a president wants to take a country to war, so are international alliances. Two years of Mr. Trump's bluster, insults, trade wars, broken agreements and disdain for America's longtime allies and trading partners — Canada, Mexico, NATO, the European Union — have left those relationships in tatters. That we're even still on speaking terms with them is more a testament to their patience and desire to do business with what's still the world's largest economy than to any affection, respect or trust for Mr. Trump.

It's essential, then, that Congress do what we have urged on this page before, and what the Constitution requires: that the legislative branch, not an administration teeming with financial conflicts of interest and advisers eager for a fight with Iran, decide whether to go to war. That means getting to the bottom of these and other reported attacks on ships in the Persian Gulf region and weighing our national interests and the consequences of wading into yet another military confrontation in the Middle East, and saying yes or no.

Mr. Trump may find the truth expendable to his whims. America's sons and daughters are not.

## The British Army's Guide For Spotting "Extreme Right Wing" Soldiers Has Leaked Online

Source: https://www.buzzfeed.com/markdistefano/the-british-armys-guide-for-spotting-extreme-right-wing

EXTREME RIGHT WING (XRW)

INDICATORS & WARNINGS

ARMY

Look out for individuals who...

| | | | | |
|---|---|---|---|---|
| Describe themselves as 'Patriots' | Look at opponents as 'Traitors' | Refer to individuals ready to challenge their XRW views as being 'indoctrinated' | Refer to Political Correctness as some left wing or communist plot | Use blatantly untruthful or incorrect references to immigrants, Judaism or Islam |
| Add 'istan' to British place names | Use the term 'Islamofacism' | Make generalisations about Muslims and Jews | Make inaccurate generalisations about 'the Left' or Government | Talk of an impending racial conflict or 'Race War' |
| Describe multicultural towns as 'lost' | Discuss the creation of 'white only' communities | Claim that immigration is the root of injustices against vulnerable people (e.g. old age pensioners, veterans) | Threaten violence when losing an argument, although claiming that XRW groups protest peacefully | Claim that it is acceptable to abuse Jews or Muslims as Judaism or Islam are not 'races' |
| Have tattoos with overt and covert XRW iconography | Become increasingly angry at perceived injustices or threats to so called 'National Identity' | Involve colleagues in closed social media groups | Actively seek out impressionable individuals to indoctrinate or recruit | Have extreme XRW group stickers or badges on clothing and personal items |

If you are concerned about the behaviour of any member of the Army you should report your concerns through the CofC and to the Army Warning, Advisory and Reporting Point (WARP)

Army officers were told to look out for individuals who "describe themselves as 'Patriots'", "make generalizations' about Muslims and Jews" and talk about "race war".

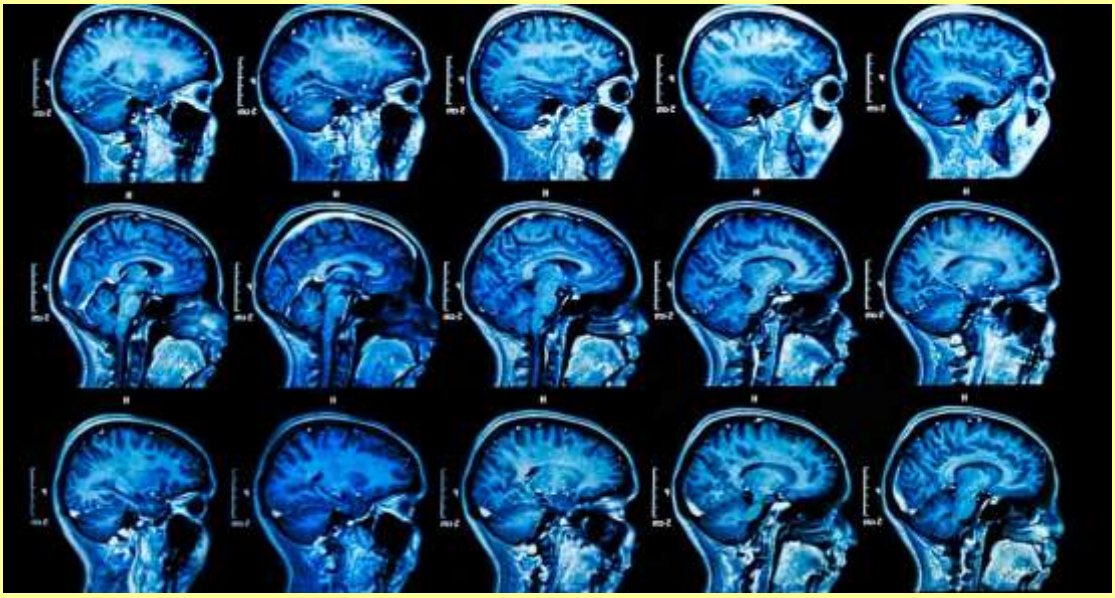
## Brain scans reveal cognitive triggers for extremist violence

Source: http://www.homelandsecuritynewswire.com/dr20190618-brain-scans-reveal-cognitive-triggers-for-extremist-violence

June 18 – In a new journal article, a team of scientists led by Scott Atran, an adjunct research professor at the University of Michigan's Ford School and Institute for Social Research, reveals insights into the psychology of radicalization and terrorist violence, gained by scanning the brains of men who support a terror organization associated with Al Qaeda.

The research was conducted by Artis International, a consortium of academics and policymakers supported by the U.S. Department of Defense Minerva Program and the Air Force of Scientific research and the Minerva Program. The article is published in The Royal Society.

In a conversation with Michigan News, Atran details the research and an understanding into the psychology of the respondents.



***Michigan News: What are "sacred values" and what role do they play in influencing radical ideologies and leading to violent extremism?***

*Scott Atran*: Sacred values are defined as non-negotiable preferences that are immune to material tradeoffs. Previous research by our team in conflict zones, such as Palestine-Israel, and on the ISIS frontline in Iraq, suggest that when people lock into sacred values, then material incentives (economic carrots) or disincentives (sanctions as sticks) only backfire.

Once people are willing to fight and die for sacred values they are at an advanced stage of radicalization or revolutionary fervor, standard approaches to de-radicalization almost always fail.

***MN: How did you use brain scans in the research? What did those tests reveal?***

*Atran*: In this new effort, we sought to learn more about what goes on in the minds of people who have expressed a willingness to die for a cause that is based on sacred values—in this case, sympathizers of an Al-Qaeda associate called Lashkar-et Taiba.

Brain scans of nonconscious neural processes pretty much rule out posturing. We first spent nearly two years interviewing and gaining the trust of members of the Pakistani immigrant population of Barcelona, then ran behavioral tests to figure out which individuals supported militant jihad.

We then put some of these individuals in a scanner, where they were asked about their willingness to fight for Islamic causes, from the sacred, such as opposing caricatures of the Prophet Muhammad, to non-sacred, such as the availability of halal food. We found that the brain used different networks when considering different causes.

There were areas we saw that were inhibited, silent, for sacred causes. These were the areas we call deliberative. These are involved in assessing the pros and cons. With sacred causes when people are deciding how much they should fight and die, they are deciding much faster. It's not a rational decision, but a rapid duty-bound response regardless of real costs or likely consequences. They are doing what they believe.

Participants were then asked the same questions, but were told their peers' responses, which had been manipulated to make them more moderate. Not only did they then become less likely to say they would fight and die for their cause but they also engaged their deliberative area. The peers did not threaten the participants' sacred values; they only challenged violence as the means of their defense.

***MN: What does this tell us about thwarting radicalization?***

*Atran*: The research indicates that some "counter-messaging" strategies used by governments to discourage people from becoming involved with extremism, such as attacking their values, will have limited or no impact, or backfire, at least among the most radicalized individuals who are willing to fight and die for their values.

Arguments and attempts at persuasion that rely on rational and seemingly reasonable attempts to pull people away also will have limited impact because the part of their brain associated with deliberative reasoning has deactivated. Moreover, such strategies do not reach out to the individual.
The peer group perceptions shows that the support of friends and family is key to prevent people from becoming radicalized or from relapsing.
But with this experiment, we've been able to get people to lower their willingness to fight and die for those values.
Another implication is that the people best poised to get others to abandon violence without abandoning values are those who hold the same values. This confirmed what I had previously observed in Sulawesi, when Salafi preachers were able to dissuade a suicide attack group from killing others and dying themselves.

***MN: How will this impact future research?***

*Atran*: Both getting to the battlefield, where previous research shows willingness to fight and die for sacred values on the ISIS frontline in Iraq, and bringing in radicalized individuals into the scanner are very time consuming and expensive.
If an experiment fails, you can't just hand out another questionnaire. Each subject scanned costs sometimes thousands of dollars, and bringing people into a battle-zone to conduct studies on the frontline is also quite time consuming.
We need more field studies with non-Western populations. More than 90% of experiments described in mainstream psychology journals are from North America, Western Europe, or Israel and Australia, with a majority from English-speaking countries.
Once those studies are replicated, we can turn to the scanner to see what's going on in the brain and perhaps find some surprising connections like Molly Crocket, a co-author on the study, did when she found revenge to activate the same brain locales as joy.
We also have to find out when and why people lock in to sacred values, and how those values might be de-sacralized. For example, white supremacism was a sacred value for many Americans at the beginning of the 20th century, but not at the beginning of the 21st—but in today's superconnected-superfast social media world we have to figure out how to do things a lot faster.

## Shoe scanner may improve airport security

Source: http://www.homelandsecuritynewswire.com/dr20190620-shoe-scanner-may-improve-airport-security

June 20 – The types of shoes you wear when flying matter. And not just shoe types. Size, material, soles and heels are also very important. Why? Shoes can become dangerous vehicles for terrorists' plots.
On 22 December 2001, three months after the terrorist attack on the World Trade Center, Richard Reid attempted to light a fuse in his shoe onboard an American Airlines flight from Paris to Miami. Luckily, nearby passengers and crew noticed and subdued him. FBI experts later found explosives in his shoes.
"This was ultimately the reason why now people have to take their shoes off at airport security checkpoints," said John Fortune, Program Manager for the Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) Apex Screening at Speed Program.
DHS wants to prevent future incidents. That is why S&T is working on a millimeter wave technology for screening shoes as part of the larger Screening at Speed Program. S&T says that the program, which started in 2016, is pursuing transformative research and development activities that support a future vision for increasing security effectiveness while dramatically reducing wait times and improving the passenger experience.
"We are looking for a two-fold benefit – to improve detection of current and emerging threats to aviation and to improve the passenger experience in the airport," said Fortune.
Similar to the full-body scanners at the airports, which also use the harmless millimeter waves, shoe scanners will be looking for concealed threats. However, knowledge on the types of shoes airline passengers wear when traveling is lacking.
For high-quality results and successful integration at Transportation Security Administration (TSA) checkpoints, the Screening at Speed team and its partner Pacific Northwestern


National Laboratory needed additional data – data on the types of shoes passengers wear so that they could create more effective algorithms for the shoe scanner. They also needed to find the best place for the shoe scanner in existing checkpoints.
Fortune asked S&T sociology expert Dr. Kathleen Deloughery to conduct a study in seven airports across the U.S. on the types of footwear passengers wear. The study took place in September and October 2018.

**The shoe study**

Preliminary research showed about three quarters of travelers do not have a TSA Pre✓or similar program that would allow them expedited screening, which lets passengers keep their shoes on. Deloughery's team also researched many websites of shoe manufacturers and looked for marketing studies.
"One, there weren't any great studies and two, we were concerned from the get-go that the shoes people wear when flying might not match up to the shoes they wear in their everyday life," said Deloughery. "So we decided that it is best to go out and look at the travelers to get the right idea."
Deloughery with the help of Research Triangle Institute International developed a checklist for recording shoe size and style, sole thickness and material, and heel height and thickness. The researchers gathered data at seven representative airports in publicly accessible areas where people queue up to go through the security lines. To ensure coverage of styles worn by business and leisure travelers, data was collected across three time periods (morning, afternoon, evening) and two days of the week (business days and weekends). In all the team described a total of 4,200 pairs of shoes.
"TSA helped us select regions that represent regional differences in the types of shoes people wear," said Deloughery. "We also wanted to make sure that we hit both warm and cold weather airports. We were able to see people wearing boots in Philly and Chicago."

**Becoming part of the screening process**

Deloughery's team also conducted 15-minute interviews with TSA personnel about shoe scanners becoming part of the passenger screening process. The researchers asked how the new technology can be implemented and what potential issues may arise. TSA's input can improve the design of the shoe scanner.
"One of the great things I have discovered from working with TSA in the past, is that airports are super excited to be involved in S&T research," said Deloughery.
To determine the best design and place for the shoe scanner at airport security checkpoints, S&T relies on TSA's input and advice.

"During the interviews with TSA employees, some asked if we can put the shoe scanner inside the full-body scanner or at the documents checkpoints where you show your passport and boarding pass," Deloughery said. "It will probably be like a mat that you step on for about two to five seconds."
Deloughery envisions a screening process where passengers stand on the shoe scanner for a few seconds. If an alarm sounds, a TSA officer will ask the traveler to remove his shoes and put them through an X-ray scanner, as is the procedure now. But S&T wants to make the number of shoes that goes through X-ray as small as possible. Thanks to the shoe study, S&T can better select which shoes to test to determine those that can be successfully screened by the prototype and which ones are challenging – for example, due to certain types of materials.
"The shoe scanners would be scanning for anything that shouldn't be in your shoes," Fortune said. "There is usually a serious reason for someone to modify a shoe to secretly accommodate materials or items not allowed on airplanes."

**When can we stop taking our shoes off?**
Currently a prototype is being built, which should be completed in 2019 and later tested at an airport. S&T may further perfect the technology and then transition it to a commercial manufacturer for integration in existing scanning systems.
"One of the cool things is the valuable partnership between our technical design team and understanding the human factor side of how the technology is going to work, because if we don't consider the shoes people are actually wearing, we may end up with a machine that is incapable of scanning many of the shoes encountered when passengers reach the security checkpoint," said Fortune. "We are trying to make sure we design technology that is most effective against real threats."

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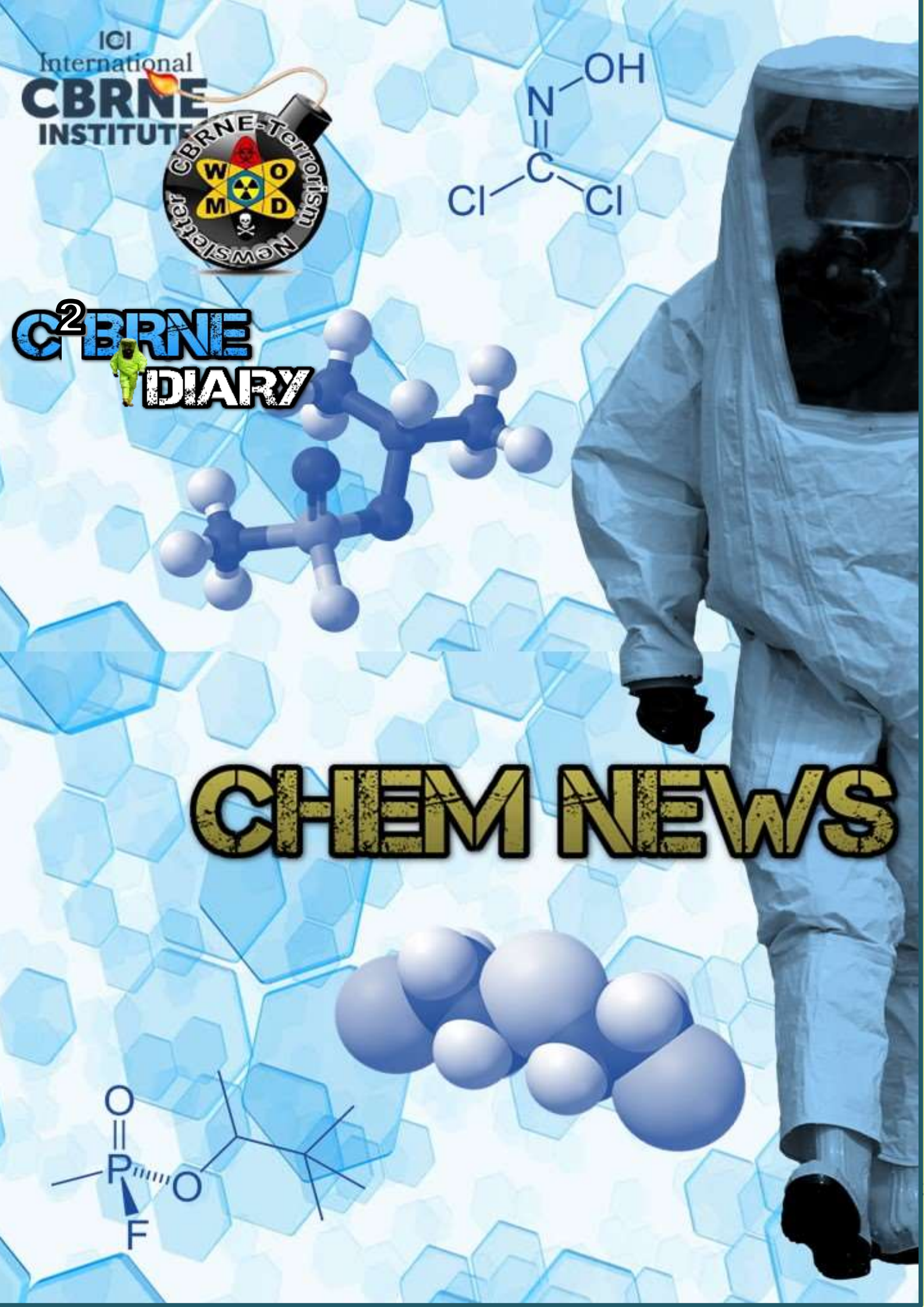
# CHEM NEWS



# Analysis Of The Park Patriot "Sarin Lab" In The Moscow Region

**By Dan Kaszeta**

Source: https://www.bellingcat.com/resources/case-studies/2019/05/23/analysis-of-the-park-patriot-sarin-lab-in-the-moscow-region/

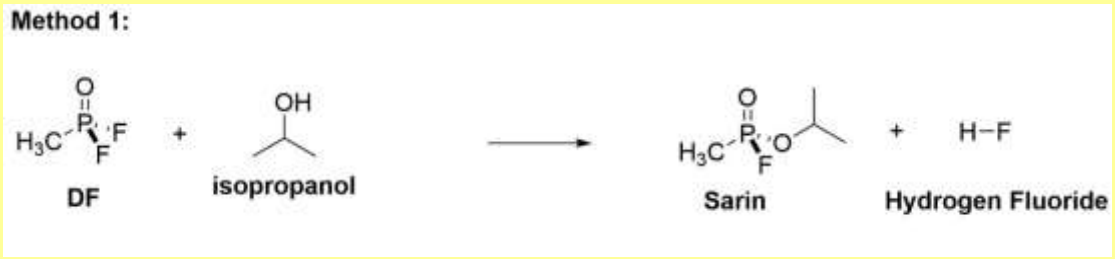
May 23 – West of Moscow is a theme park called Patriot Park. One interesting exhibit at this park is an alleged Sarin production laboratory, said to have been captured in Syria. But is this really a production rig for the nerve agent Sarin?

**Sarin Production**

Sarin is a complicated substance to make. It is, in fact, more complicated to make than many other nerve agents, and there are numerous production pathways to get from basic materials to Sarin.

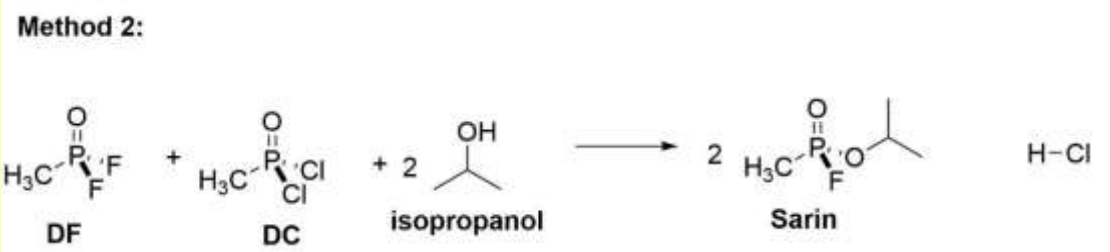
All of these production methods lead to the production of a substance called methylphosphonyl dichloride, which I will abbreviate top DC. To produce Sarin, DC needs to be converted to another chemical called methylphosphonyl difluoride, or DF for short. Regardless of the many pathways that lead to DF, they all lead to one of two final steps to get to the production of Sarin molecules. For lack of a better terminology, I will refer to them as Method 1 and Method 2.

Method 1 combines DF with isopropyl alcohol (IPA). One molecule of DF combined with one molecule of isopropyl alcohol reacts to produce one molecule of Sarin, one molecule of hydrogen fluoride (HF), and heat. Both the residual HF (which is a dangerous acid) and the residual heat are serious issues.




Method 2 was developed to cope with the problem of residual HF, which in large scale production proved to cause many difficulties, including deaths of production staff and loss of expensive hardware.

This method is more complicated. It combines a specialized mix of DF and DC with the IPA. This reaction combines 2 molecules IPA with 1 molecule of DC and 1 molecule of DF.
This reaction, when done carefully under the right conditions of temperature and pressure, yields 2 molecules of Sarin and 2 molecules of hydrogen chloride (HCl), as well as much heat. This residual HCl is easier to remove by various chemical engineering methods than residual HF, and is less dangerous to work with, but only in relative terms.
In the U.S. production method, this DC/DF cocktail was made by partially conducting the DC to DF conversion process and stopping the reaction when the appropriate ration of DC and DF was reached.




This took literally years of trial and error to get exactly right at the U.S. Sarin production facility in Colorado. The exact ratio of DC to DF is close to, but not exactly, equimolar. The timings, temperatures, and processes to convert DC to a DC/DF blend for this production method are still highly classified. It needs to happen under conditions of high temperature, because DC is a solid at room temperatures.

**Unpacking The "Production Lab"**

In overall terms, the displayed equipment rig is patently unsuitable for the production of Sarin. To anyone familiar with the well-documented historical processes for manufacture of Sarin in Germany, the U.S., and Japan, this equipment instantly looks inadequate to the task.
Indeed, it is hard to know where to start with this set-up.
There are a lot of things that are not explained in the exhibit display. Elements which are not present cannot, by definition, be evaluated — but their absence can be remarked upon. To be honest, it is quite possible that the persons who constructed this display did not know much about the process and were thus making guesses. There is no visible block diagram or process diagram purporting to show what is going on in this jumble of equipment.
If this is meant to be a Sarin production rig, it is showing only the final steps of the process, the last stages of Method 1 above.
There is no sufficient engineering or process controls for Method 2 to be contemplated. We are forced to assume that components are as marked, and that indicated chemical substances are as they are marked on their label. However, this may not actually be the case in the reality in the field. It is commonplace usage in clandestine drug laboratories to store substances in containers not consistent with their labelling.

**What Is the Process on Display?**

Which parts of the process are being done in which container is unclear? The blue drums are labelled "Reactor for mixing reagents" in English, but in Arabic the script translates to "reagents for reactor mixing" (note: I do not read Arabic and Bellingcat has provided this translation). These two descriptions are inconsistent. We are left with uncertainty as to whether one of the plastic drums is the reactor vessel or the metal cement mixer is the reactor.
It also is questionable why a covert lab would label its components. There are two main possibilities:

1. DF is stored in one barrel and isopropyl alcohol is stored in the other. The two components are combined, along with triethylamine, in the cement mixer.
2. The DF+IPA reaction is done in one of the plastic drums. The resulting product is then moved to the cement mixer where triethylamine is added.

Either way, there are many problems with these processes and this hardware. These are, in no particular order, described as follows:

**The Absence of DF**

You cannot make Sarin without DF, yet there is no evidence of any DF present.

The exhibitors have made the presence of isopropyl alcohol and the very optional triethylamine clearly visible, but not DF.

There is no container that looks adequate for storage of DF, which is highly reactive to many substances and even reacts with the ambient humidity in air. DF is not commercially available and cannot be obtained by purchase, as the only sources are closely regulated OPCW-inspected facilities that handle only very small quantities.

If you want DF, you have to make it. The various processes for making DF are complex and dangerous. But there is no indication of the necessary hardware or any process for making or purifying DF in these photographs. Anyone believing that this laboratory produces Sarin is required to assume that DF is already present. This, in turn, demands an explanation of where the DF came from.

**The Blue Drums**

The blue plastic drums are inherently incapable of handling the IPA-DF reaction.

Often, but not exclusively, produced from polyethylene, such large blue drums are widely used for storing chemicals. These particular drums are rated for storage of food. Their markings show that they are Russian in origin. They were procured by Russian company ZTI, near Moscow.

This raises an important issue. As such drums are ubiquitous around the world, why would a clandestine Syrian rebel group source them from a company in a town just west of Moscow? The drums came from a company only 60 km away from the exhibition site.

Accordingly to the manufacturer's website, the drums appear to be made from either low density polyethylene (LDPE) or high density polyethylene (HDPE). This particular material has reasonable corrosion resistance.

Could a low density polyethylene drum be corrosion resistant enough for one or two production runs of Sarin? It is possible, although this material is not ideal for the purpose. The issue becomes one of heat and pressure. Polyethylene drums lose their structural integrity at higher temperature. They can withstand 80 degrees C, but can only stand 90 degrees C for a short period of time. The chemical compatibility of LDPE and HDPE is explained here.

Both the DF-IPA and DF-water reactions produce heat. Because the drums are pressurized, apparently with nitrogen gas or some other gas from the gas cylinders, the barrels will be under pressure.

It seems odd to pressurize a drum not designed for such use. The addition of heat and HF from the Sarin will greatly add to the pressure inside these barrels.

Such a drum will either burst or vent dangerous gases in a Sarin production run. It seems unwise and unsafe to use an LDPE or HDPE drum for the Sarin reaction. In addition, there is no visible mixing mechanism in the plastic drums. It is unclear how mixing could occur.

The drums, on the other hand, could be suitable for storage of IPA and DF. DF is a difficult substance to store safely, as the U.S. military discovered during its own nerve agent

manufacturing programme. DF's preferred storage material is high density polyethylene (HDPE), a fact which is publicly published. The suitability of LDPE for storing DF is unclear in the available literature.

**The Cement Mixer**

Given the lack of mixing, the inconsistent labelling, and the fact that both of the plastic drums can't both be used for the main DF-IPA reaction, the use of a modified cement mixer is extremely problematic for the DF-IPA reaction.

Anyone who has seen how a cement mixer such as this works knows that the mixer drum rotates. A sample video is here.

How are those improvised hose attachments going to work when the drum rotates? The input hoses are going to wrap around the mixer. They will break and spew chemicals everywhere.

Also, with the cover bolted shut, it is not clear how the end product is going to be removed. The metal mixer will get very hot very quickly.

There appears to be a vent on the left side. This will spew hot HF and Sarin in every direction while spinning. In addition, the HF and DF will attack the metal. Specialty metals are needed to contain a binary Sarin reaction for very long.

It is, on the other hand, possible that the intended use is not for the drum to rotate. This seems odd, as there is no other mixing mechanism visible or implied. It seems very likely that this mixer will fail, and fail catastrophically.

**Connections and Fittings**

Although the polyethylene drum will provide some corrosion resistance to the HF, the various fittings going into and out of the drum will not survive the HF or the DF. HF and DF are not kind to metal.

It should also be noted that the fittings on the gas cylinder have Cyrillic characters on them, indicating likely Russian origin. Why would a Syrian rebel chemical warfare effort source gas cylinder fitting from Russia, which would only highlight suspicion?

The protective equipment that the mannequins are wearing is not sufficient to safely handle the Sarin manufacturing process.

While the "Tyvek" suits and military filter-based protective mask are going to provide adequate protection against Sarin vapours and droplets, what they will not protect against is exposure to the Sarin components. Leaking HF vapour will most assuredly attack the skin of the person wearing that PPE, as the Tyvek is not an airtight suit.

Would the masks provide some protection to the respiratory tract? Likely. But will it protect someone for a protracted period of time while working in an enclosed space? Unlikely.

The gloves may not be adequate for triethylamine. It is not clear what type of glove is being showcased.

There is no hardware in evidence for controlling the temperature of any of the process. The heat produced in the reaction is going to do bad things if it isn't controlled. The DF/IPA reaction is likely to produce enough heat to boil the contents of either the plastic barrel or the cement mixer. Either would lead to catastrophic failure. The sign on the exhibit claims that the process operates at 25 deg C. This is absurd.

**Packaging and Labelling Of Chemicals**

Neither of the containers appears to be the original container from the manufacturer. Safety information, in English, seems to be printed out and taped to the containers. We are left to

assume that they are correctly labelled. But literally anything could have been in these containers.

**The Alcohol**

The pictured isopropyl alcohol does not appear to be the high purity required for safety and efficiency of the DF-IPA reaction.

For this reaction to work, it needs to be as close to 100% pure and completely free of moisture, particularly since DF reacts very badly with water. There is nothing shown in this production rig for purifying lower grades of IPA.

There's no way that the pictured container contains 100% pure IPA, because the fluid level is clearly visible in the container. 100% pure IPA will rapidly absorb moisture out of ambient air. If you use this particular alcohol in the picture in a Sarin reaction, it is likely that there will be problems in the process. You will certainly produce Sarin, but quality and safety degrade quickly and you will need a more robust reaction vessel than the one illustrated.

DF reacts almost instantaneously to form HF and another acid. Any molecule of DF that reacts with water instead of IPA reduces the overall purity of the end product as that molecule is used up to make residue products instead of Sarin. Also, this water-DF reaction produces excess heat, which will add to the overall heat in the reaction vessel. In summary, use of the pictured alcohol makes the pictured reactor vessels inadequate.

Various amine compounds have had a reasonable track record as acid reducing additives to Sarin. This topic has already been well explored on Bellingcat.

A thorough search of the technical literature will show that triethylamine is useful as a Sarin additive. It should be noted that this knowledge comes from the UK Sarin programme in the 1950s and is based on Sarin produced by Method 2.


It should be noted, however, that triethylamine's safety is questionable in an improvised laboratory situation.

The physical characteristics of triethylamine make it a fire hazard. It is highly volatile and gives off vapours. It has a low flash point and a lower explosive limit that make it quite dangerous near any kind of heat source or spark. Given the possibility of a spark, increased temperatures due to exothermic reactions, and the likelihood of triethylamine vapours venting from the alleged mixing vessel, a fire or explosion is a distinct possibility. Also, triethylamine is corrosive to many types of plastics, rubbers, and metals.

**Conclusion**

Based on all available evidence, it is highly unlikely that this exhibit is actually a production laboratory for Sarin. While it may be fascinating for casual visitors to Patriot Park, it does not pass the authenticity test. I acknowledge the help of several chemists, including DDTea in the preparation of this post. Thank you.

# Interview with Maj. Gen. Shunji Yoshino

**Commander, Chemical School Japan**

Source: http://nct-magazine.com/august18/interview-with-maj-gen-yoshino/

For the second issue of the NCT Magazine, Anna Paternnosto, Vice President of the CBRNe Society interviewed Maj. Gen. Shunji Yoshino, Commander of the Chemical School of the Japanese Ground Self- Defense Force (JGSDF) to share with our readers how the JGSDF is preparing for the Tokyo Olympics and how the organization is facing the ever growing national and international CBRNe threat.

Maj. Gen. Yoshino has served the JGSDF for more than thirty years. Before being appointed as the Commanding General of the JGSDF Chemical School, he served as the instructor of the JGSDF Chemical School, the Commander of the 2nd Chemical Unit, and Chief of the Chemical Office at the Ground Staff Office. His recent noteworthy positions include Director of the Logistic Department of the Western Army Headquarters and Vice Commander of the 15th Brigade. From 2005 to 2008, Maj. Gen. Yoshino also served as the Defense Attaché in the Netherlands. Maj. Gen. Yoshino graduated from the National Defense Academy of Japan and attended the commanding and staff activity in the Command & General Staff Course of the Staff College. He undertook the higher military education in the Joint Special Course of the Joint Staff College.

Established in 1956, the main mission of Camp Omiya Chemical School is to develop and conduct training to acquire knowledge and skills necessary to protect the JGSDF personnel against CBRNe events, as well as to educate civilian responders, such as representatives from the police, fire service and coastguard on CBRNe Defense.

In 1995, Tokyo experienced the brutal consequences of the Tokyo Subway Sarin attack perpetrated on 20 March by the terrorist group Aum Shinrikyo. In five coordinated attacks, the perpetrators released sarin on three lines of the Tokyo subway during rush hour, killing 13 people and injuring around 6,000. In 2011, Japan also suffered from the Fukushima Daiichi Nuclear Power Plant (NPP) accident caused by a massive earthquake and consequent tsunami, which led to the core meltdown of the NPP and the release of large amounts of radioactivity.

23 years from the Tokyo Subway attack and 7 years from the NPP meltdown in Fukushima, Japan is preparing to host two major large-scale events: The Rugby World Cup in 2019 and the Tokyo Summer Olympics in 2020. High visibility events are highly vulnerable to CBRNe terrorism and require security measures in place that allow a fast and effective response. In the light of these events, we spoke with Maj. Gen. Yoshino about how the JGSDF is dealing with the preparations.

**Protecting High Visibility Events needs strong cooperation between civil and military stakeholders. Is the JGSDF collaborating with other first responders to guarantee the protection of Tokyo 2020 Olympics?**

All the units of the Japan Ground Self Defense Force continuously conduct joint CBRNe training not only with firefighters and police, but also with medical personnel and local governments. This falls under the framework of civil protection training. Civil and military responders in Japan are constantly keeping their capabilities ready to cope with CBRNe incidents. The same applies for the Chemical School. We have recently invited representatives of the police and fire department to conduct joint education. An education that is more realistic in order to better cope with potential incidents. An event like the recent NCT Asia Pacific 2018 in Tokyo was a great opportunity to share

information on both a national and international level. The JGSDF was able to improve its knowledge through the conference and it was a fruitful and effective event.

**As there are two more years to go until the Olympics Games and one for the Rugby World cup, has the JGSDF Chemical School already upgraded its capabilities in order to be better prepared to respond to potential CBRNe attacks? Did you undertake any special training in preparation for the Games?**

**▶▶ Read the rest of this article at source's URL.**

**Rescue workers may be allowed to give antidotes after gas attack**

Source: http://www.asahi.com/ajw/articles/AJ201905300001.html

Firefighters engage in rescue training. (Asahi Shimbun file photo)

May 30 – **Rescue personnel may be permitted to administer lifesaving injections to injured people in the event of a terrorist incident like the deadly 1995 sarin gas attack in Tokyo when the 2020 Olympics and Paralympics are held.**

**In principle, only doctors and nurses are permitted to perform antidote injections.** However, the health ministry believes that firefighters, police and Self-Defense Forces members should also be allowed to provide such treatment during emergency operations in response to terror attacks.

The ministry plans to establish a study panel shortly to decide its policy on this matter this year.

The panel will discuss the conditions under which anti-nerve agent injections can be given and patients they should treat. The idea is to set up a system so that emergency services personnel can swiftly treat injured people.

The panel will also discuss the handling of antidotes with automatic syringes, which can be carried safely with ease, and conditions for their use. **Only antidotes for injection into veins are approved in Japan, making them unsuitable for use outside hospitals.**

According to chemical terrorism countermeasures devised by an expert ministry committee five years ago, victims with acute poisoning from chemical substances should be given antidote treatment within 30 minutes to a few hours after the attack. The measures also

called for stockpiling medicine, as well as an early treatment system for the injured before being rushed to a hospital.

**EDITOR'S COMMENT:** The auto-injection antidote problem is universal. OK they are expensive but they cost less than the lives that might be saved. In many countries simply do not exist; in others, they are available only to military personnel while in some they are not exported due to the fear that will end up on terrorists hands the very same time that Duodote can be bought via the Internet or even black market. It is also surprising that atropine is available in all hospitals worldwide and three amplules with a 5ml syringe for IM injection can be a practical alternative to those who do not enjoy the "luxury" of an auto-injector.

# Country Profile: Argentina

**By: Lt.Col. of Engineers Nicolas Gerardo Pietrobelli**
*CO of the CBRN Engineers Company and Emergency Support 601*
*Argentinian Army*
Source: http://nct-magazine.com/nct-magazine-june-2019/country-profile-argentina/

The Argentine Republic adhered to a series of international treaties in which it expresses the will not produce and use weapons of mass destruction (WMD) or chemical, biological, radiological and nuclear (CBRN) in any situation.


The WMD or CBRN cause indiscriminate effects, whose direct and indirect action not only affects the ground forces, but inevitably also the civilian population, the environment and / or the material infrastructure of the area where they are employed, all with an intensity and to an unpredictable extent.
The capacity to respond to CBRN incidents must be maintained for all types of military operations. This CBRN defense capability will not be improvised and a period will be necessary so that, both individually and collectively, the required levels of operation can be achieved, for which a great amount of time is required in the preparation of personnel as well as specific equipment for this type of mission.

**▶▶ You can read the rest of this article at source's URL.**

# www.qcbrna.qa

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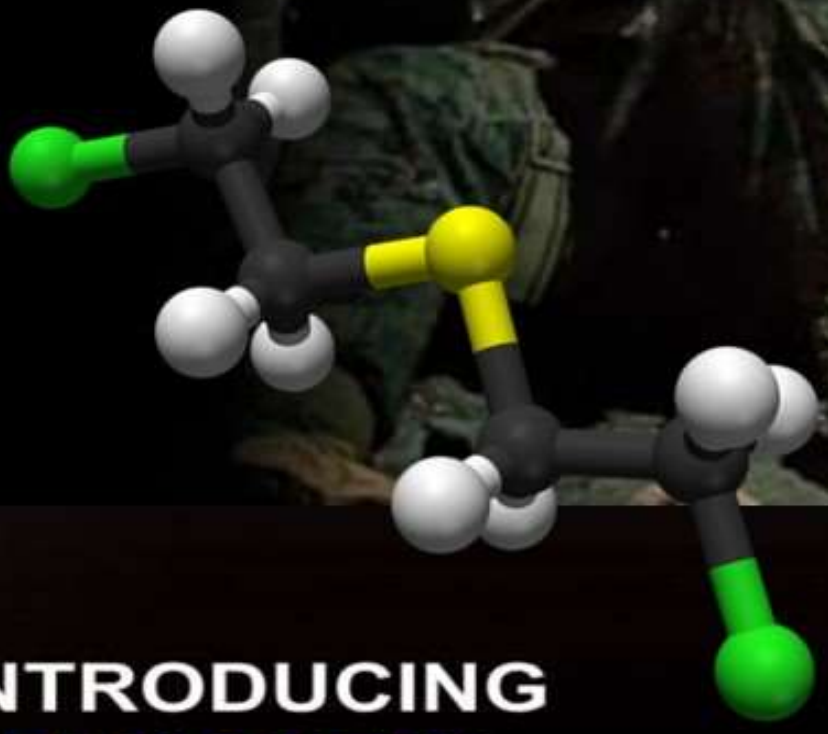

## INTRODUCING DERMOSTYX

Strengthening protection against CWA and TICs


**Rekah Pharmaceutical Industry Ltd**

# International collection of chemical emergency advisers gathers in Czech Republic for training

Source: https://homelandprepnews.com/stories/34312-international-collection-of-chemical-emergency-advisers-gather-in-czech-republic-for-training/


June 11 – A collection of the world's chemical emergency response trainers recently spent a week in the Czech Republic teaching responders how to address crises with chemical warfare agents and toxic industrial chemicals.

The training was co-organized by the Organization for the Prohibition of Chemical Weapons (OPCW) and the Population Protection Institute of the Czech Republic. In all, 17 OPCW member states participated, with participants testing one another and going through the paces of various command roles. The goal was to encourage mutual learning and understanding of a chemical emergency response.

"The training-of-trainers ensures sustainable and efficient use of OPCW resources for capacity building," OPCW's Senior Program Officer Shahriar Khateri said. "This course will help build a large base of first responders in the field of assistance and protection against incidents involving chemical warfare agents or toxic industrial chemicals."

The training, which lasted from May 28 to June 6, represented the 5th international course on Assistance and Protection for instructors. It was an extension of the same effort the OPCW and its 193 member states have been undertaking since the organization's founding in 1997: eliminating chemical weapons as means of mass destruction.

# Conquering Chemical Weapons with Enzymes

Source: https://www.insidescience.org/news/conquering-chemical-weapons-enzymes

August 2018 – It's the stuff of spy novels: Scientists are working to create a salve that could help protect people against the devastating -- and often lethal -- effects of chemical weapons like VX, Novichok and sarin, all of which can be absorbed through the skin or inhaled.

In a presentation at today's American Chemical Society Meeting in Boston, Massachusetts, chemist Ayusman Sen from Pennsylvania State University plans to explain that enzymes

could largely counteract the effects of these noxious nerve agents. These miniscule devices have the potential to simultaneously neutralize the toxins and release a powerful antidote.

Like insecticides and pesticides, many nerve agents are made from chemical compounds called organophosphates. The enzymes described by Sen are programmed to seek and destroy any organophosphate-based nerve agents they encounter.

"In your body, everything is powered by chemical reactions, which release energy," said Sen. The energy that's created during the decomposition of the nerve agent is converted into a mechanical force that can be used to pump fluid. By sticking enzymes to an immobile surface -- in this case, embedding them in a gel or ointment – that mechanical force can be focused in different directions, and, say, flush an antidote out toward the skin. What's more? The first enzymes that become exposed to the nerve agent activate nearby enzymes. In short, it kickstarts a feedback loop.

The most commonly used chemical weapons are nerve agents, which jolt the central nervous system. If not quickly treated with an antidote, most victims experience muscle spasms, loss of bodily fluids and eventually become paralyzed. The body rapidly shuts down; most suffocate or succumb to cardiac arrest.

"Nerve agents overstimulate the neurons and overstimulate muscle cells," said Mark Bishop, a chemical weapons expert at the Middlebury Institute of International Studies in Monterey, California, who was not affiliated with the research. The agents excite the neurotransmitter, acetylcholine, which is responsible for sending electric signals that stimulate muscle receptors throughout the body. When acetylcholine compounds flood the receptors, muscles begin to convulse.

These deadly agents have been used to attack both small and large groups.

In March, former Russian military officer and U.K intelligence agent Sergei Skripal and his daughter, Yulia, were poisoned in Salisbury, England. They were both hospitalized but eventually released. A police officer fell ill and recovered, and in July, two Amesbury, England, residents who were exposed to remnants of the chemical used to poison the Skripals fell ill; one has since died and the other now has vision problems.

In 2017, another type of nerve agent known as VX was used to assassinate Kim Jong Nam, the half-brother of North Korean leader Kim Jong Un.

In 1994, members of the Japanese cult Aum Shinrikyo used sarin gas to carry out in an attack in Matsutmoto, Japan, that killed eight, and wounded nearly 600. The next year, the same group used sarin in an attack on a subway train in Tokyo. Twelve people were killed, and thousands were injured.

According to the Independent International Commission of Inquiry on the Syrian Arab Republic, there have been 34 confirmed instances where chemical weapons such as sarin gas have been used by the Syrian government and its affiliates to poison civilian targets in the past five years, which the government denies. A report from the Human Rights Watch suggests there have been up to 85 attacks.

Sen and his team hope that applying the ointment directly to exposed skin could protect members of the military, first responders, and civilians in warzones who are most at risk of exposure.

But there's still a lot of work to be done. Though the enzyme compound would be effective against liquid nerve agents, it is unclear how effective the treatment is against nerve agents which are inhaled. It's also unclear how much of it would need to be applied. Bishop questions whether absorption of the antidote is the most effective means of transport. Currently, the antidote, a mixture of medicines called atropine and 2-PAM, is injected.

According to Sen, there are other applications for the technology, too. He's particularly interested in testing out the method's usefulness in combating diabetes. The enzymes, he suggested, could be used as an in situ insulin pump that could be implanted in the body. It would be used to measure glucose levels in the blood and diffuse insulin into the blood based on how much glucose has been detected. They're still developing the concept, and the insulin reservoirs would have to be periodically refilled, but Sen is confident that using these enzymes could be a step forward.

"In principle, nature has a vast array of enzymes that work on all kinds of things," Sen said. "The beauty of it is that they are self-powered, and they do not need an external power source. They can lie dormant for a long time, and then they can kick on when the target is sensed."

Samuel Sanchez, a chemist at the Institute for Bioengineering of Catalonia in Barcelona, Spain, finds the use of enzymes in nanotechnology promising: "They're versatile and efficient and also abundant in nature, which is important."

## Nano-antidote provides long-term protection against nerve agents

Source: http://sitn.hms.harvard.edu/flash/2019/nano-antidote-provides-long-term-protection-nerve-agents/

Jan 2019 – Nerve agents are toxic chemicals that disrupt signals in the nervous system. They can be absorbed easily through skin contact or by breathing. Exposure to nerve agents interferes with nerve cell signaling and prevents muscles from relaxing, quickly leading to muscle paralysis and eventually death by asphyxiation or cardiac arrest. Treatment is possible but must be administered within minutes of exposure. No long-term vaccine or antidote exists, making nerve agents highly effective chemical weapons. One such nerve agent, sarin gas, was used in Syria in 2013 to kill over a thousand people.
Now, scientists have created a nanoparticle antidote against a certain group of nerve agents, including sarin gas. They purified a protein from bacteria that can degrade nerve agents into non-toxic chemicals. Unfortunately, this foreign protein would quickly be removed by the immune system if it was directly injected into someone. To increase the protein's stability and make it invisible to the immune system, the scientists coated it with gel. As a result, the coated protein can circulate in the body 60 times longer than the uncoated version. One dose of this 'nano-antidote' protected mice against daily sarin gas attacks for over one week.
If this nanoparticle works in humans, it may one day protect soldiers from nerve gas attacks on the battlefield. It could also protect inspectors and civilians from unintended exposure at a crime scene involving a nerve agent attack. It may, however, lead to a nerve agent arms race, as each country may try to develop a new chemical that cannot be degraded by the antidote.

▶▶ **Read the** full paper

## New EU Non-Proliferation and Disarmament paper on: "Countering the use of chemical weapons in Syria: options for supporting international norms and institutions"

**By Una Becker-Jakob**
**Full paper:** https://www.nonproliferation.eu/countering-the-use-of-chemical-weapons-in-syria-options-for-supporting-international-norms-and-institutions/

**Summary**

Chemical weapons are banned by international law. Nonetheless, there have been numerous alleged and proven chemical attacks during the Syrian civil war. The international community has found ways to address this problem, but it has not managed to exclude the possibility of further chemical attacks once and for all. Nor has it created accountability for the perpetrators. The establishment in 2018 of the Investigation and Identification Team within the Organization for the Prohibition of Chemical Weapons (OPCW) is a step in the right direction, but it came at the price of increased polarization among member states. To maintain the OPCW's effectiveness, move closer to accountability and uphold the international norm on the non-use of chemical weapons, the European Union and its member states should consider short- and longer-term steps, such as emphasizing the norm's viability over potential threats, pressing the United Nations General Assembly to employ the Uniting for Peace principle, enhancing national criminal investigations or adopting universal jurisdiction pending the possibility of international legal prosecution for chemical weapon use, and supporting the OPCW and its ad hoc mechanisms in every possible way.

*Dr Una Becker-Jakob (Germany) is a research fellow at the Peace Research Institute, Frankfurt, where she specializes in arms control and disarmament with a special focus on chemical and biological weapons control.*

## Mount Sinai Gets $27.8M DARPA Grant for Epigenetic Tech to Measure WMD Exposure

Source: https://www.genomeweb.com/research-funding/mount-sinai-gets-278m-darpa-grant-epigenetic-tech-measure-wmd-exposure#.XQOdgv5S_IU

June 13 – The Icahn School of Medicine at Mount Sinai announced today that it has been awarded a $27.8 million contract from the Defense Advanced Research Projects Agency (DARPA) to find epigenetic markers in blood that identify previous exposures and time of exposure to materials that could be associated with weapons of mass destruction.

The four-year contract also includes the development of a field-deployable instrument that can perform highly specific forensic and diagnostic analyses to reveal the type and time of exposure, Mt. Sinai said, and covers markers for infectious agents, chemicals, and radiation.

The agreement is part of DARPA's new Epigenetic Characterization and Observation (ECHO) program, which will develop new approaches to analyze epigenetic markers and new instrumentation that can be used in the field by operators with minimal training. Mount Sinai noted that its researchers will lead a consortium that includes six other academic partners and two industry collaborators.

"Current forensic and diagnostic screening technologies can only detect the immediate presence of many materials and require sensitive instruments," Stuart Sealfon, director of the Center for Translational Systems Biology at the Icahn School of Medicine and the DARPA contract's principal investigator, said in a statement. "The human body logs exposures in a rich biographical record that we carry around with us in our epigenomes. The ECHO technology we and our partners are developing through the DARPA program will enable us to quickly read someone's epigenome from a small amount of blood to reveal possible exposure to infectious agents, chemicals, or radiation, even when other physical evidence has been erased."

The researchers are also hoping that the technology they develop through the ECHO program could also be used to diagnose infectious disease. DARPA said it intends to proactively engage with several independent ethical and legal experts to help inform its research plans.

## Chemical Detection Device Capabilities Expanded to Spot Novichok Nerve Agent


Source: https://www.hstoday.us/industry/industry-news/chemical-detection-device-capabilities-expanded-to-spot-novichok-nerve-agent/

June 14 – 908 Devices, a pioneer of analytical devices for chemical and biomolecular analysis, today announced the expansion of their MX908 multi-mission trace chemical detection device capabilities to include Novichok agents, an emerging chemical warfare threat. The company is debuting this enhancement in the MX908 CW Hunter mission mode at the 2019 International Association of Fire Chiefs (IAFC) International Hazardous Materials Response Teams conference in Baltimore June 13-16.

Following a 2018 UK attack, the U.S. Department of Health and Human Services released new guidance in January to first responders nationwide for Novichok chemical warfare agents (CWAs), also known as A-series agents or Fourth Generation Agents (FGAs). Novichok agents are more persistent

than other nerve agents and can be as toxic as VX. HazMat and military chemical response teams need quick, confident answers in the event of an attack to minimize casualties and limit the spread of contamination. Until now, response personnel have had limited capability to detect and identify Novichoks in the field. The MX908 is the only commercially available field device that can identify Novichoks at trace levels and deliver results within 60 seconds, expediting response times and increasing both public and responder safety.

"First responders must be equipped with tools that can adapt to novel threats as they arise," said Dr. Kevin J. Knopp, CEO and Co-founder of 908 Devices. "We proactively designed the MX908 to address the continuum of emerging threats. A simple, immediately downloadable software update arms federal, military and civilian response teams for the ever-evolving threat landscape."

In addition to Novichok detection capability, the 2.1 software release also adds new V-series agents to the MX908 CW Hunter mission mode. The MX908 can now identify seven V-series agents, HD, and several G-series agents. The 2.1 update also includes performance enhancements for CW Hunter and Explosives Hunter mission modes, and new targets in the Drug Hunter mission mode.

The software will be available in July for existing MX908 customers.

908 Devices is host to two workshops at the IAFC conference, 'Outclassing Emerging Threats' and 'Field Identification of Controlled Substances'. Both focus on how first responders can best equip themselves to detect both known and potential threats, including fentanyl and FGAs. 908 Devices and leading detection technology and HazMat experts – including Dr. Christina Baxter of Emergency Response TIPS, LLC, David DiGregorio, the Director of Mass State Hazmat, Dr. Mike Weibel, the Assistant Project Manager of S&T JPM NBC Contamination Avoidance, and others – will also take part in a panel discussion on the emerging threat of Fourth Generation Agents and pharmaceutical-based agents, challenges in detection, and how teams need to rethink the way they respond.

## New technology to measures WMD threat exposures

Source: http://www.homelandsecuritynewswire.com/dr20190620-new-technology-to-measures-wmd-threat-exposures

June 20 – Researchers at the Icahn School of Medicine at Mount Sinai have been awarded a contract from the Defense Advanced Research Projects Agency (DARPA), a research agency within the U.S. Department of Defense, to find molecular signatures in blood that identify previous exposures and time of exposure to materials that could be associated with weapons of mass destruction (including infectious agents, chemicals, and radiation). The contract will also underwrite development of a field-deployable instrument that can perform highly specific forensic and diagnostic analyses to reveal the type and time of exposure.

Mount Sinai says that the contract, worth up to $27.8 million over four years as part of DARPA's new Epigenetic Characterization and Observation (ECHO) program, will be used to develop new approaches to analyze epigenetic markers and to develop new instrumentation that can be used in the field by an operator with minimal training. The Icahn School of Medicine at Mount Sinai researchers will lead a consortium comprising six other academic and two industry partners.

The epigenome is biology's record keeper. Though DNA does not change over a person's lifetime, the environment may leave marks on the DNA that modify how that person's genes are expressed. The epigenome is the combination of all these modifications over time. Although the modifications caused by an environmental exposure can register within seconds to minutes, they imprint on the epigenome for decades, leaving a time-stamped biography of an individual's exposures.

"Current forensic and diagnostic screening technologies can only detect the immediate presence of many materials and require sensitive instruments," says Stuart Sealfon, MD, Director of the Center for Translational Systems Biology at the Icahn School of Medicine at Mount Sinai and Principal Investigator of the contract. "The human body logs exposures in a rich biographical record that we

carry around with us in our epigenomes. The ECHO technology we and our partners are developing through the DARPA program will enable us to quickly read someone's epigenome from a small amount of blood to reveal possible exposure to infectious agents, chemicals, or radiation, even when other physical evidence has been erased."

The hope is that with the capabilities developed through the ECHO project, someone in the field will immediately know if an adversary has handled or been exposed to threat agents. The same technology could also serve as a tool to diagnose infectious disease or reveal exposure to threat agents in our own military troops, so that medical countermeasures can be applied in time to make a difference. In addition, ECHO technology could open up new sources of forensic evidence that make battlefield collection of evidence safer, more efficient, and more accurate. By making it possible to deploy an analytical capability to vastly more locations, the military can enhance its ability to conduct global, near-real-time surveillance of emerging threats.

Mount Sinai notes that while the ECHO program is specifically focused on diminishing the threat posed by weapons of mass destruction and improving diagnostics for troops who may have been exposed to threat agents, many aspects of the new technologies that will be developed should have applications well beyond national security, for example in medical diagnosis and next generation laboratory research instruments. Accordingly, DARPA intends to proactively engage with several independent ethical and legal experts to help inform the Agency's research plans, think through potential issues, and foster a broader dialogue in the scientific community on social implications.

## Second Skin: Transforming Breathable Fabric to Protective Garments As Needed

Source: https://cbrnecentral.com/second-skin-transforming-breathable-fabric-to-protective-garment-as-needed/11325/

The Defense Threat Reduction Agency's Chemical and Biological Technologies Department is developing materials to provide 'second skin' protection from exposure to chemical and biological agents with the breathability and comfort of warfighters' own skin.

To mitigate shortcomings of current PPE, DTRA's Dynamic Multifunctional Materials for a Second Skin (DMMSS) program is exploring three different approaches which aim to develop technology for switchable membrane systems. More specifically, these membranes will close their pores in response to chemical agents and remain open when not exposed.

Second Skin materials utilize chemistry that has been synthesized onto membranes that respond to chemical agents by reducing or eliminating penetration before reaching the skin. This new, state-of-the-art technology will allow breathable fabric uniform that can transition into a protective garment if a threat is present.

**Carbon Nanotubes Embedded in Membranes**

The first approach utilizes aligned carbon nanotubes (CNT) embedded in membranes. The nanotubes have small diameters which allow water and other vapors through, but blocks biological agents. This approach also utilizes responsive polymers that collapse and block the CNT pores when exposed to chemical agents. Fabrication of this membrane has now increased from one centimeter to four inches in the process of increasing coverage areas.

**Enzyme Embedded Copolymer Membrane**

The second approach involves developing an enzyme embedded copolymer membrane. When exposed to chemical agents, these membranes expand and close from an enzyme

reaction with the chemical agent, protecting warfighters wearing the garment. This technique produces membranes with uniform pore sizes and minimal defects, creating a more reliable product. The DMMSS program has begun roll-to-roll development, creating samples up to eight inches wide.

**Coating Fabrics with Electrically Conductive Materials**

A third approach utilizes electrically conductive materials that are coated onto existing fabrics. This coating responds when exposed to a small electrical current, which closes the fabric from penetration. The pores close in mere seconds, creating a protective state that can last up to 24 hours. Another current can either open the membrane or maintain the protective state. This coating has been demonstrated on carbonized textiles.

As the toxic threat constantly evolves, warfighters rely on PPE that can adapt at the speed of relevancy from hostile enemies to viruses and volatile chemicals. The DMMSS program offers an integrated, layered defense through engineering and integrating material solutions for warfighters.

# Tactical Assault Kit Plugins for Decision Support in CBRNE Environments

Source: https://cbrnecentral.com/tactical-assault-kit-plugins-for-decision-support-in-cbrne-environments/19499/

June 19 – The Tactical Assault Kit (TAK)—a mapping system with a plugin architecture—has seen similar success across the Department of Defense (DoD) and Department of Homeland Security (DHS), where operators must routinely execute missions in spectrum denied environments.


Three iterations of TAK are of interest: ATAK (Android OS), WinTAK (Microsoft Windows OS), and WebTAK (web browser based). At present, **ATAK has over 40,000 DoD users**. Past demonstrations of the ATAK system includes the proven ability to promulgate situational awareness in network permissive environments and the ability to effectively and efficiently collaborate and allocate resources and personnel critical to the mission.

The Defense Threat Reduction Agency (DTRA) aims to leverage TAK for enhanced CBRNE situational awareness with the goal of protecting military and civilian populations from intentional or incidental chemical or biological threats and Toxic Industrial Chemicals/Materials (TIC/TIM) hazards.

Under a Broad Agency Announcement from the Joint Science and Technology Office (JSTO) Digital Battlespace Management Division, DTRA will fund development of ATAK, WinTAK,

and WebTAK compatible versions of existing decision support tools for chemical and biological warning and reporting, hazard prediction, and consequence assessment.
Proposals should leverage existing tools, DoD or otherwise, implement an agile development approach with multiple releases, and deliver a final product running in multiple TAK architectures within 12 months of award.
Successful efforts will provide:

- Software that is fully documented and easy to access, modify, and extend (modular)
- Application with a robust data management approach, supporting easy retrieval/sending of updated data sources in a connected state and efficient storage of necessary data, on the device, for use during disconnected operations.
- Software that is able to comply with DoD standards for authorization to operate
- Software that is tested and verified
- User Interface Designs that consider the warfighter (e.g., impact of PPE, voice activation)

Additional details are available via Solicitation Number: HDTRA1-19-S-0005 BAA Call CBI-01. The proposal submission deadline is June 24, 2019 at 2:00pm EDT.

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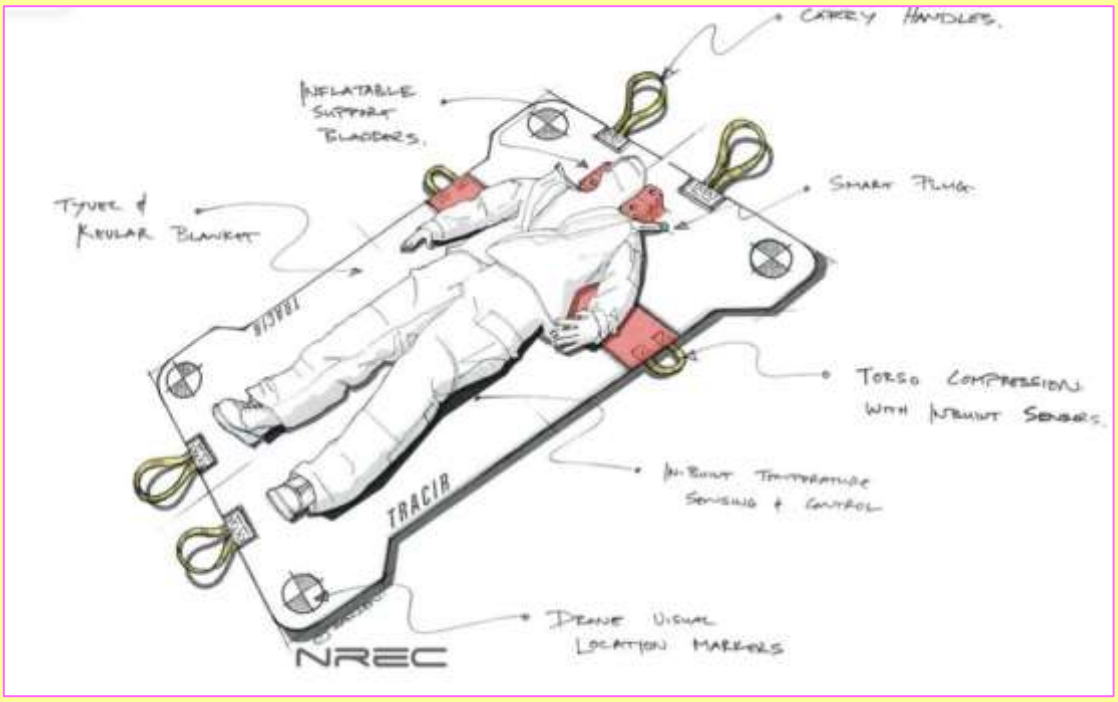
# DoD awards contracts to create robotic suit that autonomously delivers trauma care

Source: https://newatlas.com/dod-tracir-contract-autonomous-trauma-treatment/59805/




In an effort to treat wounded soldiers as fast as possible, the US Department of Defense has awarded four-year contracts worth a total of US$7.2 million to the University of Pittsburgh School of Medicine (UPMC) and Carnegie Mellon University (CMU) to develop an autonomous trauma care system that can fit in a rucksack. Called TRAuma Care in a Rucksack (TRACIR), it will use advanced sensors, robotics, and artificial intelligence to autonomously treat battlefield casualties almost immediately.

In trauma surgery there is what is called the "golden hour." More a metaphor than a strict medical term, it encapsulates the idea that stabilization and treatment of a trauma patient in the brief window after receiving an injury can mean the difference between life and death. So important is this concept, that it has informed decades of military and civilian doctrines about treating casualties.

According to CMU, the purpose of TRACIR is to reduce the time a patient receives treatment down to almost the point they are placed on a stretcher. Drawing on the expertise of a multidisciplinary team of Pitt researchers and clinicians from emergency medicine, surgery, critical care and pulmonary fields combined with that of roboticists and computer scientists at CMU, the goal is to build a "hard and soft robotic suit" into which a patient can be inserted.

Inside this "suit" is an array of sensors through which a series of computer algorithms can assess the condition of the patient and robotically provide the appropriate treatments, including medicines and intravenous fluids. Through the use of machine learning, TRACIR can help to resuscitate, stabilize, and treat soldiers as they are evacuated from the battlefield to proper medical facilities, or even in the field if evacuation isn't possible or a medic isn't available.

"Everybody has a slightly different vision of what the final system will look like," says Artur Dubrawski, research professor at CMU's Robotics Institute. "But we see this as being an autonomous or nearly autonomous system – a backpack containing an inflatable vest or perhaps a collapsed stretcher that you might toss toward a wounded soldier. It would then open up, inflate, position itself

and begin stabilizing the patient. Whatever human assistance it might need could be provided by someone without medical training."
It's an ambitious project and one that the team says must progress by "a series of baby steps" as individual components are developed and the technology created to handle such tasks as inserting an IV needle in a vein or installing a chest tube. Part of this will involve algorithms that will draw on a digital library of over 5,000 UPMC trauma patients that will help TRACIR to learn how to identify if a patient is growing worse and administer the appropriate treatment. But it's not just soldiers wounded in the line of duty that stand to benefit from such technology.
"TRACIR could be deployed by drone to hikers or mountain climbers injured in the wilderness; it could be used by people in submarines or boats; it could give trauma care capabilities to rural health clinics or be used by aid workers responding to natural disasters," says Dubrawski. "And, someday, it could even be used by astronauts on Mars."

## If a pandemic hit, Nebraska's courts plan to protect legal system

Source: http://netnebraska.org/article/news/1175068/if-pandemic-hits-nebraskas-courts-plan-protect-legal-system


May 23 – It's a worst-case scenario that medical experts consider likely. The flu or bioterrorism. We've heard a lot about how hospitals should respond. But what about the legal system?
Nebraska created a policy guide for the state's judges and courthouse staff. It lays out plans for how the courts function when much of a community face illness or death on a large scale. It's common to have "bench books" ready in case of a natural disaster or other disruptions to daily operations. Creating one for the onset of a pandemic is all new for the state.
A task force led by Douglas County District Judge Leigh Anne Retelsdorf authored the book. She said preparing a plan in Nebraska's courts made sense since a world-renowned biocontainment facility found a home at the University of Nebraska Medical Center.
International attention was directed towards the Omaha facility when, in 2014, the specialized staff was tasked with treating three patients who had contracted the Ebola virus in Africa.
"From the attention that came from Ebola being brought into the country and into our local area, Chief Justice Mike Heavican felt Nebraska should be prepared," Retelsdorf said.

The book became the model for other courts to follow and was recently made available by the State Justice Institute. It was also the centerpiece for discussion at a national conference convened at UNMC in May 2019.
During an interview with NET News, Retelsdorf explained why courts needed to consider the impact of a pandemic or bioterrorism event on the state's court system.

**Bill Kelly (NET News):** The courts of Nebraska have not had guides in how to respond in case of a pandemic or public health emergency in the past. What's the quick answer as to why this was needed at all?
**Judge Leigh Ann Retelsdorf:** The National Center for State Courts had an initiative whereby they were assisting a number of jurisdictions in putting together these kinds of emergency response bench books, or guides. Florida, where they have hurricanes or California fires. Natural disasters that end up devastating cities, and courthouses, and branch courthouses. Nebraska had some local areas have things for things like natural weather disasters, tornadoes and those things.
With the attention that came with the Ebola coming into the country, especially at UNMC (the University of Nebraska Medical Center) into our local area, the chief justice felt that it would be good to look to the National Center for State Courts to see what they had. He felt that Nebraska should be prepared.
**Kelly:** What was the goal for this book?
**Retelsdorf:** We call them bench books. (This) is just a guide for judges that tries to cover the kinds of issues that will come in in front of the court if there was an epidemic or a pandemic. The kinds of issues that the court system itself would have to deal with. The goal was to identify those issues, the circumstances under which they would arise locally, statewide, and try to put some protocols and guides in place for judges to use so there's some uniformity in addressing something like that in the nature of that kind of an issue.
**Kelly:** In the event of a public health emergency, like a major onset of flu, or an incident involving radiation, you've got the (Nebraska) Department of Health and Human Services, or a local health department, (which) have the power to issue a "directed health measure," an emergency order that might require a segment of the community to be isolated or quarantined, or even decontaminated.
**Retelsdorf:** That can apply to people or property. They can quarantine you to your home, or they can make a particular location inaccessible.
**Kelly:** They can do that without the governor, or even a court order at that stage. What is the role of the courts when such a serious measure as that is put into place?
**Retelsdorf:** The courts will address due process concerns. People that are not satisfied, or feel that these orders are inadequate, or too prohibitive, they can appeal those things to the court. Now, if it's a local public health department that issues a directive, that can be appealed in the jurisdiction where that local public health department is located.
**Kelly:** There are people who based on what they've seen in the movies, or read online with conspiracy theories, or whatever, they might assume that people who are isolated when they're sick, or quarantined, because they're at risk, that they wouldn't have any rights in this case. There actually are rights to appeal.
**Retelsdorf:** Sure. There's always due process rights. People always have the ability to appeal. It depends on how restrictive the order is. I think we recall, on the East Coast, there was, I can't remember the jurisdiction where the nurse had been potentially exposed to Ebola, but for a number of months had no signs of the disease and contested her quarantine.
I imagine that that could occur. They do have rights, certainly. The question is though, not so much how do we contest it but how, if someone is quarantined, (can we hold a court hearing)? Obviously, we can't go there and do it. It depends on where they are quarantined. But we have to be able to do a lot by digital, or video, and those kinds of things.
**Kelly:** Even under emergency like this, there are still some pretty fundamental constitutional issues that you have to deal with.
**Retelsdorf:** There are freedom to assemble, and property rights, and personal freedoms that are all affected by quarantines, or closing

schools, closing churches, those kinds of things. They'll all occur, and they're all subject to coming into the court system.

**Kelly:** In those cases, how do the courts deal with somebody who does refuse to comply with an order like that?

**Retelsdorf:** The (Nebraska state) statutes have dealt with that by giving the sheriff's department and the police department ways to enforce those directive health measures, and then the majority of those are misdemeanors.

I think just my experience would be that the majority of people are going to be cooperative. I mean, if they've been exposed to something, you find that most people are very cooperative as long as they feel like they have some voice and some ability to get their case heard. I think what (the pandemic bench book does) is it educates the judges that if these things come in, these are ways to look at it, and ways to deal with it.

**Kelly:** The court protects the fairness of the applications of the law in part?

**Retelsdorf:** Well, the court is going to defer a lot to the public health departments, and to the physicians, and the doctors, and the people that are most educated in them. But make sure that the people to whom these directive health measures are being applied, that those people have some kind of a voice.

The one thing you don't want is wide-sweeping orders quarantining lots of people, closing buildings. If those orders could be tailored down to only affect maybe a smaller group of people, or a smaller number of locations.

**Kelly:** If there was a circumstance, like a major outbreak, contagious flu, on places like schools, or movie theaters, or other public gatherings are prohibited, the court system, according to this plan, still needs to be in session. How do you deal with it when defendants may be sick, and attorneys, and jurors, and judges could be at risk of becoming sick?

**Retelsdorf:** If people are quarantined, they're not able to come to the courthouse. In a criminal case, you have a six-month time frame from when the case is filed until that case needs to be tried. Under the constitution and the statutes, if you can't get jurors into a courthouse, and you can't get witnesses, and you can't get security, the courts have to be prepared for how to address that.

You may have to be prepared more for video conferencing. You look at the personnel that work in a courthouse. You have the clerk's office, you have the security personnel, you have the public coming and going, you have the judges, their staffs, the prosecutor's office (and) the defense attorneys. You expect that a number of those people will all be hit (by a pandemic) to the degree where those offices might not be able to function in any way but remotely. We have jurors (recruited) from the public that come in. How do you protect the jurors in your courthouse? Can we do juries remotely?

**Kelly:** You have thought about this a lot, and considered the issues, and researched it. I'm just curious if you got a little creeped out at the thought of an incident rising to the level of a pandemic in this case?

**Retelsdorf:** I don't know if it's creeped out, but it made me realize that it is a definite possibility that this could happen and no one would know and all of a sudden it would be here. I think the University of Nebraska Medical Center, people that are involved in the infectious disease unit over there, and the biocontainment, they were very instrumental in helping us with this. I think when I went and saw the unit, and I talked to them, and (saw) the reality of this as a possibility. They talk in terms of not if, but when.

**Kelly:** You talked to a wide range of people about this plan, were there concerns from some people about what circumstances might lead to a loss of civil liberties in the community?

**Retelsdorf:** People are worried about that. But those things were dealt with by the Legislature when they gave the Department of Health and Human Services and the local public health departments the authority to issue these emergency orders so that we can do these things. We try to tailor it as small as we can, but the public health interest has got to outweigh this at least immediately. Our idea is then the courts can help tailor those things down so it's the least possible restrictions that people can have, but still protect the public health.

**Kelly:** Coming out of this, what do you want the general public to know? And sometimes it's a public that's pretty skeptical and suspicious of government overreach and especially in emergencies. What

do you want them to know about what this document means about the role of the government in a public health emergency?

**Retelsdorf:** I certainly don't want the average person sitting around worried about this every day. But I think actually the public actually expects us to be prepared for this. I want them to know the judiciary has thought about these issues, have looked at the laws that exist in the state of Nebraska, and have tried to figure out which ones are applicable ahead of time. When something like this happens, I hate (the idea of having) the first few people to be hapless guinea pigs. People need to be worried about themselves, their family, their health, their livelihood if something like this happens.

I guess really all I want them to know is that we have thought about this, and are taking steps to try to be prepared so that they don't have to think about it, because it's a scary thing.

## Shedding New Light on Plague to Protect Against Bioterrorism

Source: https://www.infectioncontroltoday.com/bioterrorism/shedding-new-light-plague-protect-against-bioterrorism

May 24 – Roger D. Pechous, PhD, studies the bacteria that caused the infamous black death of the Middle Ages, shedding light on something old to potentially protect against something new: bioterrorism. The University of Arkansas for Medical Sciences (UAMS) researcher's latest work has been published in Infection and Immunity.

Pechous is an assistant professor in the Department of Microbiology and Immunology in the UAMS College of Medicine. The article, titled "Modeling Pneumonic Plague in Human Precision-cut Lung Slices Highlights a Role for the Plasminogen Activating Protease in Facilitating Type 3 Secretion," has been published online in advance of the August print edition of the journal.

The bacterium is called Yersinia pestis. Pechous and Srijon Banerjee, a postdoctoral fellow in Pechous' lab, study pneumonic plague, the severe lung infection caused by Yersinia pestis as it spreads from human to human through inhalation. The World Health Organization (WHO) classifies pneumonic plague among the world's deadliest infectious diseases. When the bacterium is spread by fleas, it is known as bubonic plague. Plague in the bloodstream is called septicemic plague.

"Y. pestis was responsible for three major pandemics in recorded history and continues to be a potential threat worldwide, primarily due to concerns of its release as a weapon of bioterror," Pechous said. "Human-to-human transmission of plague occurs via the lungs, and is almost always lethal in the absence of timely treatment."

Banerjee said death from pneumonic plague typical occurs in four to seven days. If antibiotics are not administered within 24 hours of symptom development, it is nearly 100% fatal. It is one of the deadliest bacteria known to man.

"What was unique about this study was its use of real human donor lung tissue, prepared to maintain realistic lung function in the laboratory setting," Banerjee said. "This allowed us to observe the way Y. pestis would behave in a living human lung and see what makes it so successful at overwhelming its human host."

Human lung tissue is cut into slices for the experiments in the Lung Cell Biology Laboratory at the Arkansas Children's Research Institute by coauthor Richard C. Kurten, Ph.D., a professor of physiology & biophysicsand pediatrics at UAMS. Kurten routinely acquires lungs from organ transplant donors and processes them for use in research in his laboratory and those of collaborators at UAMS and across the country.

From watching the behavior of Y. pestisin the lung slices in the lab, the researchers were able to pinpoint exactly how the bacteria quickly gains the upper hand.

"We show that Y. pestis hones in on a key cell type and delivers key proteins that interfere with its ability to control infection and initiate an immune response," Pechous said. "We identify a protein on the surface of Y. pestis that is critical for directing Y. pestis to specifically target this cell type to establish infection."

"All of this happens quickly," Banerjee said. "By the time other signals alert the immune system to the severity of the infection, it's too late. Ultimately, your own immune response is what ends up compromising lung function and leading to death."
Understanding this process has applications for pneumonic plague and beyond.
For one, it's important to better understand how Y. pestis functions, so scientists can develop better treatments for the highly contagious infectious disease. While rare today in humans, plague continues to be carried in animals and fleas, from which it can spread to humans.
For example, a 2016 outbreak in Madagascar infected 62 people, killing 26, according to the WHO. Another Madagascar outbreak in 2017 infected 2,348 people, causing 202 deaths. In the United States, the Centers for Disease Control reports an average of 1-17 cases per year, mostly in the West, where the disease is carried by rodents.
In addition, the progression of Y. pestis infection in the lungs mimics other lung infections, like severe pneumonia, but on a much faster scale. More broadly, understanding the bacterium helps scientists and public health officials plan for containing disease outbreaks. The research could also lead to the development of alternative treatments, which could be useful if the bacterium ever becomes resistant to antibiotics.
Pechous earned his doctorate from the Medical College of Wisconsin and completed postdoctoral training at the University of North Carolina at Chapel Hill. He has been studying bacterial infection since 2001. Banerjee earned his Ph.D. from the University of Calcutta in India.
The Pechous lab is another successful example from the UAMS Center for Microbial Pathogenesis and Host Inflammatory Responses, directed by Mark Smeltzer, PhD. The center has earned $21 million in funding through the NIH's Centers of Biomedical Research Excellence (COBRE) program, which aims to provide funding and mentoring to researchers who are early in their careers. Its participants are studying viruses, malaria, cancer, Lyme disease and chlamydial infection. Pechous' work is funded by the center and a grant from the NIH National Institute of Allergy and Infectious Diseases.
UAMS has six COBRE centers, which are launching new scientific careers, attracting top talent and creating concentrations of expertise on topics like neuroscience, cancer therapy, childhood obesity prevention and pediatrics.
In order to study Y. pestis at UAMS, the Pechous lab uses strict containment facilities and security procedures.
Infection and Immunity is a prestigious peer-reviewed journal published by the American Society for Microbiology that reports key discoveries that help microbiologists, immunologists, epidemiologists, pathologists and clinicians gain new insights into the underlying mechanisms of host-pathogen interactions and develop novel strategies to prevent or treat infectious diseases.

## The 2020 Olympic Games in Japan and bioterrorism

Source: https://www.ouvry.com/en/the-2020-olympic-games-in-japan-and-bioterrorism/

In a mini-review published in "ADC Letters for infectious disease control", Eto A. and Kanatani Y. explain how Japan is preparing for a possible bioterrorist attack. The strategy to make Japan "the safest country in the world" is based on a "Sakigake" pilot project to promote the development of innovative drugs and other medical devices. The strengthening of medical countermeasures to fight the natural outbreak of epidemics also implies increased surveillance of bioterrorism and therefore the use of therapeutic or prophylactic agents against the germs of bioterrorism, which are more rarely encountered, and it is also an opportunity for us to make a clear distinction between a natural epidemic and an epidemic caused by a bioterrorist act.


**Japan and bioterrorism**

**In 1993, eight years before the anthrax envelopes attacks in the United States, the Aum sect had sprayed *Bacillus anthracis* spores from the roof of a building in Kameido near Tokyo.** Only the terrible smell had caught the attention of the residents.

There were no victims and it was only in the early 2000s that environmental samples revealed the presence of the pathogenic strain. Twenty years have passed: large-scale bioterrorist attacks are rare and peacetime must therefore be used to develop medical countermeasures specifically for bioterrorism.

**What is bioterrorism?**

It is the intentional spread of biological agents (viruses, bacteria, fungi and toxins).

The characteristics of epidemics following bioterrorism are as follows:

+ contamination caused by a single exposure to biological agents can be detected in different places because of the latency period between the dispersion of the agent and the infection itself;
+ the disease declared can be different according to the individual's health status and in particular their immune status vis-à-vis the agent;
+ the number of patients can increase according to secondary infections;
+ the distinction between natural infection and infection due to bioterrorism can sometimes be very difficult to demonstrate;
+ there are sometimes prophylactic drugs and/or vaccines;
+ the risk of the appearance of germs with increased virulence (infectivity, antibiotic resistance…) by using new molecular biology tools is not zero (Crispr/Cas9).

All these points must be taken into account when strengthening medical countermeasures specific to bioterrorism.

**Overview of medical countermeasures against bioterrorism**

The effort focuses mainly on germs classified "A" by the CDC of Atlanta: easy spread, easy-to-transmit from person to person, high mortality, major impact on the health of the population, massive disruption of public structures due to panic and disruptions in the social structure. The most monitored germs of this class A are: *Bacillus anthracis* (anthrax disease), *Yersinia pestis* (Plague), *Francisella tularensis* (Tularemia), smallpox virus, haemorrhagic fever virus (Lassa, Ebola…), botulinum toxin (from Clostridum *botulinum*).Since the events of 2001, the Japanese government has done a lot of work in the field of CBRN: development of vaccines, coordination between the structures responsible for bioterrorism follow-up (administrations, first aid, coastguards, etc., and medical authorities), strict management of biological and chemical products involved in CBRN.

**Responses**

The usual monitoring of the occurrence of natural epidemics should be extended to the detection of bioterrorism. Detection is fundamental: the abnormal increase in suspicious cases is a warning sign: infections are very well monitored by practitioners who report the information to a specialized agency. When an outbreak is suspected, an epidemiological investigation is quickly initiated in order to identify the germ involved as quickly as possible. **New identification methods such as mass spectroscopy (TOF-MS) are also being tested.** This rapid identification will allow prophylactic and/or curative measures to be implemented under the best possible conditions.

**The challenges of counter-bioterrorism**

If Japan has purchased a smallpox vaccine, it should be noted that, in general, the production of vaccines and other medicines to build up stocks is not sufficient. Moreover, as these events are relatively rare, the manufacture and testing of products for medical countermeasures cannot be carried out under the same conditions as for conventional pharmaceutical products.

**Conclusions**

As the 2020 Olympic Games are being prepared, bioterrorism is becoming more and more prominent. The social repercussions and disorders caused by such an event would be very significant. The use of medical countermeasures for infectious diseases would be able to mitigate their harmful consequences. **Better public health monitoring and rapid and reliable diagnosis of the germs involved, including their resistance to antibiotics,**

**must be developed in microbiology laboratories.** The challenges of developing vaccines and drugs (antibacterials, antivirals…) for these rare events are very important.

**Reference:** *Eto A, Kanatani Y. Countering bioterrorism: current status and challenges – a focus on pharmaceutical products and vaccines. ADC Let. Infec. Dis. Cont., 2018, 5, 50-52.*

## Immune to drugs: Antimicrobial resistance could kill 10 million a year

Source: http://www.homelandsecuritynewswire.com/dr20190528-immune-to-drugs-antimicrobial-resistance-could-kill-10-million-a-year

May 28 – The Centers for Disease Control and Prevention (CDC) contends that, "Antibiotic resistance is one of the greatest public health challenges of our time." Annually, at least 700,000 people die from drug-resistant diseases, and that number is expected to increase to 10 million deaths per year by 2050 if nothing is done. In the U.S., antimicrobial resistance causes more than 2 million infections and 23,000 deaths per year – the equivalent of a Boeing 747 crashing each week. Nicole Fisher writes in *Forbes* that at present, the incentives to get something done are so misaligned, that in addition to the personal tragedies, there are other frightening possibilities. For example, experts note that "without immediate global action, the crisis of drug resistance bacteria and viruses could lead to an economic catastrophe as bad as the 2008-2009 global financial crisis, and by 2030 could force as many as 24 million people into poverty."

## Biodefense Manhattan Project

Source: http://www.homelandsecuritynewswire.com/dr20190528-biodefense-manhattan-project

May 28 – The Blue-Ribbon Study Panel on Biodefense will hold a day-long meeting to discuss a national, public-private research and development initiative to defend the United States against biological threats. The discussants will be "representatives from the same sorts of organizations that contributed to the original Manhattan Project," the Blue Ribbon Panel says.

The Blue Ribbon Study Panel on Biodefense will hold a day-long meeting to discuss a national, public-private research and development initiative to defend the United States against biological threats. The discussants will be "representatives from the same sorts of organizations that contributed to the original Manhattan Project," the Blue-Ribbon Panel says.

Here is the announcement:

***A Manhattan Project for biodefense: Taking biological threats off the table***

*Eighty years ago, the United States began leading a research and development effort to produce the world's first nuclear weapons. Military and federal agencies, academia, industry, government contractors, and predecessors of today's national laboratories worked together – with a great deal of support from Manhattan, NY and other localities – to establish overwhelming military superiority for the Allies during World War II. Their efforts effectively ended the war.*

*Today, the challenge is defense against the biological threat, for which we are at a decided disadvantage. No matter what the source – intentional, accidental, or natural – the Nation and the world are at catastrophic biological risk. We need to tale this threat off the table for good.*

*Please join the Panel on 11 July 2019, when we hold a meeting to discuss a Manhattan Project for Biodefense – a national, public-private research and development undertaking to defend the United States against biological threats.*

*Representatives from the same sorts of organizations that contributed to the original Manhattan Project will gather to talk with the Panel about the biological*

*threat, cutting edge biodefense research, needed resources, and business risk. We will also talk about universal flu vaccine as an example of public-private interagency activity.*
*The event will be held at 58 E. 68th Street, New York, NY 10065*

# Bio-terrorism — an invisible, asymmetric threat to India

**By Prashant K Singh**
Source: https://www.dnaindia.com/analysis/column-bio-terrorism-an-invisible-asymmetric-threat-to-india-2755007

May 30 – Bill Gates stated at the Munich Security Conference last year that "the next epidemic could originate on the computer screen of a terrorist intent on using genetic engineering to create a synthetic version of the smallpox virus or a super contagious and deadly strain of the flu". It created anxiety as it had underscored reality.
Throughout history, humans have used germs and biology as weapons. In the 5th century BC, Assyrians poisoned enemy wells with rye ergot, a fungus containing mycotoxins; in 1797, during the Siege of Mantua, Napoleon flooded fields to promote malaria; in 2001, US Senate offices and media outlets received Anthrax contaminated letters, to quote only a few examples.
While we respond to visible terrorist attacks through military, diplomatic and other means, our adversaries, bereft of any moral scruples, will exercise more unconventional options to hurt us. One of them is bio-terrorism — use of biological agents as weapons of terror.
It is a subject about which our attitude has bordered on being passive and indifferent. We treat bio-weapons attack as a rare unlikely event. But it will be one with extreme consequences, characteristics of a Black Swan event. This should be reason enough to prepare for such attacks.
Natural epidemics have wiped out large swathes of humanity. The great influenza or Spanish flu virus killed up to 100 million people in 1918. Not long ago, the 1994 plague in Surat claimed 52 lives. The widespread fear spread by Bird flu, Ebola and Nipah is all too familiar.
Therefore, a bio-weapon is a dream instrument for a desperate terrorist: release a synthetic or natural pathogen in the environment, and nature will do the rest.
It can be against humans, crops or livestock. It is low-cost, invisible, inflicts mass casualties and instils terror among the targeted population. It achieves its objectives just as conventional terrorism does, by extracting a heavy social, economic and psychological toll.
Unfortunately, a bio-weapon attack is no longer an academic or a fictional scenario, as Gates reminded us. It is realistic, owing to rapid changes in molecular biology.
**Today, gene editing with CRISPR can devise synthetic viruses and modify existing ones**.
DNA-synthesis firms regularly supply bases and specific pieces of DNA, on payment to researchers — a single base pair, on an average, costs around 30 cents.
A rogue element can buy a made-to-order DNA sequence, which poses a security threat, without great difficulty. Despite technological advancements, biotech companies cannot identify a DNA sequence as a potential threat due to the huge and unreliable DNA database.
Only artificial intelligence (AI) in the future offers hope for recognising potentially destructive DNA sequences, before bio-technicians stitch them.
Simply put, weaponizing a pathogen is far easier, cheaper and effective than assembling an improvised nuclear device.
On the other hand, preparedness against such an attack is difficult, costly and complex.
After the attacker releases a dangerous biological agent, never diagnosed before and treated, the epidemic may not unfold over weeks or months, but lead to a sudden surge of patients.
The unknown incubation period may make it further difficult to estimate the vulnerable population exposed to it. If the numbers are large, quarantining an entire town or city is almost impossible.
Moreover, it would be difficult to identify, whether a gene-edited virus or a natural one caused the epidemic, delaying the treatment as standard therapies turn ineffective.

In fact, WHO in its 2018 review, included Disease X, "representing a serious international epidemic caused by a pathogen currently unknown to cause human disease".
Responding to a bio-terrorist attack may entail role reversals of frontline and support personnel in the traditional security architecture. The main defenders and responders against bio-weapons would not be soldiers, para military and police personnel, but lab scientists, public health workers, health care providers and doctors.
Microscope and prophylactics, not rifle and bullets, would be the weapon of defense. And our public health infrastructure, not the traditional security apparatus alone, would decide our response, resilience and recovery.

***Prashant K Singh** is director, coordination and strategy, Public Health Foundation of India*

## A study exposes the health risks of gene-editing human embryos

Source: http://www.homelandsecuritynewswire.com/dr20190603-a-study-exposes-the-health-risks-of-geneediting-human-embryos

June 03 – A missing chunk of DNA – called **Δ32 mutation** —is 32 base pairs long and smack in the middle of the CCR5 gene, might be the most studied mutation in human history. The spontaneous deletion, which arose thousands of years ago, has a striking relationship with one of the worst human diseases: HIV/AIDS. People who inherit this mutation from both of their parents are naturally immune. last year, a Chinese scientist named He Jiankui used Crispr to try to endow two human embryos with the Δ32 mutation and immunity to HIV. Megan Molteni writes in *Wired* that last week, it emerged that fertility clinics around the world have been seeking He's advice on offering a CCR5 Crispr edit as a service to prospective parents. Now, new research is suggesting that such a procedure might actually be an early death sentence.

## Thinking Again About The Unthinkable: Agricultural Biological Warfare

**By Dr. Bob Norton**

Source: https://southeastproduceweekly.com/2019/06/10/thinking-again-about-the-unthinkable-agricultural-biological-warfare-revisited/

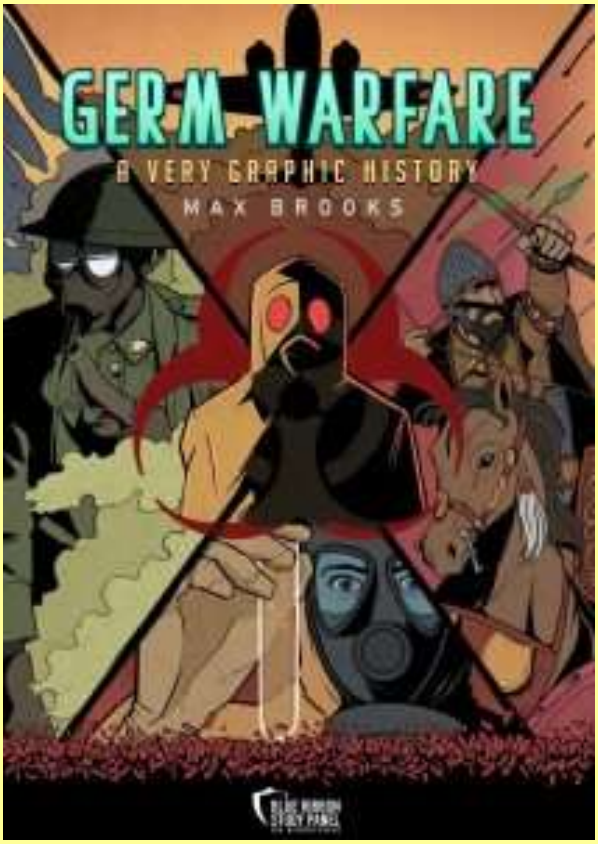
As threats and threat actors continue to evolve, the agriculture and food industries will have to come to terms with new realities, including biological weapons. Biological weapons are in many ways easier to produce than they were even a few decades ago.
Delivery systems remain a constraint, but technology is evolving rapidly. The nation faces the very real possibility of threat vectors merging within the next few years, with a biological weapon dispersed using drones. If adversaries, alone or in concert with others, succeed in damaging the U.S. food supply, whether by biological weapons or other means (e.g. cyber-attack), our society will be irreversibly changed, just like it was in the aftermath of 9-11. Life as we know it today will not be the same.
Now, the year 2001 seems a lifetime away. On Sept. 11, 2001, the U.S. irrevocably changed from "Fortress America" to a victim of four coordinated terrorist attacks that killed 2,996 people and injured more than 6,000. My memories are vivid, in part because of the loss of people I knew and respected, both at the Pentagon and in New York City. People thought for a time that I had perished on American Airlines Flight 11, but that was Robert Norton and his wife Jackie, two wonderful people from Lubec, Maine who were on a much-anticipated trip to attend a family wedding.
The country's mood was almost palpable. People were terrified, but from that fear came unity of purpose. We knew we were at war, and in the coming weeks the nation would learn a great deal about this enemy. Those of us who worked in national security believed to a

person that the airplane attacks were only the first wave. We fully expected more, and soon the second wave seemed to begin.

**Call to Duty**

In early October, I received a call from a friend at the FBI. He asked, "Bob, do you know anything about anthrax?" My friend and I had worked on other related bioterrorism matters, some going back as far as Desert Storm. I suspect he already knew my answer. Yes, I did know something about anthrax, as well as biological weapons. By the time the Amerithrax Investigation concluded, I had learned more about anthrax than I had thought possible. FBI agents, other government officials, and I had many discussions about biological weapons and biological warfare. The U.S. learned a lot about biological warfare. Some of the lessons learned were old and forgotten and had to be relearned. Other lessons were entirely new. One hard lesson was that our forensics capabilities were subpar. That fact would haunt the anthrax investigation and color both government and military responses. What we thought we knew about biological weapons programs was influenced by the experiences of dealing with both the actual victims and the psychological and political fallout, which heavily influenced decisions.

Had there been no anthrax attacks, in my opinion our nations would have been very different. The plane attacks precipitated a very rapid punitive mission into Afghanistan by small teams of Special Forces soldiers and CIA operatives. The evolving worry about continued terrorism eventually morphed that mission into an invasion. The anthrax attacks and the reasonable conclusions of an active biological weapons program also drove in part the decision to invade of Iraq. Politics drove the rest.




Now we know the intelligence was wrong. The omnipresent Middle East turmoil intensified, and the mistaken assumptions and decisions in the aftermath of 9-11 continue to have serious implications today. Whoever was responsible for the anthrax attack initiated an event that cascaded into a series of unanticipated tragedies. We are where we are in the world today in no small part because of those events.

**Threat Assessment**

So where are we today in terms of biological warfare? Are we safer? In relative terms, we are. The U.S. has invested heavily in biosecurity programs that, had they been in place in 2001, would have resulted in a different response by law enforcement and public health personnel. Beyond better coordination at the national level, however, national security realities are more mixed. Our adversaries certainly have not diminished in number. Some, particularly nation states, have grown stronger, in part because our attention was diverted from the larger and more long-term threats to fixate on the firestorms in the Middle East.

Although al Qaeda and Osama Bin Laden were deadly adversaries, they were not existential threats capable of destroying us as a nation. Adversarial nation states (e.g. China, Russia, Iran, and North Korea) took advantage of our fixed gaze on Afghanistan and Iraq. Although not exactly ignored, they did not receive the attention they warranted. Decisions made in the wake of 9-11 still influence our nation's national security posture today. The lesson for us all is that decisions made today, with even the best intentions, may help or impede our ability to deal with the threats and opportunities tomorrow.

Good decision-making is more likely when decision makers arm themselves with knowledge. A good understanding of current biological threats requires knowledge about the history of "germ warfare." I recommend starting with a comic book of the same title by Max Brooks commissioned by the Blue Ribbon Study Panel on Biodefense. The "graphic novel"

begins with the discovery of pathogens and then journeys through the ugly history of Japanese biological warfare in World War II. The huge Russian biological warfare program, known as Biopreparat, is tangentially referenced, including mention of an anthrax outbreak due to a bioweapons lab accident near Sverdlovsk (now Yekaterinburg), Russia. Being familiar with the Russian program, I am concerned that what we knew then is still relevant.
The Blue-Ribbon Study Panel on Biodefense is a privately funded entity established in 2014 to provide a comprehensive assessment of the state of U.S. biodefense efforts and to issue recommendations that will foster change. Former Sen. Joe Lieberman and former Gov. Tom Ridge co-chair panel. Former Senate Majority Leader Tom Daschle, former Rep. Jim Greenwood, and former Homeland Security advisers Kenneth Wainstein and Lisa Monaco are members.

**Real-World Lessons**

Japan conducted the world's largest biological warfare campaign on China using weapons developed by Unit 731, commanded by Lt. Gen. Shiro Ishii, a physician captured by the U.S. after the war but never convicted for war crimes. Ishii, along with former Unit 731 scientists, were granted immunity in exchange for their data and allowed to continue biological warfare research for the U.S.
Thousands of Chinese died as the result of unspeakable vivisection experiments during project "Maruta," and some of their experiments were even published in peer-reviewed journals, masking the use of humans. Units 731, 1644, and 100 all were responsible for attacks on Chinese civilians, killing perhaps more than 500,000 innocents with diseases like cholera, anthrax, and plague.
An accidental contamination of biological weapons in Chekiang, China, inadvertently killed more than 1,000 Japanese soldiers, illustrating the main problem with biological weapons – their uncontrolled spread, once released.

**Sverdlovsk in 1978**

The Sverdlovsk outbreak was the result of an accident at Military Compound 19. "Anthrax 836" had been cultured in large quantities, and spores were being extracted to produce a powdered, weapons-grade product allegedly for loading into Russian SS-18 ICBM missiles. A maintenance worker inadvertently left the filter off an exhaust pipe venting a safety hood. People downwind from the facility became ill with respiratory anthrax within a few days. Russia admitted a death toll of 105, although western medical intelligence experts speculate a much higher total.
The comic book also identifies nations speculated by the 1990s to have biological weapons programs (including China, North Korea, France and Israel) then brings the reader up to today with the specter of terrorists acquiring biological weapons. Potential contamination of food and beverages is prominent.
A second suggested read is the more academic report, *The Digitization of Biology: Understanding the New Risks and Implications for Governance*, published by the Center for the Study of Weapons of Mass Destruction at National Defense University. The report discusses rapid biotechnology advances, both good and bad, and points out that as gene editing becomes more common, there is growing concern about use of the technique to develop biological weapons. They say that CRISPR-Cas9 increases risks that nefarious actors could use gene editing for malevolent purposes—for example, enhancing certain characteristics of existing pathogens or creating novel pathogens to cause harm.
The third suggested reading is a military blog post entitled *143. Dead Deer, and Mad Cows, and Humans (?) … Oh My!*, by Lt. Col. Jennifer Snow, Dr. James Giordano, and Joseph DeFranco. The bloggers discuss the viability of developing and employing prions as biological weapons. They note that prion research has mostly been conducted in general laboratory spaces without federal or international surveillance or bioweapon reporting standards, and argue that such research should be regulated as dual use research of concern (DURC).

**Fear Factors**

For instance, a scenario in which prion-based agents were used to impact targeted markets or widespread animal resources could prompt public fears and serve to disrupt specific

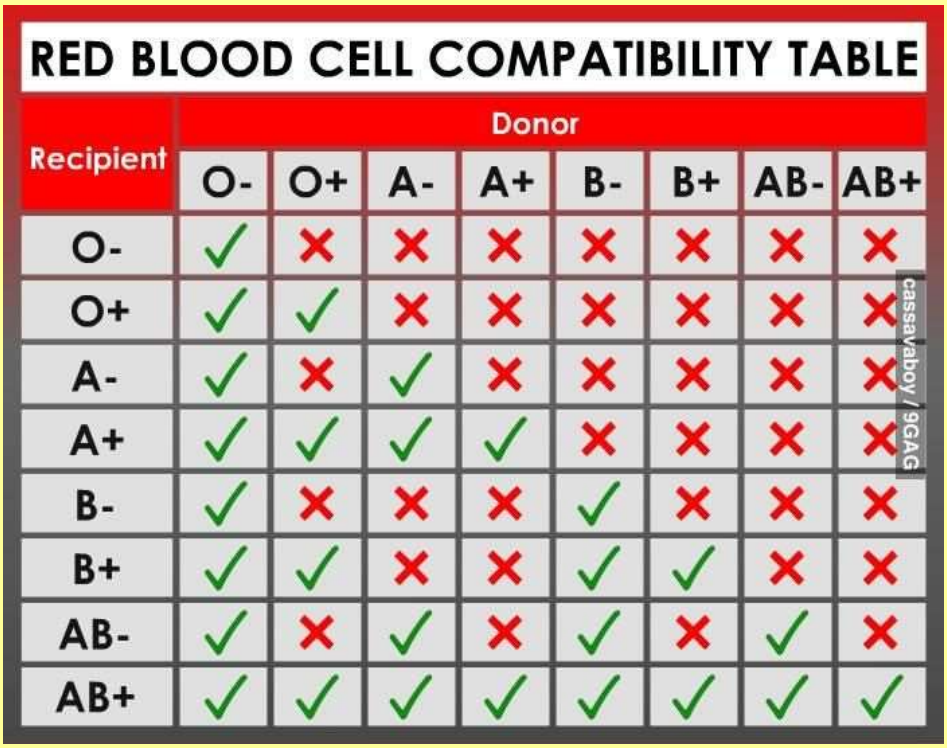
regional or global markets to incur disruptive effect(s) in international or inter-industrial competition or adversarial engagement.
The effecting actor could then offer viable alternative products or treatments to capitalize on the disruption, thereby establishing relative economic hegemony – and power – in both these markets, and perhaps on the world stage. If and when combined with a well-executed misinformation campaign, such an approach could yield multi-domain, multi-dimensional effects (e.g., in agri-markets, public health, safety and security, economic stability, and geo-political power) that would be iterative, robust, and likely evoke durable consequences."
Should biological warfare commence, food and agriculture will be targets because they are foundational to America's health, welfare, and economy. A reporter once asked John Dillinger why he robbed banks. His answer? "Because that where the money is!" That is why terrorists and adversarial nation states might attack the food supply. Food is what we eat. Our nation is dependent on the continued availability of a safe, secure, and economical food supply.

***Dr. Bob Norton*** *is chair of the Auburn University Food System Institute's Food and Water Defense Working Group and a long-time consultant to the U.S. military, federal and state law enforcement agencies*

## Scientists may soon be able to make a universal blood type

Source: https://www.siliconrepublic.com/innovation/blood-type-univeral-gut-microbiome

June 12 – Blood banks around the world will frequently make impassioned calls to the public to make vital donations, especially when there is a shortage of a particular type. According to the Irish Blood Transfusion Service, as many as one in four people will need a blood transfusion at some point in their lives.




Yet new research from the University of British Columbia could soon render those distinctions obsolete, as a group of scientists headed up by Stephen Withers has successfully converted a unit of type A blood into type O blood.
In a paper published in *Nature Microbiology*, the researchers explained that they were able to remove sugars from the surface of red blood cells by using a pair of enzymes they isolated from the gut microbiome of an AB positive donor.
Withers said the team could cleave the subtypes efficiently, "plus we have taken this enzyme and converted a whole unit of blood and shown that, according to all the measures used by the Canadian Blood Services, it is now type O. It gives us great confidence, but of course there are a lot of safety tests still to be done."
The next step, Withers went on to explain, is for the team to test the safety of the process in greater detail. The researchers can do this by mixing the "converted" samples with other

samples to see if there is an antigen-antibody response. This response mimics how the immune system of a recipient may react to blood from a donor of the wrong type.
"Two concerns that one would have is that we don't completely remove the A or that we are causing some other change on the red blood cell surface, though we have no reason to think that at the moment," Withers added.
The researchers at British Columbia thanked the Canadian Light Source (CLS) at the University of Saskatchewan for aiding them in understanding a previously unknown enzyme that was part of this pair. Crystallography carried out at CLS helped the team understand how the enzyme worked and explain its affinity for type A blood.
In total, there are eight different blood types, each type being defined by the presence or lack of certain antigens and antibodies.

## The "anti-vaxxer" movement and disinformation are fueling the spread of preventable diseases

Source: http://www.homelandsecuritynewswire.com/dr20190530-the-antivaxxer-movement-and-disinformation-are-fueling-the-spread-of-preventable-diseases

May 30 – Outbreaks of vaccine-preventable diseases, including measles, mumps and whooping cough, have again become an issue in Western and developed countries. Developing or conflict-ridden countries have far more cases of malaria and other diseases, but infection rates in the United States and Europe are on the rise. The number of cases is lower than in developing countries, but outbreaks in economically advanced countries can create sudden and sharp disruptions. Stratfor says that one key factor driving these outbreaks is a growing "anti-vaxxer" movement, which has encouraged an increasing number of people to avoid immunizations. Simply put, the more unvaccinated people there are, the more likely disease outbreaks are to occur. Influential political parties and public figures in the United States and Europe have expressed skepticism over the effectiveness and safety of vaccines and the rights of the government to regulate personal health decisions. These ideas have spread through social media and other communications channels, and ill-informed campaigns frequently cite scientific studies that have been soundly debunked. Subversive Russian social media campaigns have also contributed to the growth of the "anti-vaxxer" movement in recent years. The vaccine controversy is one of many divisive issues that the Kremlin has been exploiting to sow dissension in Western countries, particularly during election seasons. A 2018 study published in the American Journal of Public Health found that Russian troll farms had been spreading such disinformation. Numerous politicians and public health officials have pointed out Moscow's efforts.

## Crowds, social gatherings facilitate disease transmission

Source: http://www.homelandsecuritynewswire.com/dr20190529-crowds-social-gatherings-facilitate-disease-transmission

May 29 – Large gatherings — from music festivals to religious pilgrimages to sporting events — have long been known to increase risks of infectious disease outbreaks. Now results from an NSF-funded study led by UC Berkeley researchers associate even small-scale community gatherings with increased transmission of diarrheal diseases. The results are published in the *American Journal of Epidemiology*.

Gatherings at events can create environmental and social conditions that facilitate the spread of pathogens by increasing crowding and contact rates, overextending sanitation and hygiene resources, and encouraging risky behaviors.
"This study shows that disease transmission is a balance between increased risk factors and the resources available to provide facilities for sanitation, safe food preparation and safe water," says Tom Torgersen, a program

director in NSF's Division of Earth Sciences, which funded the research. "The knowledge is applicable to many diseases."
The NSF says that the study, using a set of statistical time-series models incorporating environmental, ethnographic and health data, found that mass gatherings near Esmeraldas, Ecuador, were associated with an average 21 percent increase in disease incidence in host villages two weeks following an event. When considering only the set of gatherings for which ethnographic research found substantial inbound travel, the excess risk jumped to 51 percent.
Diarrheal diseases lead to about two million deaths each year, mostly among children. Prevention is a priority target for improving global public health. "Our research shows that certain social and cultural events are predictable foci of endemic disease transmission," said Justin Remais, Head of Environmental Health Sciences at the UC Berkeley School of Public Health, and principal investigator of the study. "We now have an opportunity to target specific events to prevent this disease transmission."

## Tulane study shows vaccine protects against equine viruses that threaten humans

Source: https://news.tulane.edu/pr/tulane-study-shows-vaccine-protects-against-equine-viruses-threaten-humans

June 13 – For the first time, a new vaccine provided complete protection against three types of equine encephalitic viruses in nonhuman primates, according to a new study published in the journal *Science Translational Medicine*. The research was a joint collaborative effort involving Tulane University, the National Institutes of Health and the U.S. Army.
These encephalitic alphaviruses are possible bioterrorism agents because of their potential to be aerosolized, punctuating the need for a vaccine to protect populations in the event of an attack.
Tulane University researchers Chad J. Roy and Vicki Traina-Dorge, both Tulane National Primate Research Center (TNPRC) faculty, directed the portion of the studies involving the use of specialized biocontainment laboratories located at the TNPRC.
"These findings are an important milestone in the development of a vaccine that could be employed in the event that these viruses are ever used in a deliberate release," said Roy, director of Infectious Disease Aerobiology and Biodefense Research Programs at Tulane.
There is no current vaccine or treatment against Western, Eastern and Venezuelan equine encephalitis, which are spread by mosquitoes. In summer months when temperatures rise and mosquitos increase, horse populations are particularly susceptible to fatal infection from these viruses. Transmission from horses to humans occurs by mosquitoes as well, and can cause serious illness and death in vulnerable populations, particularly the elderly and children.
Using nonhuman primate and mouse models of aerosol infection, the study showed that the trivalent virus-like particle (VLP) vaccine induced a robust immune response and provided complete protection from all three viruses. The vaccine induced an immune response strong enough to effectively block the neurological effects of infection, which is normally a hallmark of disease with any of the three viruses.
"It was really exciting to see the VLP vaccine provide complete protection from all three types of viruses," said Traina-Dorge, associate professor of microbiology and immunology. "This is a significant step, not only in protecting human populations from possible threats of bioterrorism, but also protecting both animals and humans from natural vector-borne disease transmission."
As the global climate warms and human and animal populations increase, mosquito-borne infectious diseases have greater potential to spread. Having vaccines available to protect global populations from natural outbreaks is paramount to public health.
The Tulane National Primate Research Center improves human and animal health through basic and applied biomedical research. As one of the seven National Primate Research Centers funded by the National Institute of Health, the TNPRC is committed to discovering causes, preventions, treatments, and cures that allow people around the world to live longer,

healthier lives. Primary research interests include developing vaccines, treatments and diagnostic tools for infectious diseases such as AIDS, Lyme disease, malaria, and tuberculosis. Learn more about the TNPRC at www2.tulane.edu/tnprc.

# Texas vaccine exemption rates have reached an all-time high. Did Texas make it too easy for parents to opt out?

**By Elizabeth Byrne and Shiying Cheng**

Source: http://www.homelandsecuritynewswire.com/dr20190614-texas-vaccine-exemption-rates-have-reached-an-alltime-high-did-texas-make-it-too-easy-for-parents-to-opt-out

June 14 – As measles cases hit a 25-year high in the United States, Texas medical experts fear the state could see the next outbreak of a vaccine-preventable disease. Texas has reported 15 confirmed cases of measles so far in 2019, six more than in all of 2018.

Health officials are watching pockets of Texas closely because of the number of parents requesting exemptions under Texas's broad vaccine exemption law. Texas is one of 16 states that allow parents to bypass vaccine requirements for enrolling their kids in school by claiming a conscientious exemption, along with citing medical or religious concerns. Just last month, Washington ended conscientious exemptions on the heels of a large measles outbreak with over 70 reported cases. Three states — California, West Virginia and Mississippi — only allow medical exemptions.

Texas' exemption law used to be stricter. In 2003, a state senator proposed loosening restrictions via a three-page amendment to a 311-page bill. After five minutes of discussion, the amendment was approved. The bill was soon signed into law. Sixteen years later, former state Sen. Craig Estes said the change to Texas' vaccine laws that he helped enact should be reviewed in the current public health climate.

"Obviously we didn't ever imagine what would happen," Estes, a Republican from Prosper, told The Texas Tribune. "With what's happened recently, I would encourage the legislature in the future to revisit that issue and debate it."

The speedy way in which the Texas Legislature weakened the state's vaccine exemption rules suggests that, like Estes, few in office at the time thought it would put Texas at risk for future outbreaks. However, while experts suggest Texas is now vulnerable, efforts to change the exemption law have been dead on arrival in the Capitol.

"There will be a terrible measles epidemic in Texas, and children will be hospitalized in intensive care units, just like they are in New York right now," Dr. Peter Hotez, dean of the National School of Tropical Medicine at Baylor College of Medicine, said last month. "That will wake up the state Legislature to realize that there's a problem and close those exemptions."

**Tracking Texas exemptions**

Kindergarteners must have 10 immunizations to be enrolled in Texas schools. Since 2006, when the state first started reporting the data, the exemption rate for kindergarteners in Texas has risen from 0.3 percent for the 2005-06 school year to 2.15 percent for the 2018-19 school year.

In Texas, school districts, private schools and charter schools are required to report their vaccine exemption rates per vaccine. The data collection is done through a survey administered by the Texas Department of State Health Services, but some schools don't report consistently, leaving gaps in the data.

The data shows certain communities — like the Dallas Independent School District — have seen a recent spike in conscientious exemptions for kindergarteners. Others — like El Paso ISD — have seen exemptions recently plummet. Some smaller private schools, meanwhile, have exemption rates that are significantly higher than those of other schools. The Austin Waldorf School had the highest vaccine exemption rate for the 2018-19 school year, at 52.9 percent. Alliance Christian Academy had the second-highest rate at 40.6 percent.

When enough of a community is immunized against a disease, that group has what's known as herd immunity, meaning there is a low risk of a disease spreading. Vaccine-preventable disease have different herd immunity thresholds. Measles, which is highly contagious, has

a high herd immunity threshold of 95 percent. According to a state report for the 2018-19 school year, Texas kindergarteners statewide had coverage levels higher than 95 percent for all required vaccines. Yet the data from individual school districts and private schools suggests that some communities may fall short of meeting that threshold for some vaccines.

**A five-minute discussion**

Before 2003, the state's education code gave parents two options to exempt their children from vaccines: submit a medical exemption form signed by a physician or sign an affidavit affirming that administering a certain vaccine conflicts with "the tenets and practice of a recognized church or religious denomination**."** State lawmakers voted that year to dramatically expand who could secure nonmedical exemptions when they approved House Bill 2292, a 311-page bill that overhauled the state's sprawling network of health and human services organizations by consolidating 12 state agencies into five, saving the state $1 billion. The bill was a high priority as lawmakers were scrambling to address a $10 billion shortfall, recalled former state Rep. Talmadge Heflin, one of the bill's co-authors.

Estes' vaccine amendment struck out the language limiting religious exemptions to vaccines violating the tenets of "a recognized church or religious denomination." He replaced that with the more vague "religious belief" and added a new exemption category: "reasons of conscience." The amendment also lowered the bar for medical exemptions, allowing a doctor to sign off if he or she thought the vaccine would "pose a significant risk" instead of the previous requirement that the vaccine "would be injurious" to a child.

When Estes introduced the amendment on the Senate floor in 2003, he spoke about providing an option for parents who wanted to opt out of a vaccine for nonmedical reasons, such as if a sibling had an "adverse reaction" to it. He did not mention the broadening of the religious language or explain the reasoning behind adding "reasons of conscience" to the state statute. He praised a provision requiring the state to give parents pursuing a conscientious exemption for a child additional paperwork warning them about the potential health risks of not immunizing their kids.

"What I like about this amendment the most is the fact that we make sure that the affidavit that they fill out by the Department of Health explains to them the consequences of not immunizing their children, and thereby I hope that it increases the awareness of how important it is to have immunizations," Estes told his fellow senators.

Estes' amendment did not come out of blue. Dawn Richardson, advocacy director for the National Vaccine Information Center, was among those lobbying for Texas to adopt a conscientious exemption system in 2003. She said the conversation around that issue started in the 1997 session, but there wasn't significant movement until a 2001 bill loosening the exemption system passed out of a House committee but failed to make it to the floor for a vote before the full House. Still, the issue had not been thoroughly debated among the full House and Senate.

"It was a seven-year process over which many bills were filed," Richardson said. "Like many pieces of legislation that are working to shift these sort of things, sometimes it takes several sessions to work with different legislators to move things forward."

The success of Estes' amendment on the Senate floor was shaped in part by the discussion around vaccines at the time.

Measles had been declared eliminated from the United States just three years earlier in 2000. Seth Mnookin, director of the graduate science writing program at the Massachusetts Institute of Technology and author of "The Panic Virus: The True Story Behind the Vaccine-Autism Controversy," said the declaration was a medical milestone that may have inadvertently led to reducing fears about others catching the disease in the future.

"Even for vaccine advocates, who were very concerned about the possibility of measles outbreaks and knew how dangerous measles was, even with that, there was this sense that concern was almost notional," Mnookin said. "In some ways, what we saw there — and we see this again and again with vaccines — is vaccines were victims of their own success."

Former state Sen. Leticia Van de Putte said she worked with Estes to narrow the wording of the amendment, which she called "pretty vague" when she first read it.

Van de Putte, a San Antonio Democrat, recalled vaccines were drawing concerns at the time, in part related to thimerosal. The preservative, which contains small traces of mercury, was commonly used in multidose vaccines to prevent contamination between doses. In 1999, a review by the Food and Drug Administration found there was no evidence that the mercury caused harm but that in certain cases, the amount could be higher than the recommended mercury exposure by the World Health Organization. In 2001, vaccine makers removed thimerosal from all of the U.S. vaccines recommended for children under 6, except for the flu vaccine.

The conflicting warnings about thimerosal raised concerns that vaccines were unsafe.

"That's what we really looked at at the time," Van de Putte said. "Now if you look at the data since then, we know that not to be the case."

Along with the thimerosal controversy, a now-discredited study linking the MMR (measles, mumps and rubella) vaccine to autism also prompted concerns at the time, said Rekha Lakshmanan, advocacy director for The Immunization Partnership, a vaccine advocacy nonprofit. Lakshmanan pointed to the 1998 study from Andrew Wakefield, a British gastroenterologist who lost his medical license in 2010 and now lives in Austin, as a pivotal source of the anti-vaccine movement today.

Once Texas' less restrictive vaccine exemption system went into effect on Sept. 1, 2003, public health experts expressed concern about how many parents would take advantage of the new conscientious exemption option.

"We don't know how many to expect," Doug McBride, a spokesperson for the state health department, told the *Fort Worth Star-Telegram* in 2003. "From the public health protection perspective, we hope it's not very many, but it is a legal option. We ask parents to base their requests for exemptions on accurate information."

State data suggests that in the 16 years since Texas loosened its exemptions system, the number of families taking advantage of it has grown dramatically. The state tracks how many requests for affidavits it receives each year — though some of the forms are never submitted. In the 2004 fiscal year, Texas received vaccine exemption affidavit requests on behalf of 7,250 individuals. By 2018, that number had grown more than tenfold to 76,665 individuals.

**A new anti-vaccine movement**

After 2003, the next significant turning point for the anti-vaccine movement in Texas came 12 years later. "There's always been a very small minority group who has been vocal and opposed to vaccines," Lakshmanan said. "But in 2015, things changed, and there was a new iteration of vaccine deniers and anti-vaccine advocates."

That year, as outbreaks of measles and whooping cough began to rise in pockets of Texas and other parts of the country, state Rep. Jason Villalba filed a bill hoping to remove the conscientious exemption option from state law. House Bill 2006 aimed to limit exemptions for vaccines to a "specified and verifiable religious-based reason," according to the bill's text. Villalba said it was an attempt to keep children safe from vaccine-preventable diseases.

"We are just saying, 'Look, if you are going to send your children to public schools, they need to be vaccinated,'" Villalba, a Dallas Republican, said in 2015.

The response to Villalba's bill marked a shift in the language of vaccine critics from "anti-vaccine" to emphasizing **"**vaccine choice" and "medical freedom."

Jackie Schlegel, who lives outside Austin, said when she heard about Villalba's bill, she and other mothers organized a rally at the Capitol to oppose it. Texans for Vaccine Choice, was born and the group has remained active at the Capitol ever since.

"Texas has a long history of really valuing parental rights, and that's what this has been about for us," Schlegel, the group's president, said in May to dozens of supporters at the Texas Capitol. Standing beside her was Robert F. Kennedy Jr., one of the country's most prominent vaccine critics, who traveled to Austin for the event.

Since the 2015 session, Texans for Vaccine Choice has advocated against changes to the state's exemption law and against efforts to increase access to vaccine exemption data.

When state Sen. Kel Seliger, R-Amarillo, laid out a bill this year that would have allowed the public to access vaccine exemption rates by individual schools rather than just by school districts, several members of Texans for Vaccine Choice testified against it. They said it would lead to increased bullying and single out children who have exemptions. Seliger's bill, like every other vaccine bill filed this year, went nowhere.
Hotez, one of the most prominent vaccine advocates in the country, found himself a target of defenders of the current system in Texas as he urged lawmakers to consider some vaccine-related bills this session. In a heated exchange on Twitter between Hotez and state Rep. Jonathan Stickland, the Bedford Republican called vaccines "sorcery to consumers." However, in an interview with *The Dallas Morning News*, Stickland clarified that he vaccinates his children but supports parents' right to choose whether and when to vaccinate their children.
Hotez warned it may take a measles epidemic hitting the state to lead to changes in the exemption law, in the same way the Disneyland measles outbreak in 2015 led to California passing legislation tightening its vaccine exemption system to allow only for medical exemptions.
Texas has reported 15 confirmed cases of measles this year through May, the highest number of measles cases the state has seen since 2013. However, there has not been a single confirmed outbreak — defined as three or more related cases — this year so far. Despite the lack of state outbreaks, Hotez said, the state's current system for vaccine exemptions will continue to pose a public health risk.
"Texas has so far dodged a bullet in terms of a really terrible measles epidemic, like in New York," Hotez said. "But it's only a matter of time."

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# E bola outbreak spreads to Uganda – it should never have happened

**By Sterghios Moschos**
Source: http://www.homelandsecuritynewswire.com/dr20190614-ebola-outbreak-spreads-to-uganda-it-should-never-have-happened

June 14 – A five-year-old boy and his grandmother have died of Ebola virus disease in Uganda. These are the first recorded cross-border Ebola deaths in the current outbreak that started in the Democratic Republic of the Congo (DRC) in April 2018.
The DRC is where the Ebola virus was first discovered in 1976. And the country is no stranger to this menace – this is the ninth time it has had to contain the disease. Still, this outbreak is the second largest on record – and the second to have crossed into another country.
The last one to have done so was the largest recorded Ebola outbreak in history. It started in Guinea in 2014. By the time it was contained and stopped in 2016, it had spread to nine countries across three continents, infected more than 28,000 people and claimed over 11,300 lives, at a cost of US$53 billion.

That a new outbreak of Ebola virus would happen was a question of when, not if. Yet a situation as dire as the West African outbreak should not repeat itself given that many problems were solved in 2014-16. For starters, a vaccine with 97.5 percent efficacy should stop new outbreaks in their tracks.
Simple hospital laboratory tests to diagnose Ebola have also been distributed across Africa (the **GeneXpert machine** - right).
New cases can be rapidly detected if early symptoms, such as fever, fatigue, muscle pain, headache and sore throat, are recognized. Even a solution for screening suspected cases in the community or among travelers at border crossings is available. Any new Ebola

outbreak should, in theory, never have involved more than tens of people. Today, the numbers in the Congo and Uganda stand at 2,071 cases and 1,396 deaths.
But the latest outbreak brings a new set of challenges. There have been armed attacks against healthcare workers and treatment centers have been firebombed.
Affected regions are in a war zone and local people have a deep distrust of the DRC government and Western healthcare volunteers. When the healthcare volunteers pulled out in fear of their lives in mid-March 2019, new cases of Ebola jumped from about 20 to roughly 80 a week.
Distrust of the central governments of Guinea and Sierra Leone, as well as the global response teams, was one of the biggest challenges during the West African outbreak. Engaging the local population to explain what they needed to do to protect themselves was perhaps more important than vaccines and diagnostics.
The same situation applies today, especially given the persistence of conspiracy theories and superstition. Many still believe that Ebola arrives after the healthcare workers turn up, and spiritual healing is still sought, sometimes even in public gatherings.
Tellingly, the child and his grandmother who recently died of Ebola in Uganda, are part of a family of six who fled a DRC Ebola virus isolation center situated close to the Ugandan border. All exhibited symptoms of infection.

**The race is on**

Even though neighboring countries have been preparing for the risk of the disease spilling into their territories, these six patients still made it through border crossings unnoticed.
In 2015, among the Ebola media furor in the West and calls for international borders to be shut, a British nurse volunteering in Sierra Leone crossed into the UK with symptoms of Ebola. Symptom screening should have picked both of these cases up, but checking people for things such as fever is neither foolproof nor effective. Yet a fast, reliable and affordable test for the virus called QuRapID is available,

which could restrict international transmission via illegal border crossings. And, unlike the GeneXpert test, it can be operated by minimally trained people.

Thankfully, trained health workers in Uganda were quick to recognize symptoms in the six family members when they sought help at a regional hospital. Two members of the deceased child's family have been confirmed positive for Ebola.
The likelihood that some healthcare staff involved will contract the disease is low as they are among the 4,700 Ugandan healthcare workers vaccinated for Ebola virus. But vaccine stocks are running low. The race is on to restock the vaccine, engage the local population and trace the contacts of suspected cases to prevent further spread.

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## Bioterrorism combating measure advances House Judiciary Committee

Source: https://homelandprepnews.com/stories/34389-bioterrorism-combating-measure-advances-house-judiciary-committee/

June 17 – As a means of addressing the rising threat of bioterrorism, the House Judiciary Committee has approved a bill criminalizing possession of certain deadly substances.
Reps. John Ratcliffe (R-TX) and Kathleen Rice (D-NY) introduced the Effective Prosecution of Possession of Biological Toxins and Agents Act, which they said closes a loophole in federal law allowing dangerous toxins and agents to be knowingly accumulated by individuals without proper registration.
"With the threat of bioterrorism on the rise, it's more important than ever to ensure that our legal system is equipped to properly punish individuals who knowingly accumulate deadly toxins and agents without required registration," Ratcliffe said. "As a former federal prosecutor, I'm committed to improving the laws on the books to make sure that dangerous substances are kept out of the hands of people who can use them for malign activity."
As a former prosecutor, Rice said that she has always been committed to improving the nation's legal system and closing loopholes in our laws.
"As the threat of bioterrorism continues to grow and evolve, we need to empower our law enforcement agencies with the ability prosecute individuals who accumulate deadly chemicals with the intent of causing harm," Rice continued. "We need to ensure that our laws reflect the severity of this threat, and that's what this bill will help us accomplish."

## A first: Salmonella resistant to antibiotics of last resort found in U.S.

Source: http://www.homelandsecuritynewswire.com/dr20190617-a-first-salmonella-resistant-to-antibiotics-of-last-resort-found-in-u-s

June 17 – Researchers from North Carolina State University have found a gene that gives *Salmonella* resistance to antibiotics of last resort in a sample taken from a human patient in the U.S. **The find is the first evidence that the gene *mcr-3.1* has made its way into the U.S. from Asia.**
There are more than 2,500 known serotypes of *Salmonella*. In the U.S., *Salmonella enterica* 4,[5],12:i:-ST34 is responsible for a significant percentage of human illnesses. **The drug resistance gene in question – known as *mcr-3.1* – gives *Salmonella* resistance to colistin, the drug of last resort for treating infections caused by multidrug-resistant *Salmonella*.**
"Public health officials have known about this gene for some time," says Siddhartha Thakur, professor and director of global health at NC State and corresponding author of the research. "In 2015, they saw that *mcr-3.1* had moved from a chromosome to a plasmid in China, which

paves the way for the gene to be transmitted between organisms. For example, *E. coli* and *Salmonella* are in the same family, so once the gene is on a plasmid, that plasmid could move between the bacteria and they could transmit this gene to each other. Once *mcr-3.1* jumped to the plasmid, it spread to 30 different countries, although not – as far as we knew – to the U.S."

NCSU says that Thakur's lab is one of several nationally participating in epidemiological surveillance for resistant strains of *Salmonella*. The lab generates whole genome sequences from *Salmonella* samples every year as part of routine monitoring for the presence of antimicrobial-resistant bacteria. When veterinary medicine student Valerie Nelson and Ph.D. student Daniel Monte did genome sequencing on 100 clinical human stool samples taken from the southeastern U.S. between 2014 and 2016, they discovered that one sample contained the resistant *mcr-3.1* gene. The sample came from a person who had traveled to China two weeks prior to becoming ill with a *Salmonella* infection.

"This project proved the importance of ongoing sequencing and surveillance," says Nelson. "The original project did not involve this gene at all."

"The positive sample was from 2014, so this discovery definitely has implications for the spread of colistin-resistant *Salmonella* in the U.S.," Thakur says. "Our lab will continue to try and fill in these knowledge gaps."

The research appears in the *Journal of Medical Microbiology*. NCSU notes that prior to his global health role, Thakur was associate director of the emerging infectious diseases program at NC State's Comparative Medicine Institute.

## World unprepared for biological catastrophe, report says

Source: https://homelandprepnews.com/stories/34380-world-unprepared-for-biological-catastrophe-report-says/

June 17 – International leaders and organizations are unprepared for a global catastrophic biological event, according to a report from Georgetown University's Center for Global Health Science and Security, the Center for Global Development, and the Nuclear Threat Initiative.

Leaders and organizations lack a coordinated response that would be necessary to investigate and identify a pathogen, prevent the spread of disease, and save lives.

"Without the right procedures and tools in place, there is little doubt that a rapidly spreading biological event would place overwhelming stress on the people and institutions responsible for response," the report said. "The lack of established procedures would very likely undermine the trust and cooperation needed among health professionals, humanitarian responders, and security officials who would be aiming for a coordinated, effective response."

Leaders must develop better systems, mechanisms, and procedures, the report said.

The report, A Spreading Plague: Lessons and Recommendation for Responding to a Deliberate Biological Event, examines a fictional nation called "Vestia" that is embroiled in civil unrest. Vestia faces a fast-moving outbreak of what is believed to be plague. Political, public health, security, and humanitarian leaders all lack a coordinated and rapid response, the report said.

The report also offers ways to enhance investigation and attribution, information sharing, and international coordination, and to increase financing.

## Planning and maintaining hospital air isolation rooms

**By Martin Herrick, PE, HFDP**

Source: https://www.hfmmagazine.com/articles/2671-planning-and-maintaining-hospital-air-isolation-rooms

Controlling the spread of airborne infectious diseases in health care facilities is a serious concern to patients, staff and visitors. To minimize the spread of airborne infections, certain rooms within a hospital are designed as airborne infectious isolation (AII) rooms with

negative-pressure differential or protective environment (PE) rooms with a positive-pressure differential. While isolation rooms must meet the general requirements for a standard medical-surgical patient room, they also have specific requirements. For instance, patient isolation rooms may only have one patient bed, should be provided with an area for gowning and storage of clean and soiled materials directly outside or inside the entry door, and should be provided with a separate toilet room with a hand-washing sink.

In addition, the isolation room needs to be well-sealed to prevent excess air leakage into or out of the room. The tighter the room is constructed, the more efficiently the air pressure differential can be maintained. In most instances, an isolation room does not require an anteroom. If one is provided, it should offer enough space to don protective equipment before entering the patient room, and the doors must have self-closing devices.

**Controls considerations**

The latest edition of the American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE's) Standard 170, Ventilation of Health Care Facilities, which is integrated into the Facility Guidelines Institute's *Guidelines for Design and Construction of Health Care Facilities,* requires each isolation room to have a permanently installed visual device or mechanism to constantly monitor the air pressure differential of the room when occupied by a patient who requires isolation.


The exhaust fan should be located outdoors and placed as far away from intakes and public areas as practical with discharge above the roof. Image courtesy of RTM Engineering Consultants

While the permanent device can be as simple as a flutter strip or calibrated ball in tube, the most reliable way to monitor room pressure is with the use of an electronic pressure monitor. When properly selected and installed, an electronic room-pressure monitor can provide continuous confirmation of the required pressure differential across the room boundary.

Most electronic monitors consist of two main components: a wall-mounted control panel and a sensor. The control panel usually is mounted on a corridor wall adjacent to the entrance of the isolation room and generally displays the pressure difference in inches of water column (WC).

In addition to providing a continuous readout of pressure differential, the control panel should include both audible and visual alarms to warn staff when room pressurization is lost. The alarm should sound when the measured room pressurization is below the alarm setpoint. For example, in a room designed to maintain a pressure differential of minus 0.03-inch WC, the alarm could be programmed to activate when the pressure differential falls to minus 0.01-inch WC.


Exhaust ductwork serving AII negative isolation rooms should be permanently labeled as contaminated air.Image courtesy of RTM Engineering Consultants

The control panel also should have a programmable, built-in time delay to minimize nuisance alarms. The time delay should be set to allow staff sufficient time to routinely enter and leave the room, and typically is set between 30 and 45 seconds.

In addition to the alarms, integral to the wall control panel, most electronic room pressure monitors include an extra identical signal that allows the pressure differential and alarm signals to be displayed at a remote location. The common location for this remote alarm is either the nurses' station or the building automation system.

**Equipment selection**

When designing the mechanical systems to support isolation rooms, the designer must consider not only the airflow required to maintain the proper pressure differential, but also the location of the equipment, the serviceability of the equipment and equipment redundancy. Depending on the number and type of isolation rooms in the facility, it is generally more economical to provide a single larger system to serve multiple rooms than multiple smaller systems.

The same air-handling system that serves other standard patient rooms may be used for isolation rooms. The air-handling unit serving the isolation rooms requires minimum-efficiency reporting value (MERV) 7 pre-filters, with either MERV 14 or high-efficiency particulate air (HEPA) final filters. MERV 14 filters are adequate for AII negative pressure rooms and for PE positive pressure rooms when terminal HEPA filtration is used at the supply diffusers serving the PE room.

For the exhaust system serving AII rooms, the exhaust fan should be located outdoors, if possible, and be placed as far away from intakes and public areas as practical, but no less than 25 feet with discharge above the roof. For outdoor fans, all exhaust from AII rooms should be exhausted by means of a vertical exhaust stack or exhaust fan with a vertical discharge arrangement.

If the fan must be located inside, welded ductwork should be used downstream of the exhaust fan, and a bag-in/bag-out filter housing with pre-filters and HEPA filters should be installed upstream of the exhaust fan. The exhaust fans shall be served by emergency power, and the fans should be labeled as contaminated air to meet the recommendations of the Centers for Disease Control and Prevention.

Redundancy of the equipment also needs to be considered, and will depend on the facility's typical census of infectious or immunocompromised patients. On larger systems serving multiple rooms, redundant fans are recommended so the failure of a single fan does not compromise the safety of patients and caregivers.

**Design requirements**

These individual control and equipment decisions come together in the designs of the negative- and positive-pressure rooms themselves. They include:

**Negative isolation rooms.** A negative-pressure AII room is designed to isolate a patient who is suspected of, or has been diagnosed with, an airborne infectious disease. The

negative-pressure isolation room therefore is designed to help prevent the spread of a disease from an infected patient to others in the hospital.

Negative-pressure isolation rooms require a minimum of 12 air changes of exhaust per hour and must maintain a minimum 0.01-inch WC negative-pressure differential to the adjacent corridor whether or not an anteroom is utilized. Typically, a setpoint closer to minus 0.03-inch WC is used. When not required for use with an infectious patient, the negative-pressure AII room may be occupied by noninfectious patients. The negative-pressure relationship to the corridor should be upheld; however, it is not required to be maintained at the minimum of minus 0.01-inch WC.

When an anteroom is provided, airflow should be from the corridor into the anteroom, and from the anteroom into the patient isolation room. To maintain the required pressure differential, the exhaust air quantity must always be higher than the supply airflow. Depending on such factors as room size and the room's heating and cooling loads, more than 12 air changes per hour may be necessary. Typically, a minimum airflow difference of 150 to 200 cubic feet per minute (CFM) is adequate to maintain pressure differential in a well-sealed room.

Exhaust from negative-pressure isolation rooms, associated anterooms and associated toilet rooms must be discharged directly to the outdoors without mixing with exhaust from any non-AII rooms. However, multiple AII isolation rooms may be connected to the same exhaust system. The exhaust ductwork serving AII negative isolation rooms also should be permanently labeled as contaminated air within the facility at a maximum of 20 intervals and at all wall or floor penetrations.

Supply air for the room generally is located in the ceiling at the foot of the patient bed, with exhaust air taken from exhaust grilles or registers located directly above the patient bed on the ceiling or low on the wall near the head of the bed. When the head wall exhaust grilles are mounted lower than 7 feet above the floor, NFPA 90A requires that the opening be protected by a grille or screen through which a half-inch sphere cannot pass.

**Positive isolation rooms.** A positive-pressure isolation room is designed to keep contagious diseases away from patients with compromised immune systems, such as those with cancer or transplants. These rooms require a minimum of 12 air changes per hour of supply air and must maintain a minimum 0.01-inch WC positive-pressure differential, ensuring that the patient is protected from airborne contamination regardless of whether an anteroom is used. Typically, positive-pressure rooms are designed to maintain an even stricter setpoint of positive 0.03-inch WC.

Like the AII room, the PE positive room may be occupied by general patients when not in use. Similarly, the positive-pressure relationship to the corridor should be preserved; however, it is not required to be maintained at the minimum of positive 0.01-inch WC.

When an anteroom is used, airflow must be from the patient room into the anteroom and from the anteroom out into the corridor. As with the AII negative room, typically a minimum airflow difference of 150 to 200 CFM is adequate to maintain pressure differential in a well-sealed room. Positive-pressure rooms are required to be supplied with HEPA-filtered air, with the filters installed at the main air-handling unit or at the supply terminals in the room.

Supply air for the room must be located in the ceiling above the patient bed, with return air taken from the ceiling near the patient room door. The supply diffuser shall be a non-aspirating, laminar-flow device and should be designed to limit the air velocity at the patient bed to reduce the possibility of patient discomfort. In addition, ASHRAE 170 requires that airflow to the PE isolation room be maintained at a constant volume to provide consistent ventilation in the room.

**Combination AII/PE rooms.** In the past, some isolation rooms were designed to be switchable between negative and positive isolation; however, this type of isolation room is no longer allowed. To address the need to protect an immunocompromised patient with a known infectious disease, ASHRAE 170 now includes guidelines for a combination AII/PE room. Unlike separate AII and PE isolation rooms, the combination isolation room must be used with an anteroom.

Supply air for the room must be located in the ceiling above the patient bed, with return air taken from the ceiling near the patient room door similar to a standard PE isolation room. The pressure relationship for the anteroom shall either be positive in relation to the AII/PE room and corridor or negative in relationship to the AII/PE room and corridor.

In addition, ASHRAE 170 requires two separate permanently installed visual devices or mechanisms to constantly monitor the air pressure differential. One device monitors the pressure relationship between the anteroom and AII/PE room and the second checks the pressure relationship between the anteroom and corridor. The exhaust from the combination AII/PE room, associated anteroom and associated toilet room must be discharged directly to the outdoors without mixing with exhaust from any non-AII rooms.

**Room maintenance**

After construction is completed, but prior to occupancy, the mechanical or balancing contractor typically will adjust the airflow quantities as directed by the design engineer to ensure that the isolation room is operating as designed. In addition, isolation rooms should be commissioned to prove correct pressure relationships, proper operation of room controls and the functionality of the pressure monitor and alarms. ASHRAE 170 also requires that the room be tested daily while it is being used as an isolation room.

Given that mechanical systems drift out of balance over time, it is important to regularly check that an isolation room still is maintaining the proper pressure relationship and the pressure-monitoring device is working correctly. The room pressure should be checked monthly with smoke trail or similar testing. Most manufacturers of pressure monitors also recommend that the pressure monitor be recalibrated annually. The results of this periodic testing should be recorded because the authority having jurisdiction may request the data during a survey.

In addition to routine testing of the isolation room, the hospital staff who will be utilizing or maintaining the room should be trained on the proper use of the room, including how the pressure monitor works. A benefit of using a continuous pressure monitor connected to the building automation system is that the pressure differential for the isolation room can be monitored, trended and reviewed. It also can be used to alert hospital staff if the room is not performing as designed.

**Vitally important**

Given that a common deficiency cited by the Joint Commission relates to a ventilation system that is unable to provide appropriate pressure relationships, air exchange rates and filtration efficiencies, the proper design and maintenance of isolation rooms is vitally important. Whether the isolation rooms are designed during new construction or renovation of an existing space, careful planning is key.

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## Religion and vaccine refusal are linked. We have to talk about it

Source: http://www.homelandsecuritynewswire.com/dr20190620-religion-and-vaccine-refusal-are-linked-we-have-to-talk-about-it

June 20 – As measles cases have surged across the US and Europe this year, there's been a lot of talk about what's causing the outbreaks. Among the most discussed issues: mistrust of the medical establishment, populist politics fueling vaccine doubt, and the spread of misinformation on social media. A comprehensive survey found that people in higher-income countries were among the least confident in vaccine safety — particularly in North America and Europe. Meanwhile, vaccine trust was highest in countries where preventable diseases still spread, such as Bangladesh and Rwanda. So, the further people are from outbreaks, and the more distant the memory of diseases like whooping cough and measles, the more likely they are to shun vaccines. Julia Belluz writes in *Vox* that the survey also uncovered something that unites some of the communities where outbreaks have been spreading lately, and it's not as easy to talk about: religious belief.

# Coast Guard-Developed System for Evacuating Infectious or Contaminated Patients

**By Jennifer Osetek, PhD; Steve Ober; Edward Cables; CDR Ben Perman, PhD; and Tom Murphy**
Source: https://cbrnecentral.com/coast-guard-developed-system-for-evacuating-infectious-or-contaminated-patients/19513/

June 19 – The Ebola outbreak of 2014-2015 was notable for a number of important reasons: it was the largest outbreak in history, there were affected Americans (both overseas and domestically), and it was the catalyst for the development of new capabilities that could help transport infected or potentially infected people. One such capability is the Department of Defense's Transportation Isolation System (TIS) that was featured in the March 15, 2019 issue of Global Biodefense.
Another critical solution was the U.S. Coast Guard-developed Portable Isolation Unit (PIU), manufactured by ISOVAC Products and formerly known as the Operational Rescue Containment Apparatus (ORCA®). This was specifically designed to be used in situations involving a rotary-wing maritime evacuation and will allow infected (or potentially infected) patients to be transported without risk of contaminating the aircrew or aircraft. Due to this mission, it was designed to be used with stokes litter and NATO litter, among others.

The PIU is an FDA-approved positive-pressure device that utilizes a powered air-purifying respirator to supply air to the patient while filtering the exhaust air through a CBRNE cartridge. As a positive pressure apparatus that can filter inlet and exhaust air the PIU can withstand the mechanical force or rotor wash at hover during the hoist phase or rotary wing casevac/medevac evolutions. This is an important aspect of the design that enables its safe use in a variety or challenging operations and environments. The unit is battery operated and capable of running continuously for 4 hours. The PIU is constructed from Gore's ChemPak® membrane barrier that is utilized in other CBRNE individual protective items. A window is installed for patient visibility and is supported by two flexible rods to prevent contact with the patient's head and face. Glove ports present on both sides of the PIU are manufactured with Gore's UltraBarrier® material and allow for limited patient interaction with rescue personnel. As a single-use item, the PIU contains the infectious agent or hazardous chemical contaminant during transport, which after use, is decontaminated for final disposal.

Although the PIU was originally designed as containment for Ebola and other airborne infectious diseases, the PIU has undergone extensive testing and offers protection against both biological and chemical agents. Additional testing was conducted to ensure the transported patient would be as comfortable as the situation allows.

The PIU was developed in response to an air medevac scenario that posed unknown risk to the crew and aircraft, such as a cruise ship passenger off the U.S. who was suspected of being exposed to an airborne infectious disease with no known treatment. This scenario happened in 2014 when a nurse who had previously treated an Ebola patient who traveled from Monrovia, Liberia to Dallas, was a passenger on a cruise ship. The ship was not allowed to dock in Belize or Mexico with her aboard and public health authorities in Texas would not allow the cruise ship to return to the original port of embarkation. Using this capability, a Coast Guard helicopter carrying a team specially trained on the PIU could fly out to the cruise ship, medevac the passenger from the ship, and provide transport to a treatment facility for testing and/or medical care, avoiding costly delays and potential exposure of other passengers.

The Coast Guard PIU provides additional, unique capabilities that other isolation systems lack. The PIU fills a niche in getting casualties from an operational environment to a treatment facility or to a transportation hub or airport. In this scenario, the PIU may serve as an auxiliary capability supporting the TIS because it helps to get contaminated or potentially infected patients from the operational environment (battlefield) or hospital for continuing transportation without contaminating ambulances, rotary wing casevac/medevac aircraft or airport infrastructure.

Developing capabilities such as the PIU allow the Coast Guard to stay “Semper paratus” when faced with chemical or biological threats.