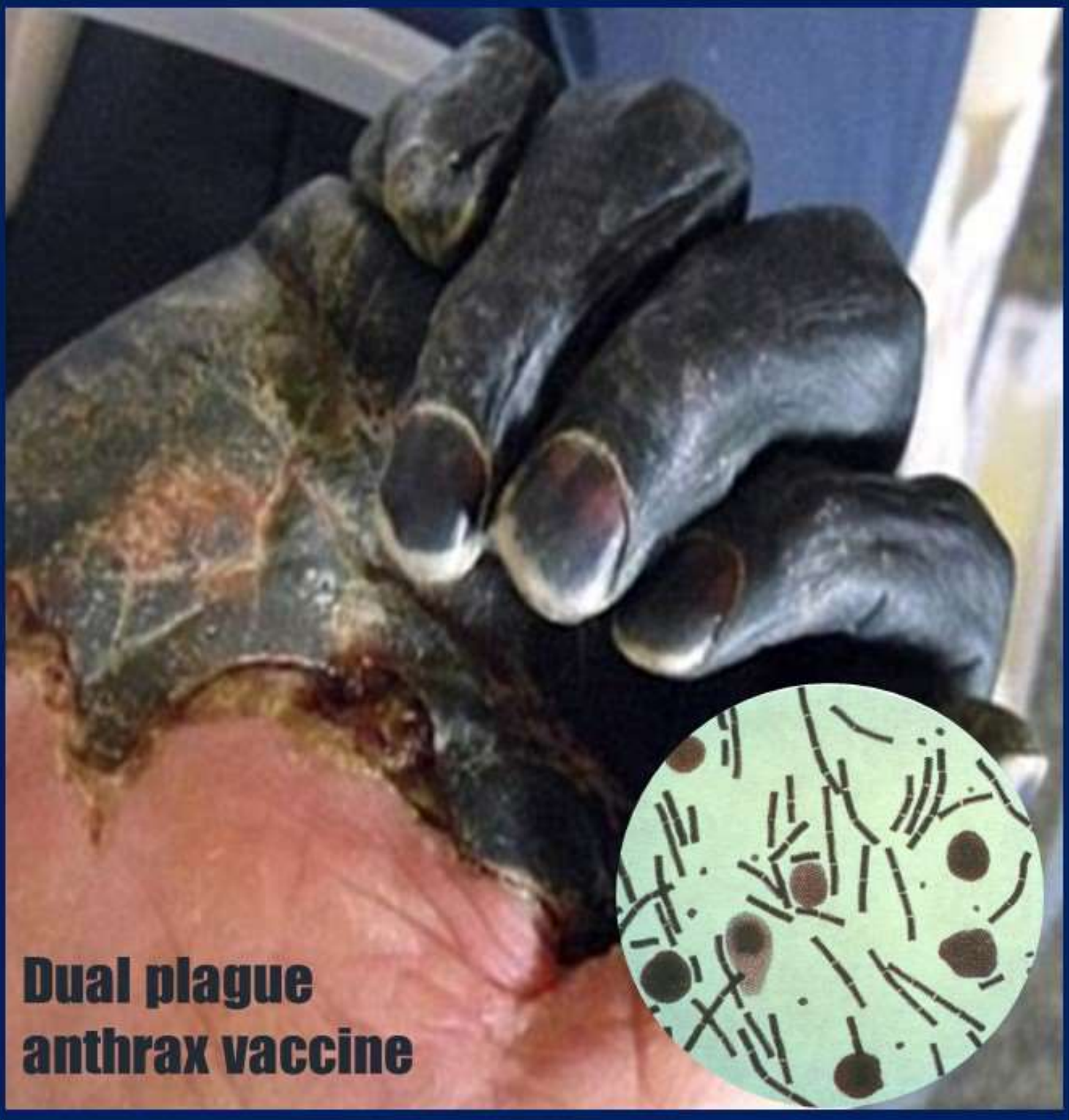
2 CBRNE DIARY

Dedicated to Global First Responders

October 2018



www.cbrne-terrorism-newsletter.com

CBRNE-Terrorism Newsletter – 2018©

October 2018

Website: www.cbrne-terrorism-newsletter.com

Editor-in-Chief

BrigGEN (ret) Ioannis Galatas MD, MA, MC (Army)
PhD cand
Consultant in Allergy & Clinical Immunology
Medical/Hospital CBRNE Planner & Instructor
Senior Asymmetric Threats Analyst
Manager, CBRN Knowledge Center @ International CBRNE Institute (BE)
Athens, **Greece**

➲ **Contact e-mail:** igalatas@yahoo.com

PUBLISHER

Mendor Editions S.A.

3 Selinountos Street
14231 Nea Ionia
Athens, Greece
Tel: +30 210 2723094/-5
Fax: +30 210 2723698

Contact e-mail: Valia Kalantzi info@mendor.gr

CBRNE-Terrorism Newsletter is:

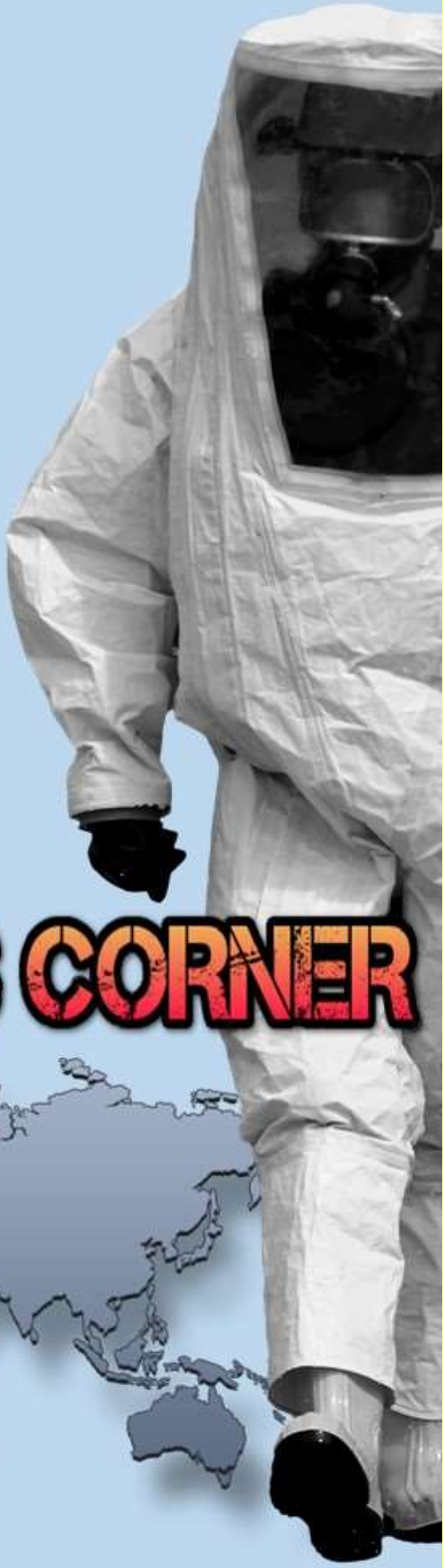
1. Read by First Responders in more than 80 countries around the globe;

2. Distributed to more than 700 institutions, organizations, state agencies, think tanks, defense companies, institutions and universities.

International CBRNE Institute

CBRNE-Terrorism Newsletter

C2BRNE DIARY



EDITOR'S CORNER

Editorial

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

Editor-in-Chief
C²BRNE Diary

Dear Colleagues,

Pretty good news this month!

- A new dual plague-anthrax spores vaccine will be added in the arsenal against biopathogens of Category "A".
- An innovative strategy for preventing the anthrax bacterium from absorbing iron, which is crucial for its survival opens up a new avenue of treatment for anthrax infections by effectively suppressing the spread of the bacterium in the patient's body.
- Quantum Internet is expected to make hacking a history.

But also some bad news:

- Two packages containing ricin were intercepted in US Pentagon.
- World Health Organiztion still in doubt about declaring an Ebola outbreak emergency in Congo.
- Japan is planning to releaze one million tons of radioactive waste into the Pacific Ocean mainly because there no more storage capabilities!

In addition to the above a study revealed that the children of mothers exposed to terror attacks during pregnancy are 2.5 times more likely to develop schizophrenia than mothers not exposed to terror during pregnancy.

Let us all hope for a quiet November with more good research news!

The Editor-in-Chief

New York City creates gender-neutral 'X' option for birth certificates

Source: https://www.reuters.com/article/us-usa-lgbt-new-york/new-york-city-creates-gender-neutral-x-option-for-birth-certificates-idUSKCN1MJ2OP

Oct 10 – People who were born in New York City and do not identify as male or female can now opt for a third gender category of X on their birth certificates.

Mayor Bill de Blasio signed the provision into a law on Tuesday, making New York City the fifth place to do so after California, Oregon, Washington state and New Jersey. Three states and Washington, D.C., also allow gender-neutral driver licenses.

Transgender advocates have been pressing governments to allow identity documents to be more easily changed to match gender identity. They say strict male and female categories are a form of discrimination against transgender people that labels them against their will.

The New York City law allows nonbinary and gender-nonconforming people to change their birth certificates from the M or F designation they were assigned at birth to X with a personal affidavit. No document from a doctor is required.

"This change may seem small but it is monumental," said Tanya Asapansa-Johnson Walker, a transgender activist who took part in the signing ceremony and spoke of the anxiety that goes with living with gender-mismatched identification.

"Imagine having to out yourself over and over and over again to strangers," Walker said. "Future generations will not have to suffer."

Among those participating in the ceremony was actor Asia Kate Dillon, a nonbinary person who plays one on the cable television series "Billions." Assigned female at birth, Dillon identifies as neither male nor female and uses they, them and their as pronouns.

The gender-neutral birth certificate follows a 2014 law that allowed transgender people in New York City to easily change the gender on their birth certificates from male to female or vice versa by removing the requirements of a legal name change and surgery. Now non-binary people can choose the third option.

The issue of what happens when another state does not recognize the X designation has yet to be tested in the courts.

To change passport gender, the U.S. government requires a physician to confirm the person has received clinical treatment for gender transition. So far there are only male or female designations on passports, but a U.S. District Court in Denver ruled in September that the State Department cannot deny a gender-neutral passport to an intersex person.

De Blasio said the law afforded New Yorkers the freedom to "tell the government who they are and not the other way around."

"Imagine if you were told you were something that you did not consider yourself to be," de Blasio said.

To transgender New Yorkers, he said, "You be you. Live your truth. And know that New York City will have your back."

EDITOR'S COMMENT:

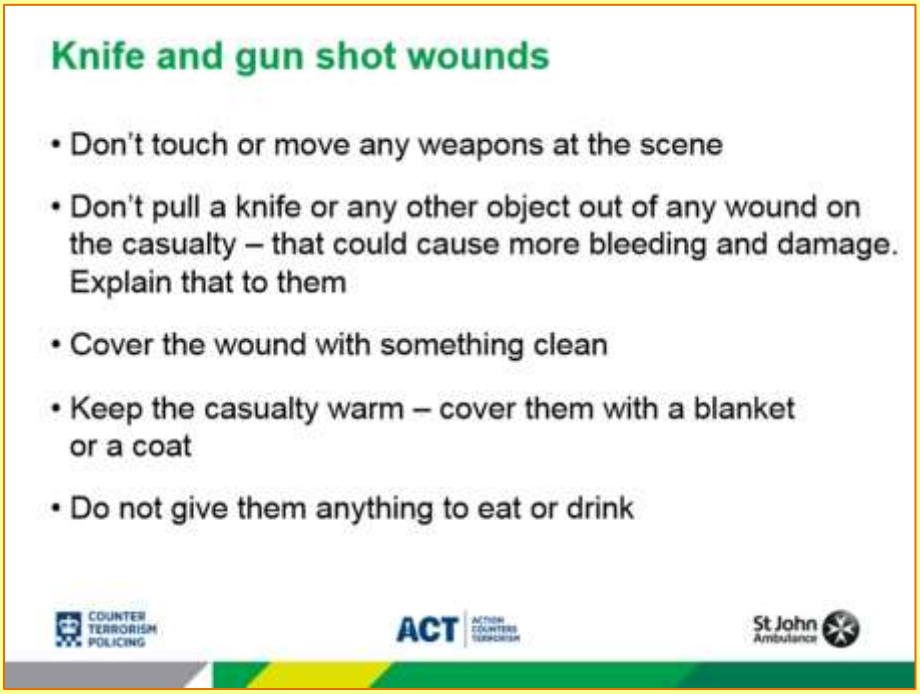
The box was intentionally left empty.

British public to be given knife, bomb and shooting first aid training for terror attacks

Source: https://www.independent.co.uk/news/uk/home-news/terror-attack-first-aid-training-shooting-knife-bomb-injuries-medical-emergency-a8547596.html

Sept 22 – Members of the public will be trained to treat victims of terror attacks in the aftermath of incidents, under a nationwide programme launched by the police, *The Independent* can reveal.

With security sources continuing to warn of an unprecedented threat, the first aid courses will focus on wounds caused by bombings, shootings and knife attacks.
Defence minister Tobias Ellwood, who attempted to save the life of the police officer killed in last year's Westminster attack, this week called for members of the public to "step forward" during incidents.
Police chiefs still want anyone caught up in terror attacks to run and hide from danger first, and stressed people are not being asked to put themselves at risk and should only help victims when they are already in a safe place.
A senior officer at the National Counter Terrorism Security Office (NaCTSO) said the training was not in response to any specific threat, but part of work to give "appropriate advice to every level of society".
Asked why the first aid courses are being launched, Superintendent Adam Thomson, the deputy national coordinator for protect and prepare strategies, told *The Independent*: "The primary reason we exist is to keep the public safe, either by putting in measures before, or after, attacks that will save lives.
"Run, Hide, Tell counters the greatest risk from the kind of attacks that intelligence indicates we could experience, and what we have experienced in the last 18 months.
"The next thing that saves life once you're safe, would be to use appropriate first aid."
Safety protocol for UK emergency services dictates that if there is a threat, only armed officers wearing protection would be able to enter the scene of a terror attack, meaning first aid knowledge among the public could become vital.



One of the slides from a first aid training presentation on terror attacks that is being rolled out by police (Action Counters Terrorism)

Fire service personnel did not arrive at the scene of the Manchester terror attack for more than two hours
In the immediate aftermath of the Manchester bombing, incorrect reports of a marauding gunman meant paramedics should not have been allowed to treat victims in the arena's foyer, but a police officer overrode official guidance.
Now, a first aid programme drawn up by St John's Ambulance has been adapted specifically for explosions, knife attacks, shootings, acid attacks and chemical incidents.
It includes instructions on how to move casualties and stem bleeding from wounds, and how to assess whether injured people are breathing or conscious.
People receiving the training will be shown how to prioritise who they help, and put anyone unconscious in the recovery position until the emergency services arrive.
Supt Thomson said St John Ambulance had "narrowed down the spectrum [of potential injuries] to the likely impact from a number of types of terror attack, and used the best application of first aid within each of the scenarios".
"We now have that product available, how we incorporate that into our campaigns is what we're working on now," he added.
"Our message is very clear – people need to be safe before they take any other action."
The training has been under development for several years, and follows similar teaching given to 11 to 16-year-olds in schools across the UK as part of the ACT for Youth programme.

For adults, the advice will be delivered alongside wider training on the terror threat that can be given by specialist counterterror security advisers, or internally by businesses and local authorities.
Firms targeted for the scheme will include those in charge of entertainment venues, symbolic buildings and other crowded places that have become "soft" targets for terrorists.
ACT's 190 security advisors have also been working with power plants, the UK's critical national infrastructure, hazardous sites and buildings containing dangerous substances that extremists could seek to use in atrocities.
The UK terror threat is set at the second-highest level of "severe", meaning further attacks are considered highly likely.
Since the Westminster attack in March 2017, security services have foiled 13 Islamist plots and four from the extreme right-wing, and two 15-year-old boys were arrested for allegedly planning a new far-right terror attack on Thursday.
The number of active terror investigations being carried out by specialist police and the security services has reached its highest level, currently standing at more than 650 probes, focusing on the "most dangerous individuals".
The emergency services protocol came into focus following the Manchester bombing, where initial reports of a gunman on the loose meant firefighters did not respond for two hours.

Terror drill on streets of London
A report into the response to the atrocity, which left 22 victims dead, found a police duty officer made the "life-or-death" decision to allow paramedics, police officers, security guards, arena staff and survivors to remain in the venue's foyer performing first aid, despite the official protocol stipulating they be evacuated from the "hot zone".
"It is the panel's belief, in terms of protecting saveable lives, that this was one of the most crucial decisions taken on the night," the report concluded.
Supt Thomson said: "The emergency services will always push as far forward as it's safe to do ... and they have established protocols to do that.

"Saving life includes not adding more casualties to a situation."
The senior officer was speaking days after Mr Ellwood suggested – while giving evidence to the Westminster attack inquests – that members of the public should "step forward" during atrocities.
The Conservative MP and former soldier, who attempted to save PC Keith Palmer's life, said: "I know the official advice is to step back, report it.
"I find myself countering that somewhat, because if more of us do step forward, as we saw in the Manchester attack, London Bridge and Westminster Bridge as well, the message gets through that no terrorist is going to win."
Supt Thomson said police will always urge people to move to a place of safety in the first instance, and are not changing the primary Run, Hide, Tell advice.
"But we would never criticise somebody who courageously chose to give first aid where they are uncertain of the circumstances, and they make a choice to do so to save someone else's life," he added.

EDITOR'S COMMENT: What a great idea – citizens should be actively involved in support of first responders. Two major points from this article: (1) active involvement of paramedics into SWAT operations – on site on-time medical interventions will surely save lives; and (2) this type of training should be incorporated into schools and universities' curricula in order the new generations will grow up together with this type of training – something like earthquake training.

Iron Beam

Company: Rafael Advanced Defense Systems (IL)
System: Guided high energy laser beam
Targets: Short range rockets, mortars, UAVs within 7km, in just 4-5 sec following detection
Capability: Autonomous or as part of an interception system
Cost per shot: Iron Dome = 70,000 USD; Patriot system = 2-3 mil USD; Iron Beam = **100 USD**.

EDITOR'S COMMENT: An ideal solution for the counless Greek islands in the Aegean Sea. With a system like this it would have been difficult for a mosquito to fly within.

Joke of month October 2018

Source: https://www.blick.ch/news/ausland/schicksalsfrage-fuer-mazedonien-ein-land-sucht-einen-neuen-namen-id8901369.html

Blick

Datenschutz Feedback Zürich 20° Suche Anmelden

Home News Sport Meinung Politik Wirtschaft People Leben Digital Auto VR Video Services

Schicksalsfrage für Mazedonien

Ein Land sucht einen neuen Namen

Am Sonntag stimmen die Mazedonier über einen neuen Namen für ihr Land ab. Mit «Nord-Mazedonien» soll Griechenland zufriedengestellt werden, das den Namen Mazedonien für seine nördliche Region beansprucht. BLICK beantwortet die wichtigsten Fragen.

1 / 5 Der Konflikt entflammte 1991. Der Name Mazedoniens sei griechischen Ursprungs, er werde bereits für den Norden Griechenlands verwendet. Die Griechen befürchten, dass ihre Nachbarn... Mehr lesen

EDITOR'S COMMENT: To the FYROM people and their shadow supporters on both sides of the ocean: "Molon Lave" (or "Come and take it"). You hear Stratagan, Gabara Strategies, and BBC? Conquer and divide might have worked in the past but not anymore. Soon when Scotland will say "goodbye" you will experience how mighty GB will become. It is also amazing how the neutral for centuries Swiss have an opinion about how other nations should be or become – just amazing! On the other hand, I really cannot comprehend how Greek gov is absorbing these continuous insults from (both) our northern neighbors without doing anything. Perhaps they need to read the "Revenge of the Melians" in order to set things straight! Mainly because everybody else have read it and follow its suggestions to the point. Enough is enough!

The Value of Knowledge & Training in Response Operations

By Anthony S. Mangeri

Source: https://www.domesticpreparedness.com/resilience/the-value-of-knowledge-training-in-response-operations/

Oct 10 – In today's emergency service professions, it is essential to master the core knowledge necessary to understand the research and emerging technology that guide incident response. To become truly prepared to respond, each emergency professional must take the time to develop the knowledge to manage the threat and initiate response operations. Training and education are critical in helping a responder master the competencies needed for response efforts.

To ensure that responders are well trained to address emergency needs, it is critical to start with a job task analysis, which can be a simple assessment of the skills necessary to complete the requirements of the position. Once the associated tasks are understood, a training officer can assess training needs and develop a training plan for each emergency response position. The task analysis takes into account the core knowledge and skills that the individual should have for proficiency. It also takes into account the tools, resources, and environment with which these skills are to be used.

Core Requirements

Once the tasks and competencies are defined, the training officer can determine the training needed to have consistent standards of care and service. The training needs analysis provides the training requirements for each position. It provides the pathway for achieving mastery for each role in emergency operations.

In addition to training, there is a need to have core knowledge. Education provides the core knowledge and theory to validate operational strategies. Natural sciences and math are the most basic of the core knowledge essential to understand evidence-based emergency operations. Today's incidents have grown increasingly complex. Foundational training may no longer be enough to help personnel adapt to these changes in emergency operations.

Emergency responders and emergency managers are now competing more than ever to fill leadership roles with educated and highly trained individuals. It is essential for those looking to advance through the ranks in emergency services – or to gain positions in emergency management – to build upon existing knowledge and skills through ongoing education and training. Although knowledge may make one a better person, certifications, credentials, and licenses can advance a career. This has never been truer than in the modern fire and emergency services.

Building Blocks for Mastery

Think of the traditional knowledge, skills, and abilities as the building blocks for validating competency and mastery as a responder. Knowledge is the theory to be learned in an educational environment, such as through courses at a university. Skills are the application of knowledge in a training environment, where one directly applies theories that were learned in an academic setting. Abilities are the demonstrated capabilities showing mastery application of knowledge and skills in multiple settings, which validate expertise.

Understanding the purpose and need for each building block makes it clear why it is so important to have each: education, training, and experience. Together, they help emergency service professionals validate their competency and expertise in dealing with emergencies and disasters in multiple settings.

There is no doubt that training and education play major roles in helping individuals prepare for and sustain careers in emergency operations. A fundamental understanding of science and math should be an essential component of every first responder's education. These subjects provide the core knowledge and theory to validate operational strategies.

Evidence-Based Emergency Operations

Evidence-based emergency operations require responders to understand the complexities of incident management and emergency operations. The importance of today's emergency responders

and managers completing their education is necessary not just to advance but also to maintain competency in innovative technology and complex incident management. Basic training may no longer be enough. Becoming ongoing students of the profession is the value of training. Training and education programs should be developed based on validated research. Knowledge and understanding of the basic sciences result in better situational awareness and improved risk awareness and avoidance.

An example can be found in how fires are fought today versus even just 10 years ago. The UL Residential Study demonstrates that fires today and in the future are and will be far different from just 50 years ago. They also are far more dangerous because of the increased use of engineered products and new building techniques. This underscores the importance of firefighters having better knowledge of science and math as they relate to building design and construction and fire dynamics.

Educated public safety members also provide an opportunity to "professionalize" the service. Having the proper education and knowledge simply increases the ability to provide service while adapting to an ever-changing threat profile in communities.

Education provides a tool for individuals to adapt to changing needs and enables them to take advantage of emerging opportunities for advancement, whether volunteer or career. Also, as a responder advances through the service, specific training and educational requirements change. New positions require training to ensure that leaders have the right knowledge, skills, and abilities to perform in their new roles, based on that job's task analysis and training needs assessment. There is no shortage of educational and training opportunities, and there certainly should not be a shortage of participants.

Anthony S. Mangeri, MPA, CEM, EMT, *is the director of strategic relations for fire services and emergency management and is on the faculty of the American Public University System. He has more than 30 years of experience in emergency management and public safety. During the terrorist attacks of 9/11, he served as operations chief at the New Jersey Emergency Operations Center, coordinating that state's response to the passenger-aircraft crashes into the World Trade Center. He has been a volunteer firefighter and emergency medical technician for more than 30 years. He earned the rank of assistant chief-safety officer, serving as the fire department's health and safety officer for three years. He earned a Master of Public Administration from Rutgers University. He is a Certified Public Manager and has received the designation of Certified Emergency Manager. In addition, he has completed a Fellowship in Public Health Leadership Initiative for Emergency Response sponsored by the Center for Public Health Preparedness. He also is vice-chair of the ASIS Fire & Life Safety Council and was recently elected president of IAEM Region.*

Meet the Drone That Can Carry a Passenger

Source [video]: https://i-hls.com/archives/85790

Oct 04 – A Philippine inventor flew and hovered for some 10 minutes in a single-passenger contraption powered by the "multicopter" technology commonly used in small unmanned drones. Former dancer and camera operator Kyxz Mendiola has unveiled what he calls a flying sports car that represents the future of transport.

Mendiola's vehicle, which he calls **"Koncepto Milenya", can fly as high as 6.1 m (20 ft) and speed up to 60 kph (37 mph). According to international news agencies, the machine, which can carry up to 100 kg (220 lbs),** could shave hours off trips in cities like the capital, Manila, crippled by chronic traffic problem.

The inventor said the single-seater aircraft is powered by six lithium-ion batteries and it is steered by the passenger using a portable radio frequency controller. "When we have to go somewhere about an hour's drive, this can take you there in five minutes," he said.

An added safety feature is that the craft's 16 rotary motors allow it to keep flying, even if one or two fail, he added.
An Australian company, Star8, is partnering with Mendiola to develop the vehicle after a video featuring it went viral on social media. Star8's Chief Executive Jacob Maimon said he wanted to mass produce it and market it in Australia, Europe and Hong Kong, after helping Mendiola perfect the machine.

Qatar calls for intensifying efforts to prevent conflicts

Source: https://www.gulf-times.com/story/609273/Qatar-calls-for-intensifying-efforts-to-prevent-co

Oct 13 – The State of Qatar stressed yesterday that tangible progress in establishing peace and security requires serious co-operation and commitment in light of the increasing conflicts and crises that threaten international peace and security, calling for intensified efforts to prevent and resolve conflicts and crises and abide by international law through the implementation of international conventions on disarmament and proliferation of weapons, including those related to nuclear, chemical and biological weapons. This came in the statement during the meeting of the second committee of the 73rd UN General Assembly, read out by Second Secretary of Qatar's Permanent Mission of the State of Qatar to the United Nations, Talal bin Rashid al-Khalifa.
The meeting was a general discussion on the disarmament and proliferation of weapons and maintaining international security.
Al-Khalifa stressed Qatar's commitment to disarmament, as part of being a partner in the international efforts to achieve international peace and security and as part of its efforts to ensure the success of the committee.
He noted that it was a cause for concern that the continuation of these crises and armed conflicts was closely linked to the proliferation and use of weapons by the conflicting groups.
He added that the threat of the use of conventional weapons was not limited to armed conflicts, but had evolved into an increase in the use of chemical weapons and the threat of using nuclear weapons. Eliminating such dangers requires strong international co-operation in that regard, he added. The Qatari official stressed that the security and prosperity of societies is a top priority for the international community, adding achieving this goal is dependent on the elimination of the current tensions in the world, noting that this in turn requires actors at the international level to engage in a dialogue on all issues concerning nuclear weapons, and other issues that threaten security and stability.
Al-Khalifa said that Qatar believes in the importance of prevention when it came to crises, as in investing in that can save many human and financial resources that are being spent on weapons at a time of increasing tensions.
He said that in spite of the positive results achieved in disarmament and its impact on peace, security and stability in many regions of the world, the Middle East still lacks security and stability, expressing the deep concern of the delegation of Qatar at the lack of significant

progress towards the Middle East nuclear disarmament, the failure to implement the commitments resulting from the 1995 Review and Extension Conference and the steps taken at the 2000 Review and Extension Conference and the 2010 Plan of Action, as well as the failure of the 2015 NPT Review Conference.

Al-Khalifa said that the security of electronic information and cybersecurity is a great challenge for the international community, pointing out that the world witnessed serious violations of the electronic systems of many countries and private institutions in recent years.

He added given the risks posed by the rise of cybercrime and the urgent need to provide cybersecurity to countries and individuals, the organisation of dealing with them is very important to prevent such crimes and to benefit from the scientific progress in information, and it is the responsibility of Qatar and its commitment to international co-operation in the face of common challenges Qatar has announced its readiness to host an international conference on ways to regulate cybersecurity under the provisions of international law.

He stressed that Qatar was keen to adopt a firm policy on disarmament and non-proliferation issues based on its firm belief that the achievement of international peace and security was the common responsibility of member-states, and that the multilateral framework was the only way to deal with disarmament and non-proliferation and international security issues in general, and to get rid of weapons of mass destruction in general and nuclear weapons in particular.

He reiterated Qatar's commitment to implement all the obligations resulting from its accession to international conventions in the area of disarmament, stressing that National Committee for the Prohibition of Weapons, which was established in 2004, continues to advise the competent governmental bodies in all matters related to arms embargoes in order to achieve the objectives contained in the relevant international conventions to which Qatar has acceded and Doha Regional Centre for Training on the Conventions on Weapons of Mass Destruction, established in 2012 in co-operation with the Organisation for the Prohibition of Chemical Weapons (OPCW), is also providing training services at national, regional and international levels on WMD related conventions.

Al-Khalifa concluded by saying that achieving security and stability in the world is a shared responsibility, and this goal will be achieved only by the fulfilment by all states of their obligations towards disarmament, in particular with regard to nuclear weapons and all other weapons of mass destruction.

A New Route From Asia to Europe

Source: https://geopoliticalfutures.com/wp-content/uploads/2018/10/arctic_shipping_infograph.png

Last month, Maersk, one of the world's largest logistics firms, sailed a cargo ship from Asia to Europe through a route north of Russia for the first time. The melting Arctic ice has opened up new possibilities for the shipping industry.

UN: Links Between Organized Crime and Terrorism are Increasing, Lines Becoming Blurred

By Kylie Bull

Source: https://www.hstoday.us/subject-matter-areas/counterterrorism/un-links-between-organized-crime-and-terrorism-are-increasing-lines-becoming-blurred/

Oct 14 – Terror groups are getting increasingly-involved in "lucrative" criminal activities such as trading in natural resources and human trafficking, Michèle Coninsx, the executive director of the UN Counter-Terrorism Committee Executive Directorate (CTED), told a Security Council briefing on Oct. 8.

Similarly, criminal groups join hands with terrorists, and are providing services such as counterfeiting, arms dealing, and helping to smuggle terrorists from one country to another, she said.

"We know that terrorist groups recruit individuals with criminal background or criminal skills, and petty crimes are committed to finance terrorist activities, including travel of foreign terrorist fighters," explained Coninsx, noting that conflicts and instability further entrench such deal-making.

Coninsx urged the international community to strengthen cooperation in the fight against terrorism and its support structures, especially to identify new terrorist trends, map links between terrorists and criminal groups, and share information more effectively.

At the briefing, Gustavo Meza-Cuadra Velásquez, the chairman of the UN Counter-Terrorism Committee, said that the nexus between terrorism and international crime syndicates has been high on the agenda of the Security Council as well as the General Assembly for a long time. Velásquez, also the permanent representative of Peru to the UN, highlighted the importance of international instruments – in particular, the UN Convention against Transnational Organized Crime and its supplementary protocols and Security Council resolutions – for countries to disrupt criminal and terrorist groups.

In that context, he reiterated that development of an effective response to the growing nexus between terror and crime should remain one of the highest priorities during his leadership of the committee.

Laura Adal, a senior analyst at the Global Initiative against Transnational Organized Crime, said that the use of violence and threats of violence employed by both terrorists and criminal groups tends to "blur the lines" between the two.

While dynamics of individual groups are unique and highly localized, both criminal and terrorist groups contribute to instability and undermine governance, and both rely on the "strategic" use of violence, said Adal.

Responding to the crime-terror nexus must take into account their propensity toward violence and intimidation, she said, calling for greater efforts to strengthen rule of law, democratic governance and development.

Organized crime is increasingly undermining peace, security and development. It has become a global phenomenon, represented in a confluence of conflicts from Africa, to the Middle East and the Americas, and showing a distinct linkage to the response to international terrorism.

Last month, HSToday reported the funding totals and sources for the seven main extremist groups of insurgents and terrorists. The combined funding totals about $1 billion to $1.39 billion a year.

The European Union is strengthening its capacity to fight the financing of terrorism and organized crime. The European Parliament already approved tighter rules against money laundering and cash flows in September, and on Oct. 4 it adopted new rules to help countries fight organized crime and terrorism.

The new rules will make it quicker and simpler for EU member states to ask each other to freeze criminal assets or confiscate criminal property. Depriving criminals of their assets is an important tool for fighting organized crime and terrorism. However, according to a 2016 Europol study, currently only an estimated 1.1 percent of criminal profits are confiscated in the EU.

Under the new rules, an EU country that receives a confiscation order from another EU country will have 45 days to execute the order; cross-border freezing orders have to be executed with the same speed and priority as national ones. Authorities will have four days to freeze the assets if the freezing request is urgent.
Where requested, EU countries will be able to confiscate assets from other people connected to the criminal and they can also act in cases where there is no conviction, such as if the suspect has fled. Standard certificates and forms will be also be introduced to ensure that EU countries act faster and communicate more efficiently.
The new rules still require the formal approval of the European Council. They will apply 24 months after their entry into force.

Kylie Bull *has 20 years' experience in reporting and editing a wide range of security topics, covering geopolitical and policy analysis to international and country-specific trends and events. She is an editor and contributor for Jane's by IHS Markit, a columnist for security and counter-terror publications, and a former managing editor for Homeland Security Today.*

Fuller picture of the human cost from terrorist attacks

Source: http://www.homelandsecuritynewswire.com/dr20181016-fuller-picture-of-the-human-cost-from-terrorist-attacks

Oct 16 – Terrorist attacks injure far more people than they kill, leaving victims with lost limbs, hearing loss, respiratory disease, depression and other issues. But little research has measured the impact of that damage beyond the number of people who are hurt.
New research from The University of Texas at Dallas provides a more complete picture of the suffering caused by terrorist attacks. The study, published in the journal *Public Choice*, estimates the number of years of healthy life — years free of the injuries or disabilities caused by terrorist attacks — that victims lost due to injuries.
The study was led by Dr. Daniel G. Arce, Ashbel Smith Professor and program head of economics in the School of Economic, Political and Policy Sciences.
"By examining terrorism through the lens of deaths and injuries, we can better understand the devastating impact terrorist attacks have on survivors," said Arce, who specializes in terrorism and conflict. "This information can help us determine the most effective way to spend our limited resources to confront terrorism."
UTDallas note that an average of 8,338 people died and 10,785 people were injured every year in domestic and international terrorist attacks between 1970 and 2016, according to an international terrorism database that Arce used for his analysis.
Arce analyzed the percentage of attacks that were bombings, mass shootings, intentional vehicular assaults or other types of attacks. He also examined the distributions and types of injuries based on hospital admissions.
Using that data, Arce applied a methodology developed by the World Bank and World Health Organization to rank major diseases in terms of lives lost. The methodology allowed him to use one metric to estimate the overall impact of terrorism from deaths plus losses from injuries.
When including the number of healthy years of life that victims lost, Arce's study puts the annual toll at 12,628 years of life lost to terrorism.
The formula assigns different values to reflect the impact of various types of injuries on victims. For example, an individual with profound hearing loss experiences 77 percent of optimal health, while a person with major depressive disorder experiences 35 percent.
When possible, Arce also calculated the years of life lost by those who died in the Oklahoma City bombing in 1995, the Norway mass shootings in 2011 and vehicular assaults in Israel. Data was not available to apply the same analysis to victims in other attacks.
One of the goals of the research was to help decision-makers put the human consequences of terrorism in context when compared to the burden of diseases. The study compared the

number of healthy years of life lost due to terrorism to that of various diseases and other causes of death. Heart disease was the top cause of death and years of healthy life lost. By contrast, terrorism ranked in the bottom 10 percent of the list, highlighting the low probability of someone becoming a victim of an attack.

"You want to put these things in context so people fear terrorism less," Arce said.

The research also can help emergency rooms better prepare for the types of likely injuries in the aftermath of different attacks, Arce said. His analysis includes findings about the types of injuries caused by different types of attacks.

"In an emergency situation, you have to know what to be prepared for," Arce said. "The answer is, it depends."

The Opioid Crisis & Its Impact on Public Safety

By Catherine L. Feinman

Source: https://www.domesticpreparedness.com/commentary/the-opioid-crisis-its-impact-on-public-safety/

Oct 17 – The United States is in the midst of an epidemic of addiction to opioids and fentanyl. On 18 September 2018, DomPrep hosted a roundtable discussion at MedStar NRH Rehabilitation Network in Washington, DC, to discuss this threat. The three-hour conversation led by Craig DeAtley, PA-C, emergency manager for MedStar System, examined the extent of the problem, including the harmful risks to operational responders – people who are in physical contact with people as part of their daily work – from fentanyl/opioid exposure. Key discussion points summarized in this article included: impacts on public safety, data collection, best practices, personnel protection, and whole community collaboration.

According to the Centers for Disease Control and Prevention, overdose deaths in the United States totaled more than 72,000 in 2017, with almost 30,000 of these deaths being attributed to fentanyl and fentanyl analogs (synthetic opioids). This statistic is almost 10,000 more deaths than in 2016 and more than three times higher than in 2002. Despite the significant number of deaths, the impact of the opioid crisis is far greater in volume than confirmed data reflect. The data sometimes differ between jurisdictions because the primary and secondary causes of death are recorded differently – for example, a responder may describe the cause in the narrative portion of a patient care report rather than using a more traceable drop down menu. Other discrepancies between jurisdictions may occur because of difficulty in navigating the data-sharing process.

In addition to fatalities, there are even larger numbers of nonfatal overdoses each year. With a crisis that is stigmatized, the "court of public opinion" judges government agencies based on these statistics and numbers of deaths. This then leads to policies being created more to calm public concern than solve the problem.

Methodology

Knowing what data to collect and how to use that data constructively is necessary but challenging. One significant barrier for policymakers in obtaining a complete picture of the crisis is the reporting within disciplinary siloes. Each agency has its own objectives and agendas, so these internal priorities drive decisions about which data are gathered. For example, effectiveness of law enforcement is often ranked based on homicides and violent crime rates. This draws the focus in the law enforcement arena away from drug-related deaths, with limited resources available for nonviolent drug offenses. In addition, the opioid crisis has had a different impact on rural versus urban environments as well.

To create a dashboard, Maryland government collects three levels of data – real-time data, impact indicators, and research data. However, the process is not simple. Each agency has a responsibility to their agency's perspective, but the totality of data and solutions cannot be found within any single agency. To better identify and interpret data, multidiscipline perspectives and discussions are required to solve complex problems.

Organizations such as the Police Executive Research Forum (PERF) also provide strong national leadership, necessary public debate, as well as valuable research and policy

development for critical issues and concerns related to law enforcement. However, law enforcement topics certainly go well beyond the scope of law enforcement agencies.

Multidiscipline discussions like the DomPrep roundtable expose gaps that otherwise may go unrecognized when only addressed within disciplinary or jurisdictional siloes. The opioid crisis is just one example. At the federal level, one participant stated that government facilities experience minimal narcotic-related problems. As a result, those tasked with protecting those facilities may not consider opioids a significant threat within their daily operations. However, their counterparts at the local level have different firsthand experiences. Federal agencies see a snapshot of the problem, but do not see the daily overdoses at the street level. For example, SWAT teams and canine officers who enter scenes are at greater risk for exposure to dangerous substances, so education about such risks is particularly important for them.

From a laboratory perspective, only a portion of the drugs being confiscated are actually tested, but forensics are looking to expand surveillance on drugs beyond those that have prosecutions associated with them. However, testing can take up to 45 days depending on the priority of each test. With drugs such as synthetic cannabinoids (K2/Spice) competing with other testing concerns, comprehensive and field testing by trained responders is not generally yet available.

From an emergency department (ED) perspective, prescription drug monitoring programs help ensure that prescribed drugs are available to ED personnel. The "gold standard" in emergency care keeps prescriptions to three days or less to minimize abuse and shift the culture away from opioid overuse. In some Washington, DC, hospitals, high-risk patients (those who have overdosed in the past) are offered a naloxone-dispensing program and a video of how to use it. However, many hospitals across the country do not have funding for such programs.

Homeless and transient populations present exposure threats that law enforcement officers may not consider when focusing on dangers associated with criminal violent activity. Despite interagency discussion groups being formed, more action is needed following these discussions. Talking about policy and analysis is great, but to fix the problem, individual people must be considered – for example, where they are located, where they are getting their sources, and which conditions are prevalent. Discussions need to be turned into actionable data, with widespread multi-disciplinary efforts being sustained in order to have a significant impact.

Data simply for the sake of data does not solve the crisis. The federal government has a National Response Framework, but does not adequately coordinate federal efforts. A key problem is operational coordination, knowing where funding and resources are. For example, when the federal government simply shuts down a drug-dispensing facility without considering the consequences, thousands of patients receiving medication are suddenly affected. In such cases, the solution is often to simply spend more money. However, there needs to be clear coordinated plans and operations.

Best Practices

To develop best practices, jurisdictions must understand how to interpret the data collected and consider data that may be missing. Pertinent data must identify the different elements of the problem, addressing the front end of dealing and using as well as the back end of treatment and recovery. Roundtable participants described different ways in which the following four jurisdictions manage the opioid crisis within their areas.

In Massachusetts, agencies focus on the opioid dealers rather than the end users. One program employs station lock boxes for residents to dispose their medications safely. Another program involves street interdiction of suspected abusers to get them into programs and work with hospitals to follow up with those released. The programs resulted in dramatic reductions in repeat offenders.

In Maryland, opioid prescriptions are down because of programs to minimize over-prescribing. State agencies offer workshops, which are similar to TedTalks, through Project Purple. These workshops are collaborative with operational personnel around the state. In addition, county correctional facilities have treatment programs to help integrate incarcerated people back into society.

In Washington, DC, some hospitals are implementing a pilot program with two phases: (1) a screening, prevention, and referral program; and (2) enrollment in clinics and programs. One concern that is currently being addressed, though, is the need for more facilities and resources to handle the expected volume of referrals and enrollments. DC shelters, which used to have a low tolerance for drugs within their walls, have needed to shift to address inevitable concerns as the opioid crisis expanded. Shelters now are equipped with naloxone kits.

Seattle, Washington, is planning to implement a controversial plan for "supervised injection sites," where drug users can inject illicit drugs under the watch of nurses equipped with naloxone. The argument for such spaces is to allow people to take drugs in a safer more hygienic area than on the streets. The argument against such spaces is that it will only enable users and exacerbate the problem. Whether this becomes a best practice or a practice that compounds the problem is yet to be seen.

Protecting Personnel

Various steps are being taken to protect personnel in law enforcement and beyond. However, some protection efforts may hinder investigations. For example, to prosecute many cases, testing must be performed in the field, which offers less protection to officers than testing in laboratories equipped with additional safeguards. Some agencies are re-ranking their protocols, having their officers not touch substances at all before sending them to laboratories, but others still handle testing them in the field. Agencies are working on determining how to handle probable cause without field-testing methods. To ensure safety, some agencies train their officers to the hazmat operations level and issue personal protective equipment (PPE) such as goggles, gloves, and masks. However, protective security officers who are contracted may have different protective measures when they are responsible for their own PPE. For all responders, education is needed for learning how to react and handle situations. The law enforcement environment is dynamic, so personnel in an active scenario may not have the time to put on the proper PPE before engaging with potential threats. Despite a recent spike in carfentanyl and the current emerging problem of K2, some law enforcement chiefs do not think providing their officers with naloxone is necessary. However, others see the benefits of such distribution for officer safety reasons and because officers are often the first on scene before emergency medical units. For example, Virginia's Revive! program addresses the public safety issue and factors for law enforcement using the antidote.

Naloxone & Burden on Responders

The use of naloxone to address the opioid crisis is still evolving. Some EMS agencies have reduced the use of naloxone by titrating to maintain adequate respirations, but not necessarily to wake up patients. However, without being able to provide statistics depicting who would have died without naloxone administration, it may be difficult for agencies to justify keeping the opiate antidote in stock. Some people question whether agencies are actually doing something or are keeping it on hand more for show. The Commonwealth of Virginia, though, attributes naloxone as a key variable in saving more than 26,000 lives.

Even with reductions in some areas, numerous calls for overdoses – including repeat calls to the same patients – has negative mental health effects on responders, which can lead to "compassion fatigue." When burnout occurs, responders may lose some quality control or may treat patients based on assumptions. In addition, the psychological wear and tear could lead to response personnel abusing drugs encountered during operations – for example, EMS medications and law enforcement confiscations. It is critical to recognize the potential problem to put a system in place to combat drug and alcohol use of responders who are heading toward trouble, which in turn could lead to increases in workplace violence. Treatment after a crisis should not be optional, as counseling saves lives following traumatic stress. However, keep in mind that simply treating symptoms does not address the disease.

The Value of Working Across Disciplines

The opioid crisis is too large for any one agency or organization to tackle alone, especially considering that fire, EMS, law enforcement, and other service-based professions are declining. Although politics and funding are common obstacles, the need to take action is high. The stigma of this topic is also high, so buy-in is needed from investors and educators.

Messaging must also be consistent to avoid confusion, especially for vulnerable populations such as children.
Even many suggestions for addressing the crisis do not address the underlying problem – for example, the concept of supervised injection sites remains controversial. In other cases, some people simply do not want help and treatment. Needle exchange programs have reduced hepatitis cases, but do not address the problem. Those inflicted with drug addiction may not feel comfortable having frank discussions with law enforcement officers, but breakthroughs could be made with health personnel under HIPPA guideline protections.
Open communication is key. In some jurisdictions, law enforcement is shifting to programs that help in ways other than arrest, which in turn build trust in law enforcement agencies. By identifying obstacles and implementing best practices, communities can better address networked problems, such as the opioid crisis. Lessons learned from other networked issues could also be applied.
There is a significant need to break down the disciplinary walls because there are too many different communities affected. Without national direction and leadership, service levels vary from community to community. For example, some jails and correctional facilities offer addiction and recovery services during incarceration, whereas others have made no advancement in this effort. With no single agency oversight, more challenges and vulnerabilities are created. For example, the same government agencies that say they want to help those affected by addiction refuse to hire these people. Thus, they remain stigmatized. The disease of addiction leads to criminal records, which lead to the inability to obtain jobs. The problem is self-perpetuating.
In addition to breaking down disciplinary walls, hierarchical walls need to be understood. Historically, the local role is to design and execute, the state role is to manage, and the federal role is to support. Unrealistic expectations that contradict these roles are catalysts for failure.
Media outlets plays another big role in the stigma surrounding drug addiction. Reports focus more on situations rather than circumstances. They have to be integral partners to report accurately on the problems as well as the successes. Also, police departments should communicate with media to promote community-policing suggestions and collectively address problems. The "us versus them" approach is counterproductive.

Network of Communities Affected by the Opioid Crisis		
Faith-based community	Emergency medical services	Fire/rescue services
Nonprofit organizations	Laboratories	Hospitals
Public health agencies	Media outlets	Legislators
Facilitators	Department of corrections	Private sector
Businesses	Emergency managers	Addiction centers
Recovering addicts	Celebrities	Lawyers
Pharmaceutical companies	Schools	Behavioral services
Local law enforcement agencies	State law enforcement agencies	Federal law enforcement agencies

Legislators and emergency managers are well positioned, yet not necessarily motivated, to drive situational awareness. Legislators could introduce global programs such as drug awareness in schools K-12. In fact, the U.S. Department of Health and Human Services developed a "5-Point Strategy To Combat the Opioid Crisis" and the Senate just passed the "Opioid Crisis Response Act of 2018" with high expectations. Emergency managers could serve as coordinators and facilitators, albeit some have argued that they should not be involved.
Hospitals and other receiving facilities balance many complex decisions. Most addiction issues have a primary need for behavioral health. However, behavioral health units in hospitals have limited beds and staff. In-patient rehabilitation facilities are plagued with long

waitlists. Other empty hospital beds often do not have the psychiatric and behavioral services required to assist these types of patients. In addition, there is a growing need for psychiatry and behavioral health professions, but the supply is not meeting the demand.

Key Recommendations

The nation cannot afford to ignore this problem. When people come together to examine data in a meaningful way, a solution(s) can be found. The opioid crisis needs to be a high priority for a number of professions (not just one) and requires funding to support commonly agreed upon solutions. With more than 100,000 American fatalities from drug abuse over the past few years, the problem is even bigger than many people realize. To address the problem, data needs to be connected with actionable solutions. The 14 subject matter experts at the September 18 roundtable discussion leave DomPrep readers with the following recommendations (in no particular order):

- Be more inclusive in community problem-solving discussions. Invite members from all the categories listed in Figure 1.
- Consider a spending shift. Rather than spending significant amounts of money on the cure, start investing in prevention.
- Recognize demographic changes. Problems that were traditionally found in urban settings have shifted to rural and suburban spaces.
- Mitigate responder addictions. Agencies need to inventory and monitor EMS control medications and ensure that all LE confiscations are being reported.
- Address circumstances without glorifying them. Increase awareness of the problem by being transparent and staying focused on moving toward a solution.
- Coordinate between correctional institutions and addiction centers. Through education and addiction counseling, programs can be created to reduce recidivism.
- Define community service boards' role in solving the opioid crisis. Community stakeholders need to recognize and invest their time and resources into it.
- Establish more out-patient services and treatment programs. Treatment and rehabilitation services reduce the need for more costly in-patient care.
- Create opioid intervention teams. Actions should be taken when warning signs appear, before a person is in crisis.
- Examine data from both police and EMS 911 calls. Research and studies could help identify vulnerable populations that would benefit from targeted efforts.
- Recruit recovering addicts or addicts who have not yet recovered into the planning response.
- Include champions of the cause, such as celebrities, to inspire the program and publicly promote it.
- Structure the mental and behavioral health role. Clinics, personnel, and funding are all required to support these services.
- The opioid crisis is a slow-rolling disaster that has been building for years. As one roundtable participant said, "The only difference between a public health emergency and a disaster is time." The time to act is overdue, but it is not too late to reverse course. Lives depend on integrated, networked action by all community stakeholders. The recommendations shared by subject matter experts during the September roundtable discussion will help focus community resources and efforts on mitigating the opioid crisis rather than simply responding to it.

DomPrep would like to thank FLIR for sponsoring the 18 September 2018 roundtable discussion in Washington, DC, and MedStar NRH Rehabilitation Network for hosting the event. A special thanks also goes to Craig DeAtley, PA-C, and to all those who participated in the discussion, upon which this white paper is based. The following disciplines participated at the roundtable: hospital emergency room, fire and EMS, homeless services, local and federal law enforcement, forensic sciences, governors office Department of Homeland Security, emergency management, and the private sector. The participants who contributed to this important discussion include but are not limited to the following:

- ✓ *Craig DeAtley,* PA-C, Emergency Manager, MedStar System
- ✓ *Myra Derbyshire,* Project Coordinator, Opioid Operational Command Center (OOCC)
- ✓ *Jessica Milke,* Science & Technology Manager, FLIR Detection Inc.

- ✓ *Sue Snider,* Director of Consulting Services, G&H International Services, Inc., and former Executive Director, Northern Virginia Hospital Alliance
- ✓ *Clay Stamp,* Executive Director, Opioid Operational Command Center (OOCC), Senior Emergency Management Advisor to the Governor, Chair of the Governor's Emergency Management Advisory Council
- ✓ *Lauren Wiesner,* MD, Director of Emergency Preparedness, Attending Emergency Physician, MedStar Washington Hospital Center

Catherine L. Feinman, *M.A., joined Team DomPrep in January 2010. She has more than 30 years of publishing experience and currently serves as editor-in-chief of the DomPrep ournal, and the DPJ Weekly Brief. She is an emergency medical technician (EMT) for Hart to Heart Ambulance Transportation. She also volunteers as an EMT/firefighter in Anne Arundel County, Maryland. She is a member of the Media Advisory Panel of EMP SIG (InfraGard National Members Alliance's Electro-Magnetic Pulse Special Interest Group). She received a bachelor's degree in international business from University of Maryland, College Park, and a master's degree in emergency and disaster management from American Military University.*

The problem with using 'super recognizers' to spot criminals in a crowd

By Emma Portch

Source: http://www.homelandsecuritynewswire.com/dr20181019-the-problem-with-using-super-recognizers-to-spot-criminals-in-a-crowd

Oct 19 – People often say that they never forget a face, but for some people, this claim might actually be true. So-called super recognizers are said to possess exceptional face recognition abilities, often remembering the faces of those they have only briefly encountered or haven't seen for many years. Their unique skills have even caught the attention of policing and security organizations, who have begun using super recognizers to match photographs of suspects or missing persons to blurry CCTV footage.

But recent research conducted at Bournemouth University shows that the methods used to identify super recognizers are limited, and that the people recruited for this work might not always be as super as initially thought.

Identifications made by super recognizers can't be used as evidence in court, but can help police early on in the investigative process. Super recognizers can also help revive cold cases by viewing archival footage to identify possible repeat offenders who were present around known crime scenes.

The people who come forward as possible super recognizers do so because they believe they have a knack for remembering faces. However, research suggests people aren't very well equipped to judge their skill in this area and often aren't as good at identification as they think they are.

Volunteers' claims are usually validated using a computer-based test of face memory. This test usually involves memorizing and then recalling a set of unfamiliar faces. But it seems unlikely that we can draw firm conclusions about a person's face recognition ability on the basis of a single test. Poor performance could reflect fatigue, illness or poor motivation, and good performance may simply arise through chance.

Multiple tests needed

Based on these limitations, my colleagues at Bournemouth University have attempted to devise a rigorous way to identify super recognizers. To do this, they put 200 self-selected participants through a series of face recognition tests to try to assess which combination of tasks were important for identifying the most consistent face-recognizers.

The researchers found that, to get a reliable result, any test should assess several elements of face recognition ability and in multiple ways. For example, some participants displayed only average performance on face memory tests but excelled in face-matching tasks. These involved deciding whether a pair of faces depicted the same person (this seemingly simple task is actually deceptively difficult to perform).

Similarly, some participants fared well in the standard computer-based memory test but not a newer test involving memorizing and recalling very different images of the same face with different angles, lighting and facial expressions. Others did well in the new test but not the standard one, while the most consistent performers did well in both. This suggests using a single measure of face recognition ability might show participants to be better or worse than they really are. Multiple tests provide a more reliable estimate of ability.
These findings support the argument that current simple tests may identify some people as super recognizers who aren't actually all that good at facial recognition, and miss other better performers. The results also make the case for matching super recognizers to different tasks depending on their strengths. For example, people with strong face-matching abilities would be better at matching suspects or missing persons across different photographic or video examples. Those with strong face memory skills would be better at selecting potential repeat offenders from lots of archival images.
Research is now taking place as a collaboration between academics and law enforcement in the hope of producing more rigorous and diverse ways to identify super recognisers and match them to the most suitable tasks. Collaborative efforts will ensure that this so far uniquely human skill is put to best use.

Emma Portch *is Lecturer in Psychology, Bournemouth University.*

The Counter Terrorist

The Homeland Security Professionals Journal
October / November 2018

Source:https://issuu.com/sbradman/docs/ctmag_octnov18final?mc_cid=26e378cca5&mc_eid=98b026d505

No more fog of war: Predicting patterns of violence within wars and terrorism

Source: http://www.homelandsecuritynewswire.com/dr20181023-no-more-fog-of-war-predicting-patterns-of-violence-within-wars-and-terrorism

Oct 23 – A new paper written by academics at Royal Holloway and George Washington University, predicts reliable patterns in violent events occurring within wars and terrorism, regardless of geography, ethnicity and religion.
The paper, "Fundamental patterns and predictions of event-size distributions in modern wars and terrorist campaigns," published by *PLOS ONE*, is by Royal Holloway's Professor Michael Spagat, independent researcher, Stijn van Weezel and Neil F. Johnson from George Washington University.
The paper examines 273 armed conflicts and 60 terrorist campaigns with the goal of gaining greater understanding of the ways humans fight with each other.
Royal Holloways says that the team can predict with reasonably accuracy the mixtures of events of different sizes, for example, the number of events killing 10 or more people compared to the number of events killing 20 or more people.
The mix of violent events of different sizes looks similar across the full range of modern wars and terrorist campaigns. In fact, it is possible to make good predictions on the distributions of event sizes for wars on one continent based only on event size data taken from another continent.
The ISIS campaign of recent years fits right in the middle of the team's prediction range.
This research program began in 2009 with a publication in Nature by Johnson, Spagat and other co-authors.
That paper focused on event-size data from nine modern conflicts where the size of an event, such as a suicide bombing or an air strike, is defined by the number of people killed.

The team for that article found that the size distribution of the violent events within the conflicts they studied all looked alike, at least in terms of their event-size distributions.
Professor Mike Spagat, Royal Holloway, University of London, said: "The success in predicting such fundamental patterns within modern wars and terrorist campaigns suggests there is something about how humans fight with each other that remains stable across all sorts of diverse particulars such as time, geography, ethnicity and religion.
"It would be going too far to say that all modern wars are the same. But the predictability of event-size distributions suggests there are some very strong underlying similarities, and that is remarkable, given the apparently untamed nature of modern conflict."

— Read more in Michael Spagat et al., "Fundamental patterns and predictions of event size distributions in modern wars and terrorist campaigns," Plos One (17 October 2018).

Mothers' exposure to terror attacks during pregnancy increases risk of schizophrenia in their children

Source: http://www.homelandsecuritynewswire.com/dr20181023-mothers-exposure-to-terror-attacks-during-pregnancy-increases-risk-of-schizophrenia-in-their-children

Oct 23 – **The children of mothers exposed to terror attacks during pregnancy are 2.5 times more likely to develop schizophrenia than mothers not exposed to terror during pregnancy.** This was the finding of a comprehensive study undertaken at the University of Haifa. "It is possible that the psychosocial stress of terror attacks in the mothers occurred during a critical period of fetal brain development. Insults during such a critical period of neurodevelopment were so potent that years later the risk of schizophrenia increased." explained Prof. Stephen Levine, one of the authors of the study.
Previous studies have found that exposure to terror attacks through television – i.e. the media reporting of terror incidents in which the individual was not personally involved – cause the damage and loss of psychological resources. In the present study, the researchers sought to examine whether babies born to mothers exposed to terror attacks, but not involved in them, faced an elevated risk of schizophrenia.
The study, published in the journal *Schizophrenia Research*, was based on information relating to 201,048 children born between 1975 and 1995 – 97,711 girls and 103,337 boys. The children were monitored over an average period of 27 years in order to determine whether or not they developed schizophrenia. The study was undertaken in cooperation with the Ministry of the Interior and the Ministry of Health, and was funded by the National Science Foundation and the Tauber Foundation. It forms part of a series of studies undertaken by Professors Itzhak Levav and Stephen Levine concerning the connection between the exposure of mothers to stress and the risk of psychiatric disorders in their offspring.
University of Haifa says that during the research period – 1975-1995 – there were 782 terror attacks in Israel that occurred on 622 different days. According to the research model, if a terror attack occurred during pregnancy, the mother of the child is defined as having been exposed to the attack. Prof. Levine emphasizes that the researchers were aware that their decision to define exposure to terror in this manner could include in their group a woman who might not even have heard of a terror attack that took place far away from her, or when she was not in the country, alongside another woman who was exposed to a closer terror attack, or even several attacks. This could distort the findings. Accordingly, the researchers applied various analytical tools and found that these factors did not seem to alter the study conclusion. Moreover, the large sample size, which included hundreds of thousands of items of data, reduced the risk of statistical error.
The research findings show that children born to mothers exposed to terror attacks are 2.5 times more likely to develop schizophrenia than those whose mothers were

not exposed. **A total of 3,257 children were born to mothers exposed to terror, of whom 0.64 percent were diagnosed with schizophrenia.** In the control group, comprising women not exposed to terror, a total of 197,791 children were born, 0.25 percent of whom were diagnosed with schizophrenia**. "Pregnancy is a critical period for the development of the brain, and is influenced by stress resulting from exposure to terror. Maternal exposure to terror in pregnancy may damage the fetus's immune system, leading to an increase in the level of glucocorticoid hormones and disrupting the development of the brain,"** Prof. Levine noted.

New Non-Lethal System May Have Far-Reaching Consequences

Source: https://i-hls.com/archives/86204

Oct 20 – A new non-lethal technology could be also used for lethal applications. The U.S. Marine Corps is developing a laser crowd control device which can neutralize huge crowds from thousands of feet away and can be turned up to deafen, dazzle or even kill. The Scalable Compact Ultra-short Pulse Laser System (SCUPLS) will be placed on trucks and tanks. A prototype for the laser will be built as early as next year. According to official Government documents, the project's goal is to "Develop a lightweight and energy efficient next-generation Ultra-Short Pulse Laser (USPL) system that can produce sustainable and controllable plasma at range capable of inducing a full spectrum of scalable non-lethal effects."

How will it work? The laser creates a small ball of plasma fired from long-range which can be used to create "enhanced non-lethal effects such as flash bang effects, thermal ablation for pain, and delivery of intelligible voice commands at range".

According to express.co.uk, SCUPLS will initially be used for non-lethal purposes, but it may be developed in the future to kill, as the document says: "Advancement of possible full spectrum of effects capabilities from non-lethal to lethal, along with added Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance system capabilities."

On the lowest setting, the laser will produce a voice message which can be heard from up to a thousand meters away.

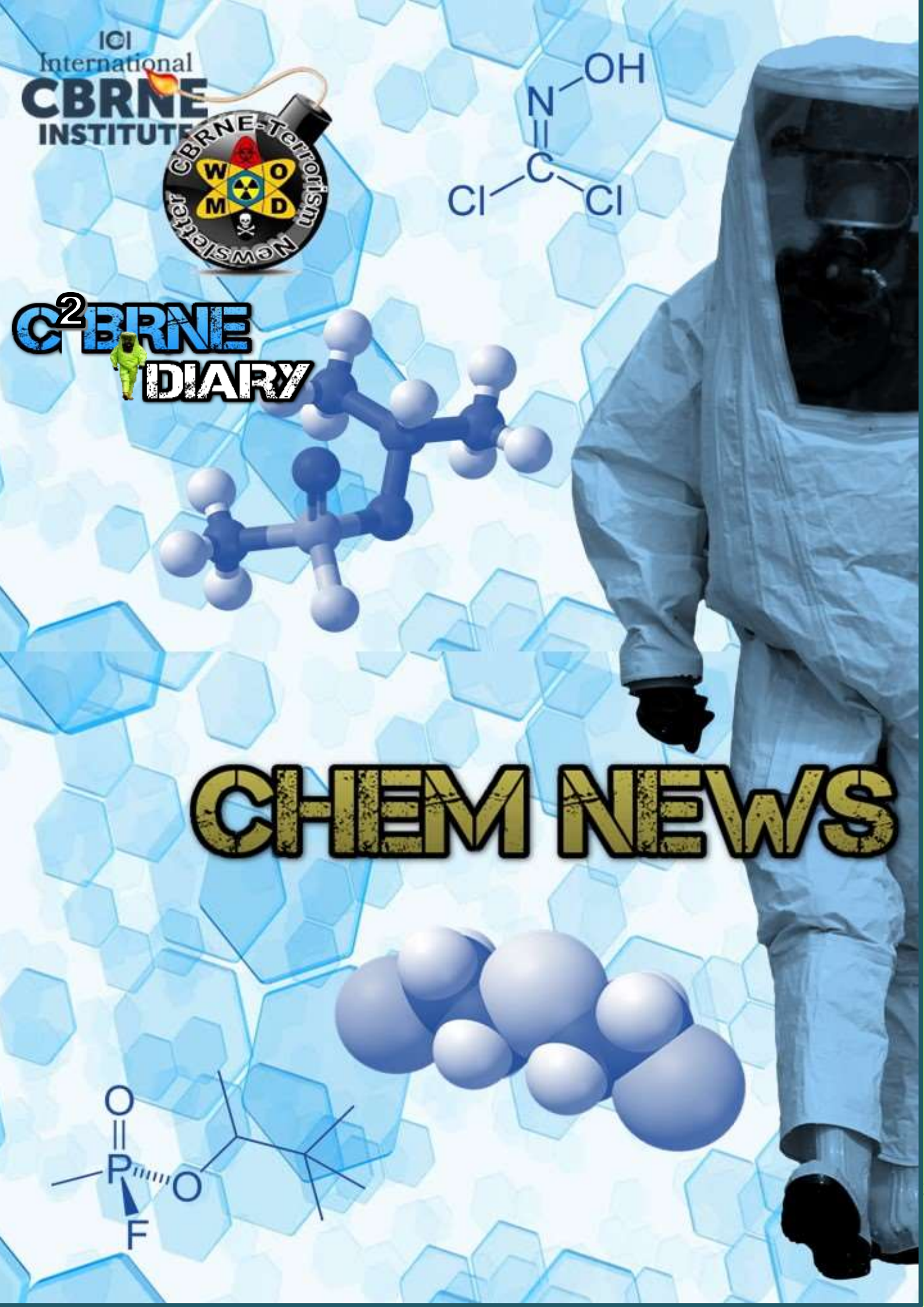
The strategy for the weapon is detailed in the document: "It has direct application to many other US Government agencies as well as civilian law enforcement. "The Department of Homeland Security, Department of State, Department of Justice, the Secret Service, and Customs and Border Protection also desire this full spectrum of effects capability.

"The ability to non-lethally interdict a threatening person or persons has utility in many security and crowd control applications to include several municipal applications."

ICI International CBRNE INSTITUTE

CBRNE-Terrorism Newsletter

C²BRNE DIARY



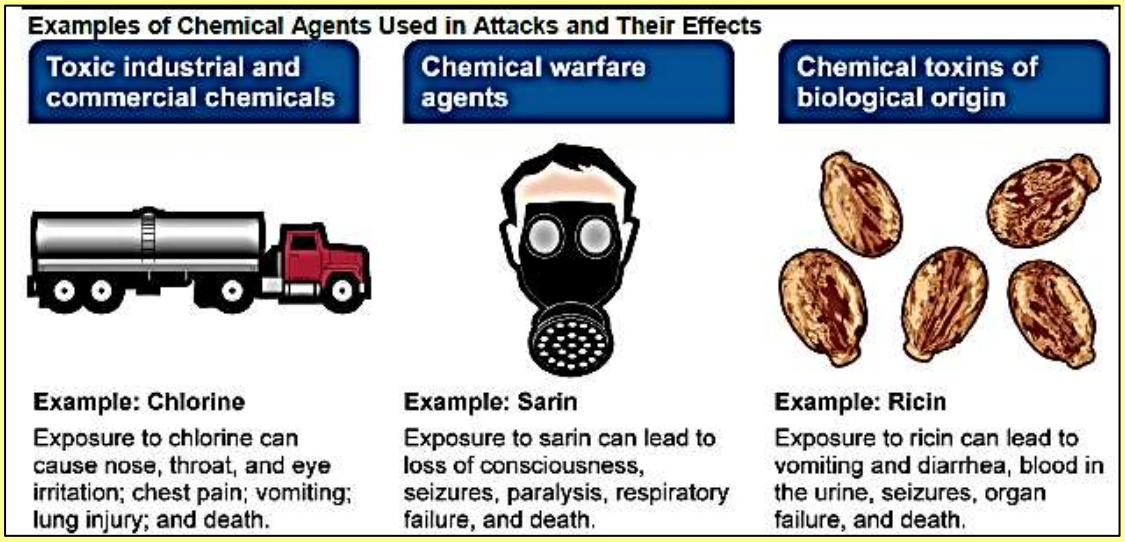
CHEM NEWS

GAO Report: CHEMICAL TERRORISM

August 2018

Source: https://www.gao.gov/assets/700/694051.pdf

The Department of Homeland Security (DHS) manages several programs and activities designed to prevent and protect against domestic attacks using chemical agents (see figure). Some DHS components have programs that focus on chemical defense, such as the Science and Technology Directorate's (S&T)



chemical hazard characterization. Others have chemical defense responsibilities as part of their broader missions, such as U.S. Customs and Border Protection (CBP), which interdicts chemical agents at the border. DHS recently consolidated some chemical defense programs and activities into a new Countering Weapons of Mass Destruction (CWMD) Office. However, GAO found and DHS officials acknowledged that DHS has not fully integrated and coordinated its chemical defense programs and activities. Several components—including CBP, U.S. Coast Guard, the Office of Health Affairs, and S&T—have conducted similar activities, such as acquiring chemical detectors or assisting local jurisdictions with preparedness, separately, without DHS-wide direction and coordination. As components carry out chemical defense activities to meet mission needs, there is a risk that DHS may miss an opportunity to leverage resources and share information that could lead to greater effectiveness addressing chemical threats. It is too early to tell the extent to which the new CWMD Office will enhance the integration of DHS's chemical defense programs and activities. Given the breadth of DHS's chemical defense responsibilities, a strategy and implementation plan would help the CWMD Office (1) mitigate the risk of fragmentation among DHS programs and activities, and (2) establish goals and identify resources to achieve these goals, consistent with the Government Performance and Results Modernization Act of 2010. This would also be consistent with a 2012 DHS effort, since abandoned, to develop a strategy and implementation plan for all chemical defense activities, from prevention to recovery. DHS officials stated the 2012 effort was

Balex Delta 2018

Source: https://www.youtube.com/watch?v=Gy-akgzvVZY

Balex Delta 2018 - Sweden hosted the annual HELCOM oil spill response exercise in Karlskrona

550 people, 32 countries, 20 vessels and aircrafts, 36 hours to pick up 40 m3 of popcorn (simulating spilled oil) from the sea. This year's HELCOM Balex Delta exercise (27-29 August 2018), co-funded by DG ECHO, is one of the PA Secure flagship projects. The project contributes to the PA Secure objectives to strengthen capacity to respond and recover from major emergencies and accidents as well as to build resilience and prevention towards

emergencies and threats at the local level. The exercise simulated a cargo ship running aground in harsh weather, causing it to loose containers with chemicals and breach its hull. Both damaged containers with hazardous chemicals and oil from the fuel tanks leak into the sea and both drift toward shore, making this exercise relevant from both PA Safe (maritime safety) and PA Secure (land-based emergencies) perspectives.

▶▶ Read more about the exercise in the Balex Delta 2018 brochure and the project website.

EU Project HAZARD

Surce: https://blogit.utu.fi/hazard/publications/
An interesting list of publications from EU project HAZARD.

The project

Ports, terminals and storage facilities are often located close to residential areas, thus potentially exposing a large number of people to the consequences of accidents. The HAZARD project deals with these concerns by bringing together rescue services, other authorities, logistics operators and established knowledge partners.
GOAL

HAZARD project aims at mitigating the effects of emergencies in major seaports in the Baltic Sea Region. The types of safety and security emergency include, for example, leakages of hazardous materials, fires on passenger ships at port, oil spills in port areas as well as explosions of gases or chemicals.

Africa's border security challenges and requirements

Source: https://bordersecurityafrica.iqpc.com/landing/interactive-map-africas-border-security-challenges-and-requirements-1

To give you a better understanding of what challenges Africa's borders are facing and the requirements they need in order to combat them, we've put together an interactive map which gives you a glimpse of:

- Threats faced by some of the major countries in the continent
- Steps and actions taken by authorities to combat these threats
- Major spending by each country to solve their border security challenges and develop upcoming requirements

Download the map for more details>>

The report has been developed in conjunction with the Africa Border Management & Security Expo taking place in Johannesburg, South Africa from 20-21 November 2017.

Seeing Through Walls May Soon Become a Reality

Source: https://i-hls.com/archives/85608

Sept 21 – New sensing method developed can enable us to passively sense an object even when direct vision is impeded. This could potentially be leveraged in a number of practical applications, including use in defense, surveillance, search and rescue and medicine. In short, covert sensing of objects around a corner may soon become a reality.

Imagine trying to see something around a corner. This is easily done with mirrors, but imagine that light from the object can only reach the detector after it bounces off a diffusing

wall that acts like a shattered mirror. Even though light looks totally dispersed, some of its initial properties do not completely vanish.
Aristide Dogariu, a University of Central Florida Pegasus Professor of Optics and Photonics, and his colleagues, who published the paper demonstrating this discovery, were able to measure subtle similarities in the scattered light, undo the effects of this broken mirror, and get an idea of what lies around the corner.
"The fact that fundamental properties are not completely destroyed when light bounces off a diffuse medium like a wall can be used in so many different ways," says Dogariu. "The question is, how much information you can still recover through this broken mirror-like surface," as reported by phys.org.
By learning how the light transforms, it is possible to determine where the light came from. By undoing the effects of the diffusing wall, Dogariu and his colleagues have eliminated the need to control the light that illuminates the target object.
This is the first time that there has been a practical demonstration of passively detecting an object around a corner in this way.
The technique does not recover a complete image but collects more than enough information needed for task oriented surveillance.
"Based on results of our recent simulations, we envision that non-line-of-sight, passive imaging of complex scenes could be achieved by data fusing that combines spatial coherence with additional intensity information," says George Atia, who took part in this research.
The new sensing method is not specific to light. It could be applied, for example, to infrared or microwaves radiation.

Hiring highly educated immigrants leads to more innovation and better products

By Gaurav Khanna and Munseob Lee
Source: http://www.homelandsecuritynewswire.com/dr20180927-hiring-highly-educated-immigrants-leads-to-more-innovation-and-better-products

Sept 27 – Much of the current debate over immigration is about what kind of impact immigrants have on jobs and wages for workers born in the United States.
Seldom does anyone talk about how immigration leads to a wider variety of better products for the American consumer. We recently conducted a study to shine more light on the matter.
We are economists with a keen interest in growth and innovation and how immigration affects the economy.
What we found is that the more companies hire certain highly skilled and mostly college-educated foreign workers, the more those businesses create new products. In fact, we found that hiring high-skill immigrants has a stronger association with innovation than spending money on research and development.
In other words, more highly educated immigrant workers means more and better products – such as more efficient laptops, TVs and other electronics – on the American marketplace.

The creation of newer, better products
We discovered this by taking a closer look at "product reallocation."
Economists have long regarded product reallocation as a primary indicator of how innovation affects economic growth. Product reallocation is simply the entry of newer products and exit of older products. For instance, innovation will lead to incremental changes to electronic products like laptops and TVs, which will make them more efficient. When these changes are made, a new model of the product is introduced in the market, and the older, obsolete model is phased out. The Austrian economist Joseph Schumpeter referred to this type of innovation as "creative destruction."

Creative destruction, like other forms of innovation, drives companies to grow and increases the productivity of the economy as a whole. In addition, other work has shown that immigration is also strongly associated with patenting.
While patenting is a useful measure of innovation, it captures a very specific type of innovation. This is because some industries are more likely to get their innovations patented than others, depending on changes that may take place as a result of court rulings, new policies and the tax code. Consequently, many important innovations never get patented, and many things that get patented rarely get used.
The advantage of product reallocation – our measure of innovation – is that it captures incremental innovations that are usually not patented and thereby missed by previous research on the impact of immigration.

The connection between migration and production

There happens to be a good way to figure out which firms are hiring high-skill foreign workers.
To hire such a worker, companies must file a labor certification application to obtain an H-1B visa for the employee. H-1B visas allow U.S. companies to temporarily hire foreign workers in jobs that require the "theoretical and practical application of a body of highly specialized knowledge and a bachelor's degree or higher in the specific specialty, or its equivalent," according to the federal agency that oversees the program.
We obtained data on all labor certification applications for every company that filed at least one from 2001 to 2015. This data shows the employer name and location, details about the work start and end dates, the occupation and job title.
We combined this dataset with product details by looking at barcodes generated from point-of-sale systems, like the cash registers or payment terminals, from about 35,000 stores across the country. The first few digits of a barcode on products actually identify which company produced these products. This allows us to create measures of product entry and exit – that is, reallocation – at the company level.
Our research looks at level of innovation, or reallocation rates, by four different types of business: those that hire H-1B workers, those that don't, those that spend a lot on research and development and those that have different combinations of both.
If anything is clear from our study, it is that companies that hire more H-1B workers, regardless of how much they spend on research and development, have higher rates of product reallocation.
One of the main reasons we're confident in our conclusion is the timing of the effects. Hiring an H-1B employee today was clearly associated with innovation gains in subsequent years. Specifically, a 10 percent increase in the share of H-1B workers is associated with a 2 percent increase in product reallocation – a rather meaningful increase in innovation.
In short, H-1B hiring seems to have a stronger association with reallocation rates than research and development, often seen as a wellspring for innovation.

Economic growth and consumer welfare

The U.S. has the advantage of being a profitable hub of innovation and entrepreneurship. It can attract the best and the brightest minds from around the world, offering not just commensurate compensation but also the chance to interact with other innovators and entrepreneurs.
Given the rapidly increasing number of college graduates from populous countries like India and China, especially those specializing in science and engineering degrees, there is a growing pool of potential workers that U.S. employers can choose from.
An added perk: Foreign workers may bring a slightly different set of skills, which in combination with the skill-set of U.S.-born workers, can help produce new and more efficient products. As faster laptops, more effective pharmaceuticals, better cellphones and other higher quality electronics are introduced into the market, we reap their benefits as consumers.
Innovation also helps drive growth and raises productivity across sectors of the economy. For instance, many industries – from car manufacturers to bankers – use software and electronics in their production processes.

To that end, more efficient electronics not only benefit consumers, but also raise the productivity of all sectors that use such products, fueling growth for the economy as a whole.

Gaurav Khanna is Assistant Professor of Economics, University of California San Diego.
Munseob Lee is Assistant Professor of Economics, University of California San Diego.

EDITOR'S COMMENT: What is exactly the point of this article? Is it that USA does not have or produce sufficient numbers of college-educated workers/profesionals so they have to import them via immigration? Or that the imported immigrants are better or cleverer than domestic high-educated Americans? And since when legal immigration is a problem to deal with? The problem is illegan immigration and so far I have not heard or read a viable solution coming from the academia and all sort of professors and experts (and politicians – just joking).

Salisbury poisoning suspect named as Russian colonel

Source: http://www.homelandsecuritynewswire.com/dr20180927-salisbury-poisoning-suspect-named-as-russian-colonel

Sept 27 – **The real identity of one of the two Russians blamed by Britain for the Salisbury nerve-agent attack on former Russian spy Sergei Skripal is Anatoly Chepiga, the investigative website *Bellingcat* says, adding that he was a decorated Russian colonel.**

Earlier this month, British prosecutors charged two Russians — identified as Ruslan Boshirov and Aleksandr Petrov — with attempted murder for carrying out the poisoning of Skripal and his daughter, Yulia, with the Novichok nerve toxin in the southern English city of Salisbury earlier this year. The prosecutors said the two were undercover officers for Russian military intelligence, the GRU.

Bellingcat, a website that covers intelligence matters, said on 26 September that together with its investigative partner, the Insider, it had established that the man who was named as Ruslan Boshirov is actually GRU Colonel Anatoly Chepiga.

British Defense Secretary Gavin Williamson, meanwhile, said in a tweet on 26 September that "the true identify of one of the Salisbury suspects has been revealed to be a Russian colonel," without mentioning the name.

Chepiga served in Chechnya and was awarded the highest state medal — Hero of the Russian Federation — usually bestowed personally by President Vladimir Putin, *Bellingcat* said, adding that after its own identification of Chepiga, "multiple sources familiar with the person and/or the investigation have confirmed the suspect's identity."

The Russian service of the BBC said it was able to confirm the *Bellingcat* information having studied several Russian databases obtained from anonymous sources.

In a separate development, British Prime Minister Theresa May told the UN General Assembly that Russia is "blatantly" violating a range of international norms, from

seizing territory to using a chemical weapon to poison the Skripals, who were found unconscious on March 4 on a bench in the southern English town of Salisbury.
They were seriously ill but later made a full recovery after spending several weeks in a hospital. British officials said the two were poisoned with Novichok, a military-grade chemical weapon that was developed in the Soviet Union, and blamed Russian President Vladimir Putin's government for the attack.
Moscow has not yet commented on the new *Bellingcat* report. Russia has repeatedly denied any involvement in the poisoning.
Last week, the investigative group said it "can confirm definitively" that the two suspects have links to the GRU, "based on objective data and on discussions with confidential Russian sources familiar with the identity of at least one of the two persons," and said the men's names were believed to be aliases.
On 14 September, *Bellingcat* said it had reviewed Russian documents that indicated the two men had no records in the Russian resident database prior to 2009, a sign they may be working as operatives for the government.
In June, a British citizen, Dawn Sturgess, died and her boyfriend, Charlie Rowley, fell ill when they stumbled across remnants of the poison in a town near Salisbury.
Britain on 5 September announced charges against the two Russian men as police issued photographs of the suspects.
The men acknowledged they were in Salisbury at the time but claimed they were there as tourists.
Russia has denied any involvement in the poisoning.

Smiths Detection Inc. Receives $10M Order from DNDO for Handheld RadSeeker Radiation Detectors

Smiths Detection has announced an order of more than $10 million to supply its RadSeeker handheld radioisotope detectors and identifiers for screening at Customs and Border Protection (CBP) ports of entry. The order is part of a five year indefinite delivery/indefinite quantity (IDIQ) contract with DHS Domestic Nuclear Detection Office (DNDO), which was announced in January of 2016.
Read more >>

German Police Reportedly Arrest Syrian in Berlin for Plotting Chemical Attack in Israel

Source: https://www.haaretz.com/world-news/europe/german-police-reportedly-arrest-syrian-in-berlin-for-plotting-attack-in-israel-1.6513494

Sept 28 – German authorities arrested a 21-year-old Syrian in Berlin last week for allegedly **plotting a chemical attack** in Israel, a police spokesperson told German media on Thursday.
The Syrian, who is said to have arrived via Libya with a fake passport and had previously been arrested for theft, was reportedly recruiting terrorists on behalf of ISIS, according to Bild.
Germany's Federal Intelligence Service received a tip from a foreign ally on the suspect and passed on the information to local authorities who began tapping his phone, the German BZ newspaper added. Police said he was also wanted for assault at the time of his arrest.
He was arrested next to a coffee shop in Berlin's Neukölln borough, allegedly over his **involvement in a fight**. Masked special forces officers armed with machine guns detained him as police blocked nearby roads.

The news of the arrest comes two days after two people were arrested in Copenhagen and charged with attempting to **supply ISIS with drones**, which the organization has used to carry out attacks, police said.
The two were arrested after police and Danish security and intelligence services carried out raids in Copenhagen, the police said in a statement.
The two persons are suspected of being members of a broader network that ships drones and other supplies to Islamic State **from Denmark** for use in combat, the police said. The police did not release their names or any details about them.
They were charged with attempting to collude with terrorism abroad and will appear in court on Thursday, the police said in a statement.
Islamic State has increasingly been using drones to carry out attacks in Syria and Iraq.

EDITOR'S COMMENT: Two words only in the first sentence of this article. Nothing else related othen than drones and reference to Denmark that pretends that everything is allright. Amother fine example of impression journalism.

Research seeks to revolutionize the way emergency services tackle CBRN incidents

Soirce: https://www.news-medical.net/news/20181004/Research-seeks-to-revolutionize-the-way-emergency-services-tackle-CBRN-incidents.aspx

Oct 04 – Research led by Loughborough University seeks to set the new global 'Gold Standard' for how emergency services should tackle a chemical, biological, radioactive, or nuclear (CBRN) incident.
In an age where a CBRN emergency, both accidental and deliberate, poses a real threat to society, new integrated systems and technologies are needed to aid first responders and enhance the protection of citizens.
The multi-million pound **TOXI-Triage project**, which brings together experts from across Europe, is creating novel ways to give effective and diagnostically sound medical and toxic assessments to the casualties of a CBRN event amid the confusion, disorder, and dangers it would bring.
These new technologies and systems will revolutionize the way emergency services across the world tackle a CBRN incident.
Funded by the European Commission, the project brings together 18 teams spanning the emergency and health services, defense, industry, and university academics.
Together the research team have developed advanced methods to:

- Determine the level of casualty exposure to poisons by analyzing the skin, salvia and breath
- Created new payloads for drones that contain radiological and poison cloud monitoring instrumentation
- Designed new systems for mapping the environmental impact of an incident and managing decontamination activity
- Developed tools to tackle the spread of fake news during an incident and improve official communications
- Created a way to utilize social media to track a crisis situation as it develops and to aid the deployment of the emergency services

Later this month the entire project team will travel to Athens for a full-scale field trial of the new technologies and systems, in partnership with Greece's Ministry of National Defence. This will be the first time ever so many new advanced methods and technologies will have been combined to tackle a simulated CBRN crisis.
At the end of the project it is anticipated that these new technologies and systems will become the Gold Standard for an emergency response, as well as becoming standard features in hospitals across the globe to support everyday healthcare emergencies.
Paul Thomas, Professor of Analytical Science from Loughborough's Department of Chemistry, is leading TOXI-Triage. He said: "Over the last four years some of the strongest

teams across Europe have been working together to help ensure society can respond to and tackle a CBRN incident in the best possible way.
"We live in a time where CBRN terrorism is a real threat, and incidents such as the Birling Gap gas cloud and Japan's Fukushima nuclear crisis illustrate how CBRN incidents can and do occur as a result of human error or a natural disaster.
"The emergency services need to have the best possible information when a CBRN incident occurs, in the quickest time possible without having to put further lives at risk. TOXI-Triage has created new hot zone assessment, diagnostic, communications and track and tag triage technologies, along with an integrated system that pulls all the information together in real time.
"TOXI-Triage is truly revolutionary and sets to rewrite the way a CBRN incident is managed."

EDITOR'S COMMENT: Gold standard? Rewrite the way a CBRN incident is managed? I do not think so but to be fair I will wait to study the deliverables of this project and be back on the topic. I participated in a phase of this project so I have a bit of insight knowledge that make me cautious.

CBRN COUNTRY PROFILE: Kazakhstan

By Bitebayev Tanash
Source: http://nct-magazine.com/october18/country-profile-kazakhstan/

In 1991, after the fall of the Soviet Union, the former Soviet republics, including Kazakhstan, turned into independent states. These newly formed states found it impossible to thrive as part of the Soviet Union, thus deciding to create independent systems to solve their national, political, and economic problems alone.

The construction of an independent state began in Kazakhstan and included changes in the organization of its military. The Ministry of Defense of the Republic of Kazakhstan was established; records followed that show the establishment of military units in Kazakhstan's newly established territory. Concurrently, there was an outpouring of officers and specialists to Russia, Ukraine, and Belarus from Kazakhstan; some military units withdrew their weapons and military equipment to neighboring states. To combat the changing atmosphere of the military sector, the number of officers in military units was increased, short-term courses were organized where officers were trained, and a large number of reserve officers were promoted. prepare against the likelihood of an attack, the military split into four Regional Command sections: East, South, West and Astana (Central). To quickly respond to armed conflicts, Airmobile troops were created; this unit's troops were later renamed to Airborne Assault Troops.

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

***Bitebayev Tanash**, was born on January 14, 1966. In 1988, he graduated from the Tambov Higher Military Command School of Chemical Protection, in 2001 - the Military CBRN Academy (Moscow), in 2012 - the Academy of the General Staff of Russia. He passed military inure from the platoon squad officer to the commander of the CBRN brigade, from the head of the CBRN service of a tank regiment to the head of the CBRN troops of the Republic of Kazakhstan. For the past five years, he commanded the Main Directorate of Special Forces of the Ministry of Defense of the Republic of Kazakhstan (engineering troops, CBRN troops,*

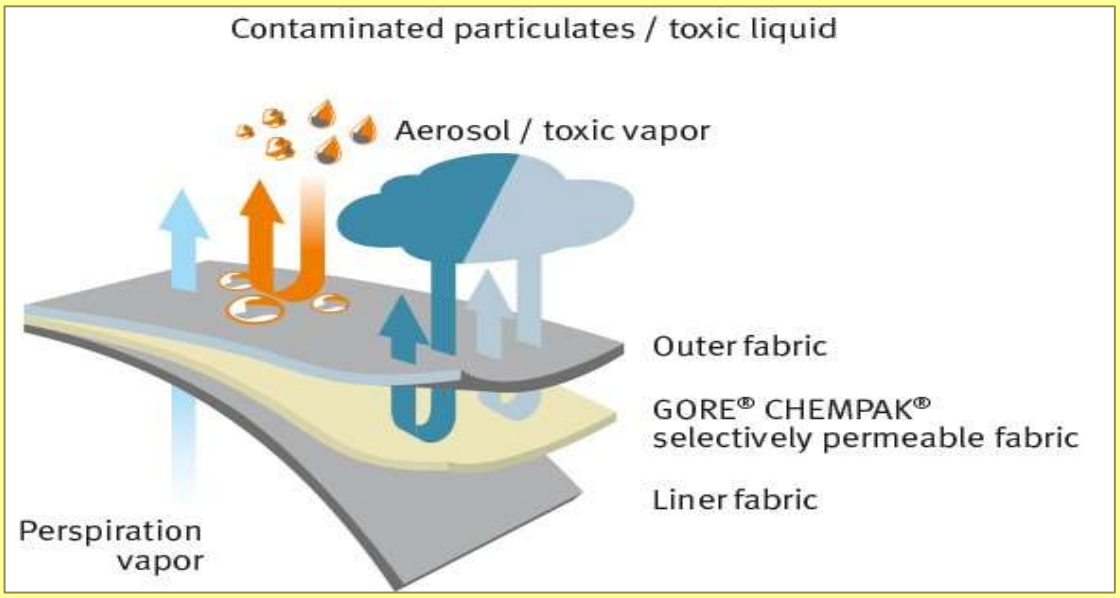
topographic troops and a hydrometeorological service).The first among the specialists of CBRN awarded the Order of "Aibyn" ("Valor"), has more than 20 medals.

GORE® CHEMPAK®

Source: https://www.goreprotectivefabrics.com/

GORE® CHEMPAK® fabrics are designed to meet needs associated with military operations to deliver protection against chemical and biological threats. These fabrics employ an advanced moisture vapour permeable ePTFE-based chemical and biological protective film. This barrier technology allows high levels of moisture vapour permeability while protecting against a broad range of hazardous chemical vapours, liquids and aerosols. Reduce thermal burden and improve mission effectiveness with lightweight, stretchable and breathable GORE® CHEMPAK® fabrics.

GORE® CHEMPAK® Selectively Permeable Fabric



Products made with GORE® CHEMPAK® selectively permeable fabric are certified to NFPA 1994, Class 3 for outstanding protection in warm zone operations. This lightweight protective fabric is also breathable, so perspiration vapor can escape, reducing heat stress. Currently used in extended response team (XRT) suits and versatile two-piece stretch undergarments, this fabric allows you to stay engaged longer and remain focused on your mission.

Benefits

- Certified to NFPA 1994, Class 3 for outstanding protection in warm zone operations
- Breathable comfort for longer engagement
- Increases mobility from lightweight, low-bulk construction
- Provides additional protection against petroleum, oils and lubricants
- Longer service life than traditional carbon suits

Typical Applications

- Counter-terrorism security at public events
- Safe escape from contaminated environment
- Tactical force protection operations
- Technical decontamination
- Emergency response to terrorist attack victims
- Technical search and rescue

All Purpose-Personal Protective Ensemble (AP-PPE)

Source: https://www.goreprotectivefabrics.com/military/chemical-biological/ap-ppe

The APPPE is a Chemical and iological (CB) protective garment system. This system is designed with

a combination of GORE® CHEMPAK® selectively permeable fabric and GORE® CHEMPAK® ultra barrier fabric for optimal protection against:

- Traditional chemical warfare agents in vapor form

- Toxic Industrial Chemicals (TICs)
- Aerosolized particulates (such as contaminated sand)
- Liquid under force (ie. when kneeling or wearing combat equipment)
- Biological hazards

This NFPA-certified ensemble allows you to move freely, remain engaged longer, and respond with added confidence that the suit and its seams will stay intact. GORE® CHEMPAK® fabrics also improve your ability to respond quickly because they require no additional chemical taping. GORE® CHEMPAK® selectively permeable fabric is lightweight and breathable that allows perspiration vapor to escape, reducing heat stress. GORE® CHEMPAK® Ultra Barrier Fabric provides excellent durability with high-strength sewn and sealed seams. The fabric maintains its integrity, even after exposure to petroleum, oils, lubricants, and other contaminants.

DARPA launches AI chemistry program to develop new molecules for military use

Source: https://sociable.co/technology/darpa-ai-chemistry-molecules-military/

The Defense Advanced Research Projects Agency (DARPA) announces the launch of an AI chemistry program, Accelerated Molecular Discovery (AMD), to develop new molecules for US military capabilities. "We will rapidly be able to explore the unknown molecular universe to design and produce completely new molecules with specific desired functions."

Editor's Comment: Wrong picture selection: Very young soldiers posing with their gear Rambo style (very interesting filter canisters on the right)

On Thursday DARPA announced the AMD program, which aims to develop new, AI-based systematic approaches that increase the pace of discovery and optimization of high-performance molecules. AMD looks to develop safe chemical warfare agent simulants and medicines to counter emerging threats. While DARPA announced that this program would be used to "counter emerging threats," it did not specify whether or not the technology would be weaponized.

The AI chemistry program will work directly with the US Department of Defense (DoD) to discover and produce new molecules "for a range of military capabilities."

"The ultimate goal of AMD is to speed the time to design, validate, and optimize new molecules with defined properties from several years to a few months, or even several weeks," said Anne Fischer, program manager in DARPA's Defense Sciences Office.
"We aim to develop the AI tools, models and experimental systems to enable autonomous design of molecules to quickly meet DoD needs," she added.
A Proposers Day webinar describing the goals of the program is scheduled for October 18, 2018.
The problem that DARPA is trying to solve revolves around current approaches to develop molecules for specific applications, which, according to DARPA, are intuition-driven, mired in slow iterative design and test cycles, and ultimately limited by the specific molecular expertise of the chemist who has to test each candidate molecule by hand.

DARPA Looks to AI for Biological Technologies
The defense research organization seeks to develop new, systematic approaches that increase the pace of discovery and optimization of high-performance molecules through development of closed-loop systems that exploit, build, and integrate tools for:
1. Extracting existing data from databases and text.
2. Executing autonomous experimental measurement and optimization
3. Incorporating computational approaches to develop physics-based representations and predictive tools.

"There are currently around 140 million known molecules, but the space of potential molecules is vastly larger than that, upwards of 10^{60}," Fischer said.

"In DARPA's Make-It program, we've developed advanced ways to efficiently synthesize known molecules. AMD is taking the next step, where we will rapidly be able to explore the unknown molecular universe to design and produce completely new molecules with specific desired functions."
The AI chemistry program calls for teams of researchers to develop AI-based, closed-loop systems that automatically extract existing chemistry data from databases and text, perform autonomous experimental measurement and optimization, and use computational approaches to develop physics-based representations and predictive tools.
Government partners will evaluate performer developments and test their ability to identify new molecules with specific combinations of functional properties that may be relevant to specific DoD application requirements.

DARPA Views AI as a Collaborative Partner

DARPA is building an Artificial Intelligence Exploration (AIE) program to turn machines into "collaborative partners" for US national defense.

The Defense Advanced Research Projects Agency (DARPA) is looking to make artificial intelligence more trustworthy through a series of projects that test an AI's capacity for self-evaluation and that make the AI "show its work" for human evaluation.
DARPA's fundamental and applied R&D AI programs are aimed at shaping a future for AI technology where "machines may serve as trusted and collaborative partners in solving problems of importance to national security."
Announced on July 20, the AIE program will enable DARPA "to fund pioneering AI research to discover new areas where R&D programs awarded through this new approach may be able to advance the state of the art. AIE will enable DARPA to go from idea inception to exploration in fewer than 90 days."

The AI Exploration program is one key element of DARPA's broader AI investment strategy that "will help ensure the U.S. maintains a technological advantage in this critical area," according to the DARPA announcement.

Preparedness for CBRN Emergencies

By Maj Gen. JK Bansal, VSM, Chikitsa Ratan (Retd)

former Member, NDMA | Bharat Defence Kavach

Source: http://www.bharatdefencekavach.com/news/expertopinion/preparedness-for-cbrn-emergencies/66017.html

July 2018 – Under the prevailing scenario there is a high possibility of, Chemical, Biological, Radiological & Nuclear (CBRN) warfare agents falling in the hands of terrorist groups, imposing great challenge of CBRN terrorism. Chemical and Nuclear agents can be used as "Dirty Bomb" where these agents are packaged with explosive material. On explosion "Dirty Bomb" will cause contamination of environment causing hazardous effects on health. Nuclear agent can be used as "Suitcase Nuke" having a weight of 10 kg only while it will have a yield of 10-20 KT, with radiation effect upto 4-5 kms radius.Usually Cesium-137 or Cobalt-60 are the nuclear material used in the dirty bomb which has got long half life causing the delayed radiation effect in the form of cancer, cataract, genetic damage, premature aging and infertility. The virulence of biological agent can not be undermined as they are cheap, easy to produce and only small amount is required to play havoc. Bacteria like anthrax, virus like small pox, toxins like botulisms toxin are most commonly used as biological agents.

In addition to CBRN terrorism, nuclear or chemical disaster can also occur due to accident either in nuclear reactors, chemical plants or during transportation of nuclear or chemical material. Accidental release of biological agents from a Biosafety lab will cause biological disaster. CBRN disaster will cause tremendous devastation to human and other living beings, flora, fauna and environment including air, water and soil.

Radiological emergency may arise due to unsafe disposal of nuclear material as happened in April 2010 in the Mayapuri incident wherein eight cases were hospitalized due to radiation injuries caused by Cobalt 60 orphan source. Chlorine gas leaked out from cylinders lying at Mumbai port in July 2010. Consequent to the tsunami of 11th March 2011 off the Japanese coast, there was a nuclear accident in the Fukushima Nuclear Power Plant of Japan which caused widespread radiation contamination in the surrounding area.In 2010, toxic chemicals were dumped in Rayoram river in Kerala affecting few people. It is heartening to note that in all these incidents, the CBRN trained National Disaster Response Force (NDRF) team, rose triumphantly to the occasion to contain these hazardous threats and their work was lauded even by the Japanese Prime Minister. There are possibilities of accident in Chemical industry as the memories of Bhopal Gas tragedy are still fresh in our minds.

Management of disaster in Chemical ,Biological, Radiological & Nuclear scenario poses the great challenge because of the contamination. In CBRN environment search, rescue and

quick reaction medical team has to put on protective clothing, respiratory masks, boots and gloves which reduces the working efficiency. Personal protection, detection, decontamination, decorporation, vaccination and antidote administrations are extra special requirement for management of CBRN casualties along with the usual care of heat, blast and infection effects. Nuclear agents mainly cause acute haemopoetic, gastrointestinal, cutaneous and CNS syndrome while chemical agents adversely affect eyes, skin, respiratory and nervous system, of course biological agents can severely infect any part of body causing casualties in pandemic proportion.

For managing CBRN disaster, prevention, mitigation, preparedness, capacity building training and communication is to be considered as integral part of National framework for disaster management planning. The emergency response plans have to be deviced at all levels i.e. community, district, state and nation as a whole. District Disaster Management authority is the nodal agency for planning, preparedness and implementation of plants in case of any eventuality. Rescue and quick reaction medical team, doctors, paramedical and nursing staff are to be trained. Standard Operating Procedures (SOPs) need to be written. Mock drills and exercises to be carried out regularly.

CBRN disaster management can only be possible by full involvement and total commitment of various organizations like fire services, police, communication, health services including ambulance service, hospitals. Multi-dimensional impact of CBRN disaster requires multi sectoral and multi-disciplinary approach for development of trained manpower, equipment and other facilities needed for the handling of CBRN disaster. Provision of clean water supply, safe food, hygiene and sanitation, environmental health and control of vectors is to be planned to prevent any epidemic in the aftermath of CBRN disasters. Health care facilities are an essential component of emergency medical response system, but at the present, are poorly prepared for an incident.

The greatest challenge may be the sudden presentation of large number of contaminated individuals. The key elements of the health care facilities response plan include prompt recognition of the incident, staff and facility protection, patient decontamination and triage, medical therapy and co-ordination with external emergency response and public health agencies. Special facilities to treat CBRN casualties are to be created in the hospitals including CBRN filter fitted ward and bio-waste disposal system. Earmarked hospitals are also to be geared up for restitution of immune system, bone marrow/stem cell transfusion, medical stores containing antidotes, vaccines, decorporation agents and antibiotics. Management of post-traumatic stress disorders is also to be catered. Planning is to be done to deal with long term effects of radiation like cancer, cataract, genetic damage and premature ageing. Documentations, research and analysis is to be carried out in post-disaster scenario for future lessons.

NDMA with the active participation of all subject stakeholders across the country formulated National Guidelines on Biological Disasters including Bioterrorism, Nuclear & Radiological Emergencies, Chemical Industrial Disaster and Chemical Terrorism Disaster Management. Based on these National Guidelines, the Action Plans are being prepared by all stakeholders, whereby the morbidity and mortality consequent to CBRN emergencies can be curtailed by comprehensive planning, preparedness and capacity development for prompt and effective emergency response. During Commonwealth Games 2010 NDMA planned CBRN security and procured equipment. 1500 NDRF personnel were deployed at various venues.

NDMA also took upon the onerous task of training the medical fraternity of Delhi government. About 400 doctors and paramedical staff were trained in the medical management of CBRN

casualties. Subsequently, a similar course was conducted for NDRF doctors and Pharmacists from 30th July to 1st August 2012. In year 2010 the NDMA was requested to impart CBRN training to security staff of Parliament House Complex and accordingly, 12 courses were conducted. Police is responsible to maintain safety and security of CBRN agents especially during their storage and transportation. Therefore, training of police personnel and equipping them with CBRN equipment for protection, detection and decontamination is very essential. With this backdrop, the NDMA had conducted Training Programmes on CBRN Security, Preparedness & Emergency Response for Chandigarh Police and Delhi Police. Such capacity building has also been undertaken at the State Administrative Institutes of Haryana and Himachal Pradesh.

CBRN Training Programme includes sessions of theoretical lectures and practical demonstrations. Training faculty is the CBRN experts from 8th Battalion NDRF Ghaziabad, NDMA, Army Headquarters, Integrated Defence Staff, Air Force Institute of NBC Protection, Defence Research & Development Establishment Gwalior, Defence Laboratory Jodhpur, Institute of Nuclear Medicine and Allied Sciences Delhi, Bhabha Atomic Research Centre Mumbai, Inter University Accelerator Centre New Delhi, JPN Apex Trauma Centre of All India Institute of Medical Sciences New Delhi and Delhi Fire Service. Lectures are delivered in language convenient to trainees and followed by demonstration to practice the theoretical knowledge on ground. The mock drill is the part of training so that participants can have full picture for response to CBRN scenarios. CBRN disaster preparedness will ensure to build safe and a disaster resilient India by developing a holistic, pro-active, multi-disciplinary and technology-driven strategy by all stakeholders including community.

Are Dutch Hospitals Prepared for Chemical, Biological, or Radionuclear Incidents? A Survey Study

By Mortelmans LJM , Gaakeer MI , Dieltiens G , Anseeuw K , Sabbe MB

Prehosp Disaster Med. ***2017****;32(5):483–491*

Source: https://www.cambridge.org/core/journals/prehospital-and-disaster-medicine/article/are-dutch-hospitals-prepared-for-chemical-biological-or-radionuclear-incidents-a-survey-study/93EE0EB1248105ED9E7F2FFA87B1BB57

Being one of Europe's most densely populated countries, and having multiple nuclear installations, a heavy petrochemical industry, and terrorist targets, the Netherlands is at-risk for chemical, biological, or radionuclear (CBRN) incidents. Recent world and continental events show that this threat is real and that authorities may be underprepared.

Hypothesis: The hypothesis of this study is that Dutch hospitals are underprepared to deal with these incidents.

Methods: A descriptive, cross-sectional study was performed. All 93 Dutch hospitals with an emergency department (ED) were sent a link to an online survey on different aspects of CBRN preparedness. Besides specific hospital information, information was obtained on the hospital's disaster planning; risk perception; and availability of decontamination units, personal protective equipment (PPE), antidotes, radiation detection, infectiologists, isolation measures, and staff training.

Results: Response rate was 67%. Sixty-two percent of participating hospitals were estimated to be at-risk for CBRN incidents. Only 40% had decontamination facilities and

32% had appropriate PPE available for triage and decontamination teams. Atropine was available in high doses in all hospitals, but specific antidotes that could be used for treating victims of CBRN incidents, such as hydroxycobolamine, thiosulphate, Prussian blue, Diethylenetriaminepentaacetic acid (DTPA), or pralidoxime, were less frequently available (74%, 65%, 18%, 14%, and 42%, respectively). Six percent of hospitals had radioactive detection equipment with an alarm function and 22.5% had a nuclear specialist available 24/7 in case of disasters. Infectiologists were continuously available in 60% of the hospitals. Collective isolation facilities were present in 15% of the hospitals.
Conclusion: There is a serious lack of hospital preparedness for CBRN incidents in The Netherlands.

EDITOR'S COMMENT: One more study coming to the same conclusion. Boring!

Integrating Chemical Biological, Radiologic, and Nuclear (CBRN) Protocols Into TCCC Introduction of a Conceptual Model - TCCC + CBRN = (MARCHE)2.

By Devin R DeFeo and Melissa L Givens
J Spec Oper Med Spring 2018;18(1):118-123
Source: https://www.pubfacts.com/search/CBRNE+%E2%80%93+Chemical+Decontamination

The authors would like to introduce TCCC [Tactical Combat Casualty Care] + CBRN [chemical, biological, radiological, and nuclear] = (MARCHE)2 as a conceptual model to frame the response to CBRN events. This model is not intended to replace existing and well-established literature on CBRNE events but rather to serve as a response tool that is an adjunct to agent specific resources

Driverless Cars Could Become WMDs

Source: https://www.weeklystandard.com/zach-aysan/driverless-cars-could-become-wmds

Oct 09 – Eight months ago I published my concerns about how autonomous vehicles could be weaponized at scale via cyber-attack. (For those who missed it, here's the gist: Due to the all-or-nothing nature of certain classes of cyber-attack, self-driving cars and other

autonomous systems can be utilized by hostile actors to create a coordinated mass attack). It's time for an update.

At a closed-door Q&A session at the software hacking conference DEF CON, Elon Musk said that a fleetwide attack was Tesla's "nightmare scenario" and announced that they were going to open-source their security modules so that automakers could work together to secure a safe self-driving future. (He later announced the security open source initiative on Twitter.) Musk's announcement is a great start, and I'm encouraged, since an open source initiative is the single most important step to securing autonomous vehicles. But there have been other developments as well.

At an offensive cybersecurity conference earlier this year, former GCHQ information security specialist, Matt Tait, presented the keynote. (Lawyers know Tait as a Lawfare contributor and hackers know him as @pwnallthethings. It's fun and strange when worlds collide.) One of Tait's concluding remarks was that there are now numerous *strategic threats* to the world from a mass cyber-attack. Military planners call nuclear weapons and other weapons of mass destruction strategic threats because they impact military planning at the level that concern the national defence strategy. Tait used the specific example of a hijacked Windows update since it could wipe out complex logistics chains, or the power grid. The same type of *strategic threat* exists for autonomous devices as well. Tait then implored his fellow cybersecurity researchers to be careful with the consequences of their actions. To illustrate this, he displayed a mushroom cloud as the slide's background image.

Which brings us to the present. Bruce Schneier is the most well-known cybersecurity professional in the world, and for decades, he's been regarded as an even-keeled, sober, and nuanced thinker. This September, he released a new book titled *Click Here to Kill Everybody*. In it Schneier covers the all-or-nothing danger of certain classes of cyber-attack and specifically mentions the risk of mass cyber-attack on computerized automotives.

So the bad news is that the hazard from a successful, single-system cyber-attack is now catastrophic. But the good news is that people are now starting to pay attention.

In 2018 the Canadian government announced spending increases for cyber-defense, increased funding for the Royal Canadian Mounted Police's cyber-crime division, and stressed greater interaction with members from the private sector in the creation of the cyber-reserves and associated cyber-special forces.

All of these are encouraging developments. But regulating autonomous devices is too complicated for Canadians to tackle on our own. Either America or the European Union must spearhead an international effort at regulations for cyber-physical devices. Senator Ben Sasse, Congressman James Langevin, and a few other American leaders understand that this is a real and urgent problem, and we need their fellow partisans to join them. Legislators and staffers, should read Schneier's book to better understand this growing threat and to work with private sector partners, while we still have time.

Possibility of chemical attack in UK getting closer: security minister

Source: https://www.reuters.com/article/us-britain-security/possibility-of-chemical-attack-in-uk-getting-closer-security-minister-idUSKCN1MJ1IW

Oct 09 – **The possibility of a terrorist attack involving chemical or biological weapons is getting closer, Britain's security minister, and top counter-terrorism police officer warned on Tuesday.**

"I see plots where the only limit to the ambition of our adversaries is their imagination," Ben Wallace told a security conference in London.

"As I speak, terrorists continue to explore new ways to kill us on our streets: chemical and biological weapons are marching in closer. They have developed and worked on a better arsenal. We have to be prepared for the day that might come to our streets here."

Last year, Britain suffered five attacks that the authorities blamed on terrorism that killed 36 people, four of which were carried out by Islamist militants.

In addition, police say another **17 plots were foiled** and the national threat level remains at "severe", meaning an attack is considered highly likely.

"These things have been used on the battlefield and what's used on the battlefield will eventually be adapted to be used on domestic soil," Neil Basu, the UK police lead for counter-terrorism, said when asked about Wallace's comments on chemical and biological weapons.

"So I think he is as concerned as I am that these are the kind of threats we've got to take very seriously and we have got to make sure we have the right preparations to counter that threat."

British security services, like those across Europe, have been worried about those who left the UK to fight on behalf of Islamic State in Iraq and Syria, returning home and bringing back the knowledge they learned on the battlefields there.

Wallace said about 900 Britons had gone to fight in Syria and Iraq and just under half had returned while more than 150 had been killed.

Basu also repeated a warning from police that failure to strike a deal with the European Union that allowed Britain to continue sharing and receiving intelligence with their European colleagues would harm the fight against terrorism.

"UK policing currently utilises 32 European law enforcement and national security measures on a daily basis," he said.

"The loss of one or more of these measure, particularly covering areas such as intelligence-sharing, surveillance, pursuit and extradition, would have a significant operational implication for us."

EDITOR'S COMMENT: I just love these evidence-based statements about future CBRN attacks! I do know these are classified information and cannot revealed in public but a small hypothetical outline could be released to thinking citizens. Perhaps they do not want to spoil the element of surprise that is always a good excuse for not been prepared.

What a chemical attack in Australia will look like: Officers in hazmat suits storm a compound and treat a 'victim' in counter-terror exercise

Source: https://www.dailymail.co.uk/news/article-6267813/Chemical-biological-warfare-specialists-suit-international-counter-terror-exercise.html

Oct 12 – Emergency crews are taking part in an international six-day counter terrorism exercise called Tropical Exposure.

Chemical, biological and radiological specialists from around the world have suited up in **Brisbane**, testing their response to possible terrorism scenarios.

Involving specialists from the United States, United Kingdom, **Canada** and across Australia, Tropical Exposure lasts six days.

The exercise is held every two years to test emergency crews' capabilities and responsiveness to terrorism situations.

Tropical Exposure is being hosted by the Queensland Police Service and Queensland Fire and Emergency Services at the Whyte Island training facility in Brisbane.

Minister for Home Affairs Peter Dutton visited the facility on Friday, commending the participants for their involvement.

'While the kind of threats being simulated at Tropical Exposure are unlikely, we need to be prepared for all possibilities,' Mr Dutton said.

The exercise is held every two years to test emergency crews' capabilities and responsiveness to terrorism situations

Tropical Exposure is being hosted by the Queensland Police Service and Queensland Fire and Emergency Services at the Whyte Island training facility in Brisbane

'The response to CBR threats requires highly specialised capabilities that are regularly rehearsed, and this exercise provides a valuable opportunity to do just that, alongside experts from the US, the UK, and Canada.'
More than 150 Australians are involved, bringing together military, law enforcement personnel, explosive technicians, forensic experts, fire and ambulance services and scientists.
'Our financial support for this exercise complements our broader investment in counter-terrorism exercises, which are critical to optimising our efforts to prevent, respond to, and recover from terrorism,' Mr Dutton said.
'While the kind of threats being simulated at Tropical Exposure are unlikely, we need to be prepared for all possibilities,' Mr Dutton said

Competition to Destroy Battlefield Chemical Weapons Launched by UK and U.S.

Source: https://www.hstoday.us/subject-matter-areas/wmd/competition-to-destroy-battlefield-chemical-weapons-launched-by-uk-and-u-s/

Sept 28 – The Defence and Security Accelerator (DASA), part of the Defence Science and Technology Laboratory (Dstl) and UK Ministry of Defence (MOD), has launched the 'Don't Blow It!' competition, the first joint UK-U.S. industry competition run by DASA and funded by the MOD and US Department of Defense (US DOD).

Competitors have been asked to identify innovative concepts or adapt current technologies to access, disable and destroy chemical and biological devices. This includes chemical and biological munitions, improvised explosive devices containing lethal agents or containers of bulk quantities of chemical or biological agents discovered on the battlefield or in other austere and resource-limited environments.
"Horrific incidents stretching from Salisbury to Syria this year have shown us that chemical weapons are sadly still very much a reality – but a reality that we are determined to deal with. Destroying these deadly weapons is a complicated process and not doing it properly could mean devastating collateral damage," Defence Minister Stuart Andrew said. "These

are challenges that we share with our allies like the U.S. Competitions like this help us to tackle them head on with some of the best and brightest minds across both our countries."
Although it is over 100 years since the first large-scale use of chemical weapons, the threat from both chemical and biological weapons persists. This has been demonstrated by the recent rise in the use of such deadly weapons on the battlefield and in targeted attacks.
Much progress has been made to destroy state-declared global stockpiles of chemical weapons through very successful large scale destruction programs, utilizing techniques such as incineration, explosive destruction or neutralization. However, to meet emerging and future challenges, such as the destruction of smaller caches produced by terrorists in resource-limited or hostile environments such as Iraq or Syria, there needs to be a focus on developing more robust elimination capabilities that are less labour intensive.
The competition has an initial £500,000 to fund multiple proof-of-concept proposals at low Technology Readiness Levels. Additional funding of £1.5 million is anticipated to be available for future phases.
The competition is seeking innovative ideas from non-traditional supply sectors and is looking for 'outside-the-box' proposals that will:

- enable rapid and flexible destruction
- reduce logistical support requirements
- maximize ease of operation and transportability
- address a greater breadth of threats

"The expanding proliferation of chemical weapons use, from state and non-state actors, portends the greatest threat of their use on the battlefield since World War I. My responsibility is to ensure our forces are protected from, and can fight through, any such threats," said Assistant U.S. Secretary of Defense for Nuclear, Chemical and Biological Defense Programs Guy Roberts. "To that end, we must continually innovate our capabilities, and it is especially important to do so in collaboration with those who fight alongside us. This competition does just that. It allows us to jointly invest in research and development with our closest ally as well as seek innovative ideas from a broader set of brilliant minds who I am confident will lead us to creative solutions."

From "Don't blow it!" project

EXISTING CHEMICAL AND BIOLOGICAL WEAPONS DISABLEMENT AND DESTRUCTION SOLUTIONS
Source:https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/744910/Info_IndustryChallenge_ExistingTechnologies_180924.pdf

▶▶ **More on "Don't blow it!" project:** https://www.gov.uk/government/publications/dont-blow-it-safely-eliminating-chemical-and-biological-munitions-on-the-battlefield/dont-blow-it-safely-eliminating-chemical-and-biological-munitions-on-the-battlefield-full-competition-document

Understanding the HazMat risk of industrial chemical incidents

By Steven Pike
Source: https://www.argonelectronics.com/blog/hazmat-risk-industrial-chemical-incidents

Oct 24 – Chemical manufacturing facilities are full of potential hazards which, if mishandled, can present a very real risk both to the safety of workers and to the wider communities in which those factories are located.
Even when the most stringent of precautions are taken, accidents can occur - whether due to human error, insufficient training, a natural disaster or an incident that results from a malicious act.
Depending on the nature of the event, HazMat response teams will be required to work with police, paramedics or environmental health agencies to identify the threat, reduce harm and resolve the situation.

The scope of the industrial chemicals sector

According to the United States Environmental Protection Agency (EPA) there are approximately 13,500 chemical manufacturing facilities in the US alone. These are made up of a combination of commodity plants (which typically run continuously and produce large quantities of basic, less expensive compounds) and speciality-batch or 'performance chemical' manufacturers who produce smaller quantities of more expensive products on an "as-required" basis.

In the UK, the chemical industry ranks as one of the top global producers - comprising 2,500 small and medium enterprises (SMEs) and with gross value added totalling £9 billion according to a January 2018 report.

Production within the chemical sector brings with it a multitude of environmental impacts including the emission of more than 1.5 million tons of criteria air pollutants, of which more than 80% comprises carbon monoxide (CO), nitrogen oxides (NOx) and sulfur dioxide (SO2).

And according to the EPA around 5% of the more than 10 billion pounds of managed chemicals are "disposed of or otherwise released to air and water, while the rest goes to treatment, energy recovery and recycling."

Understanding the risk

The potentially lethal consequences of accidental exposure to industrial chemicals was evidenced by the tragic sequence of events at an agricultural chemical plant in West Texas in 2013. The large fire and subsequent explosion at the West Fertilizer Co storage and distribution facility resulted in the deaths of ten firefighters and five civilians.

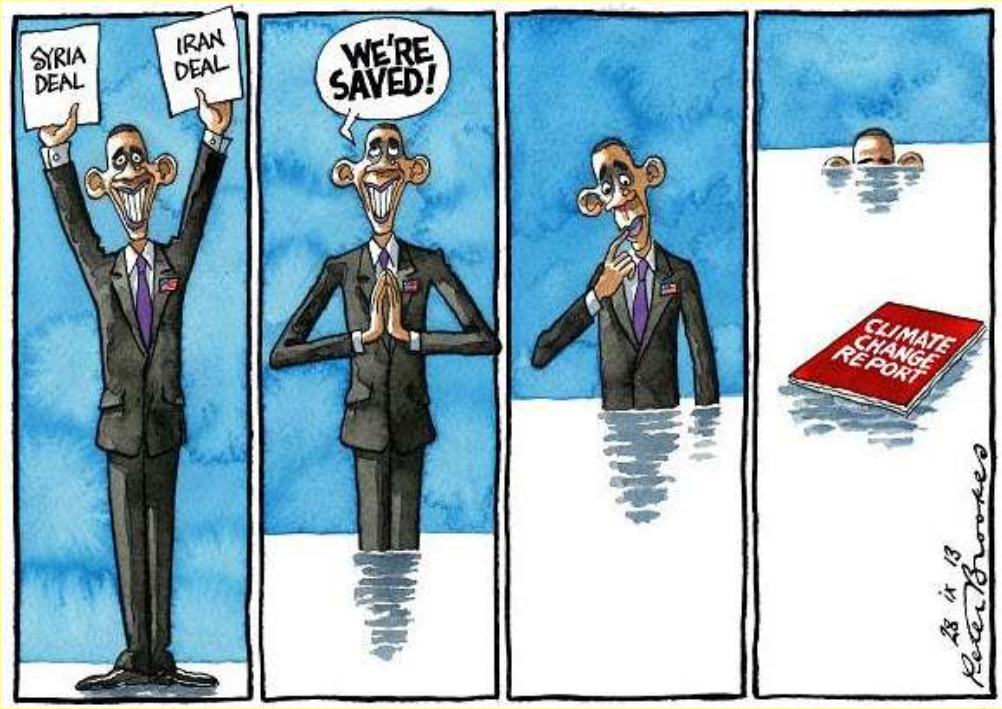
In 2014 the National Institute for Occupational Safety and Health (NIOSH) released its summary of the investigation into the West Fertilizer Co. explosion. The report cited multiple contributing factors to the fatalities - among them the "non-recognition of the hazards associated with the chemical ammonium nitrate" and "limited pre-incident planning of the commercial facility."

In response to the report, the West Fire Department made some significant changes, including creating pre-plans for all high-risk and target-hazard locations within the area, undertaking hazardous material training for key personnel and implementing a hazardous material plan.

Embedding HazMat into first responder training

It is the duty of fire and rescue services to develop policies and procedures that best support first responders' understanding of foreseeable hazards and their risks in relation to industrial chemical incidents.

While HazMat response training has been a requirement for new firefighters in the UK and the US for many years, there is also increasing recognition of the need for ongoing refresher training to ensure that personnel maintain their knowledge and competencies.
In the US for example the requirement for annual HazMat training is set out in the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, published by the Occupational Health and Safety Administration (OSHA).
The importance of embedding HazMat training into everyday firefighter response is also highlighted by retired Fire Chief and 35-year veteran of the US Fire Service, David F. Peterson, in his article written for online first responders' magazine FireRescue.
As David explains, what is needed is "a new way that integrates HazMat response training into other day-to-day fire response training."
He suggests intertwining HazMat elements into fire response lesson plans - including encouraging first responders in the practice of using self-contained breathing apparatus (SCBA) to limit personal exposures; and utilizing chemical monitoring equipment to assist in the detection of vapors and gases.
As David explains, "the first level of response for firefighters is education" - with classes and certifications at the "awareness" level enabling firefighters to anticipate and recognise potential chemical threats.
At the "operations" level, this knowledge is extended to include basic protection and identification equipment. But it is at the third level of training - the "technician" level - that the increased use of hands-on training and identification equipment truly comes into play.
As Peterson aptly summarizes it: "HazMat technician firefighters have saved lives, stabilized environmental locations and eliminated numerous potential HazMat threats."
The ability to be able to recognize a hazardous material risk and understand its properties is a crucial skill for any first responder who is called the scene of an incident involving industrial chemicals.
And having access to regular, hands-on training in the use of chemical detector equipment is a vital piece of the puzzle in ensuring the successful resolution of incidents and the safety of those involved.




ICI
International
CBRNE
INSTITUTE
CBRNE-Terrorism Newsletter
W
O
M
D
C2BRNE
DIARY
BIO NEWS

"Iran's Enemies Have Replaced Suicide Operations with Bioterrorism"

Source: https://ifpnews.com/exclusive/irans-enemies-have-replaced-suicide-operations-with-bioterrorism/

Sept 27 – Brigadier General Ahmadreza Pourdastan, the head of the Army's Centre for Strategic Research, said the enemy seeks **to control the population through transgenic products, and hence, it has replaced suicide attacks with bioterrorism.**

"The enemy has put on a friend's garment and says it is ready to have a group photo and have coffee with us," said the top official.

"The victory of the Islamic Revolution [of Iran] in February, 1979 was a political shock to the Americans and confused them and disrupted their equations in the region, he said.

"Before the revolution, Iran was one of the important satellites of the Americans, and the country was an open market for American products and all American goods were imported into the country and they took oil instead," the official added.

"However, with the [victory of] the Islamic Revolution, the US was stripped of all these advantages, and it is natural that they are seeking a way to regain the advantages," he added.

"From February 12, 1979 onward, the Americans adopted an approach aimed at toppling [the Iranian government] and sought to uproot the Islamic Republic [of Iran]; so, they imposed economic sanctions," he noted.

The top official said Iran is facing a new form of threats today.

"The threat we are facing today is a mixed war," he said.

"The Americans gained experience in World War II and found out they cannot take part in a war of attrition; so they defined a strategy that would help them achieve their objective in the shortest possible time, and hence, they used all cultural, media, economic, political and other levers," he noted.

He said economic resilience is the only way to get out of the current situation, adding, "we expect government officials to pay due regard to this issue, as well."

Elsewhere in his remarks, the top general touched upon the enemy's war of nerves.

"The enemy wants to paint a dark picture of the future through psychological warfare," he said.

"Today, the United States is in the weakest military and economic situation it has ever been, and the UN, Europe, Canada, China, etc are not on board with the US," he said.

"Furthermore, the US is an indebted country and if this trend continues, it will end up having a destiny like that of the former Soviet Union," he said.

The top general then called on officials to fully abide by guidelines of Leader of the Islamic Revolution Ayatollah Seyyed Ali Khamenei.

He also urged closer solidarity among Iranians.

"We should have unity and rapport like in Holy Defense years (the eight years of the Iraqi imposed war on Iran in the 1980s)," said the top general.

Pourdastan then said the Iranian Armed Forces have the enemy's moves and activities on their intelligence radar and that they will not be caught unawares by any military threat.

"If they say our country is a safe country, it is so, indeed," he said.

He then touched upon the recent deadly terrorist attack on a military parade in the southern Iranian city of Ahvaz, and added such "blind terror attacks" which target women and children have no military value.

EDITOR'S COMMENT: Can just a few words in an article define the title of the article? Unless they think that we are so stupid.

The problem is bigger than anthrax

Source: https://ahvalnews.com/anthrax/problem-bigger-anthrax

Oct 2018 – Just after the end of the Eid al-Adha religious holiday in August, Turkey was gripped by a series of reports of an anthrax outbreak. The first came from a farm near Ankara, followed by reports from six other cities around the country, including Istanbul. Despite reassurances from government officials, people are still uneasy.

Although the official number of cases has not yet been released, many people have been diagnosed with the disease and are undergoing treatment. This past week in the Ankara district of Mamak, the Public Health Institute learned that more than 50 people suspected of being infected had been sent for testing. The Ankara Governor's Office denied the claims.

The most recent news came on Friday from Bitlis, in the southeast. At a press conference called by several local health organisations, it was announced that a 10-year-old child had died of an anthrax-related gastrointestinal infection. Local health officials are alarmed.

Are anthrax-infected meat imports and food safety the only problems we're looking at here? Or is anthrax just the tip of the iceberg?

Experts point out that Turkey's agriculture policies are misguided, saying the real issues are the way that import processes are handled as well as high attrition rates and lack of experience among preventative health care providers. These problems, along with risky food safety policies and practices, have put Turkey on a dangerous path towards a serious public health crisis.

The president of the Chamber of Agricultural Engineers Özden Güngör said these issues stemmed from Turkey's shift over the last 16 years to a heavier reliance on imports. Rather than creating sound agricultural policies, the government focused only on imports, which have totalled $185 billion since 2002. "Every problem we're seeing today with food safety comes directly from imports. Importers have steady access to government capital, and all import transactions are given to pro-government companies," he said. "Instead of building up domestic production, the government has been enriching their supporters."

Except for a few animal and plant products, Turkey meets its needs through imports. As a result, producers are discouraged and crushed by bank debt, and many end up leaving the business. "The government doesn't support farmers and ranchers," Güngör said. "On top of this, the prices for seeds, pesticide, fertiliser, irrigation, labour, and energy have shot up to abnormally high levels. Diesel too. This puts farmers in an impossible situation, so they sell their land and their stock and move on." Güngör pointed to Ministry of Agriculture and Forestry statistics that said from 2002 to 2017, the number of farmers had decreased by almost 500,000, and there had been a 10 percent decrease in total farmland acreage.

According to official numbers from Turkstat and the Ministry of Agriculture, there are currently 38.4 million hectares of farmland, 14.6 million of which are designated as grazing land. But Güngör said these numbers were inaccurate. "Once farming and grazing land is registered, the state turns a blind eye to how it's actually used. A lot of this land has been converted into state housing, mines, power stations, and roads." He pointed out that the official amount of grazing land has not changed since 2002, but the Chamber of Agricultural Engineers' records show that 10.5 million hectares have been lost. When grazing land disappears, farmers have to import feed to supplement the animals' diets. "Of the 2.8 billion tonnes of soy needed for animal feed, we only produced 180,000 tons. One hundred percent of the soy we import is GMO. The same is true of corn. By closing our land to farming and grazing and opening our doors to imports, it's inevitable our animals will get sick."

Turkey also imports an increasing amount of meat from 20 different countries, particularly Brazil and Uruguay, and in 2017, 280,000 sheep and 896,000 cattle entered the country. When live animal importing began in 2010, infectious diseases were rarely seen. Güngör

said the string of anthrax cases was just the beginning; veterinary checks on imported animals are insufficient, and he said these illnesses would only increase.
This problem was triggered by the Ministry Agriculture, which is now staffed by people with no background in the field. There are fewer veterinary checks, preventative medicine is inadequate, and vaccinations are inconsistent.
The president of the Turkish Medical Veterinary Association Talat Gözet said the number of veterinarians was decreasing all over the country. "A lot of these problems are the ministry's fault. Before, animal vaccinations were closely tracked, and any irregularities were reported. Now, there is no one doing this. The whole system has broken down and as a result, we have more sick animals," he said. Poor policy, small budgets, and inadequate infrastructure are at the root of the problem, said Gözet, and veterinary doctors who fight the spread of illness needed more support. "There should not be an outbreak of anthrax like this. It means the requested vaccinations aren't happening. It's not like the old days when technicians travelled from house to house vaccinating livestock," he said.
Gözet said anthrax had always been in Turkey with many cases each year. But, he said, there were around 200 other animal diseases that can pass to humans, and some diseases that have never been seen in Turkey are arriving with live animal imports. Until six months ago, the ministry employed veterinarians to check animals in the exporting countries, but this control was removed. Gözet said it was the importers who wanted this change as they did not want to pay the veterinarians' travel expenses.
Ankara Chamber of Physicians President Vedat Bulut said the domestic meat market had been abandoned in favour of imports, and said the problems of meat producers were consciously ignored. "The companies that import animals into Turkey don't pay any taxes, which is hugely profitable for them. Domestic production is taxed, but foreign production isn't. The idea was to keep the meat cheap for consumers, but in fact, the big corporations are getting richer while tens of thousands of farmers and ranchers are going under," he said.
"One reason for the anthrax outbreak is that if domestic production is sacrificed to imports, we have to pull preventative medicine technicians and other public health officers from the field. There are veterinarians, animal technicians, and food and agricultural engineers all waiting for work, but the Ministry of Agriculture isn't hiring anyone. This means that production has no checks on it at all," he said. Despite its obligation to report anthrax outbreaks, the Public Health Institute still has not shared any information. Bulut estimated that there were more than 60 cases, though there is no confirmation of this from the government. He stressed the importance of daily updates during a public health crisis. "Instead of transparency on these issues, officials are tight-lipped. This is wrong," said Bulut. "Threats to public health are urgent and must be dealt with immediately."

"Nature is potentially the worst bioterrorist," says Anthony Fauci

Source: https://www.cbsnews.com/news/niaids-anthony-fauci-nature-is-potentially-the-worst-bioterrorist/

Dr. Anthony Fauci says he's "cautiously optimistic" about the future of global health, which he says has the potential to be enhanced by the development of universal vaccines and improved preventative measures. As the Director of the National Institute of Allergy and Infectious Diseases (NIAID) at the National Institutes of Health (NIH), Fauci says that the greatest causes of global health crises stem from modern, man-made activity: ease of travel, population growth and human intrusion into the environment.
Given his over three-decade tenure at NIH – one of the largest research institutions in the world – Fauci has unique experience in and insight into the world of pandemics, epidemics and bioterrorism. He describes himself as a "physician scientist" – one "who remains taking care of people, understanding disease, but at the same time doing science."
In an interview with *Intelligence Matters* host and CBS senior national security contributor Michael Morell, Fauci describes the existing threats to global health and the world's preparedness in the face of emerging and evolving infectious disease.
He uses, as an example, the last great pandemic to affect the United States – Swine Flu, or H1N1 virus, in 2009. Fauci tells Morell that

there are no trends to make sense of global virus outbreaks like influenza, which is in part why doctors recommend that everyone get a new flu shot every season.
"The reason why influenza is so problematic is that it's a virus that has the extraordinary capability of easily mutating and changing just enough so that you need to get a vaccine virtually every year."
Fauci says he remains optimistic about a universal influenza vaccine. "We're putting a lot of effort into that," he says.
The NIAID director also warns of harmful, man-made effects on the environment. He tells Morell that a combination of elements, but specifically human encroachment on the environment, is a proven catalyst for the epidemics and pandemics that are the biggest threat to life. "When you push into the environment, you expose man to things they wouldn't commonly be exposed to," Fauci says.
Fauci expresses skepticism about the potential threat posed by man-made agents used for bioterrorism, suggesting naturally evolving pathogens are still our most likely and dangerous foe. He describes to Morell just how complex it would be for an individual or a state actor to release a bio-weapon on the United States.
"You'd have to have considerable expertise, and you'd have to be pretty lucky, because it isn't the easiest thing in the world to do that," Fauci says. "And that's the reason why I always say – with the caveat that I pay a lot of attention to the possibility of deliberately released microbes – that nature, because of its extraordinary ability to evolve microbes, nature is potentially the worst bioterrorist for us."
But as a self-described "realist who's cautiously optimistic," Fauci maintains a positive outlook on the future.
"All of the technology of science now arms us very well," he says. "The only trouble is, we have to keep up and we have to keep going."

DHS Aims to Replace Slow, Outdated Bioterror-Detection System

By Patrick Tucker

Source: https://www.defenseone.com/technology/2018/09/dhs-aims-replace-slow-outdated-bioterror-detection-system/151588/

Sept 26 - A new plan to draw on big data and distributed sensors will replace a 2003 system that can take up to 39 hours to detect a threat.

In order to fight next-generation biological threats, the Department of Homeland Security, or DHS, is revamping the way the government collects, uses, monitors and distributes information. The hope is to get something that works far faster than the system in use today to catch a pandemic before it starts.

Biological weapons detection "is and has been a problem," DHS Assistant Secretary James F. McDonnell, who leads the Countering Weapons of Mass Destruction Office, said at a September event sponsored by Noblis.

It's harder, for example, than finding stolen or illicit nuclear weapons. The latter is a binary problem; radioactive material is present in sufficient quantity to trigger the alarm, or it isn't. But detecting biological threats is more difficult. Variabilities in particulate matter, weather, and other natural conditions can all affect readings to great degree.

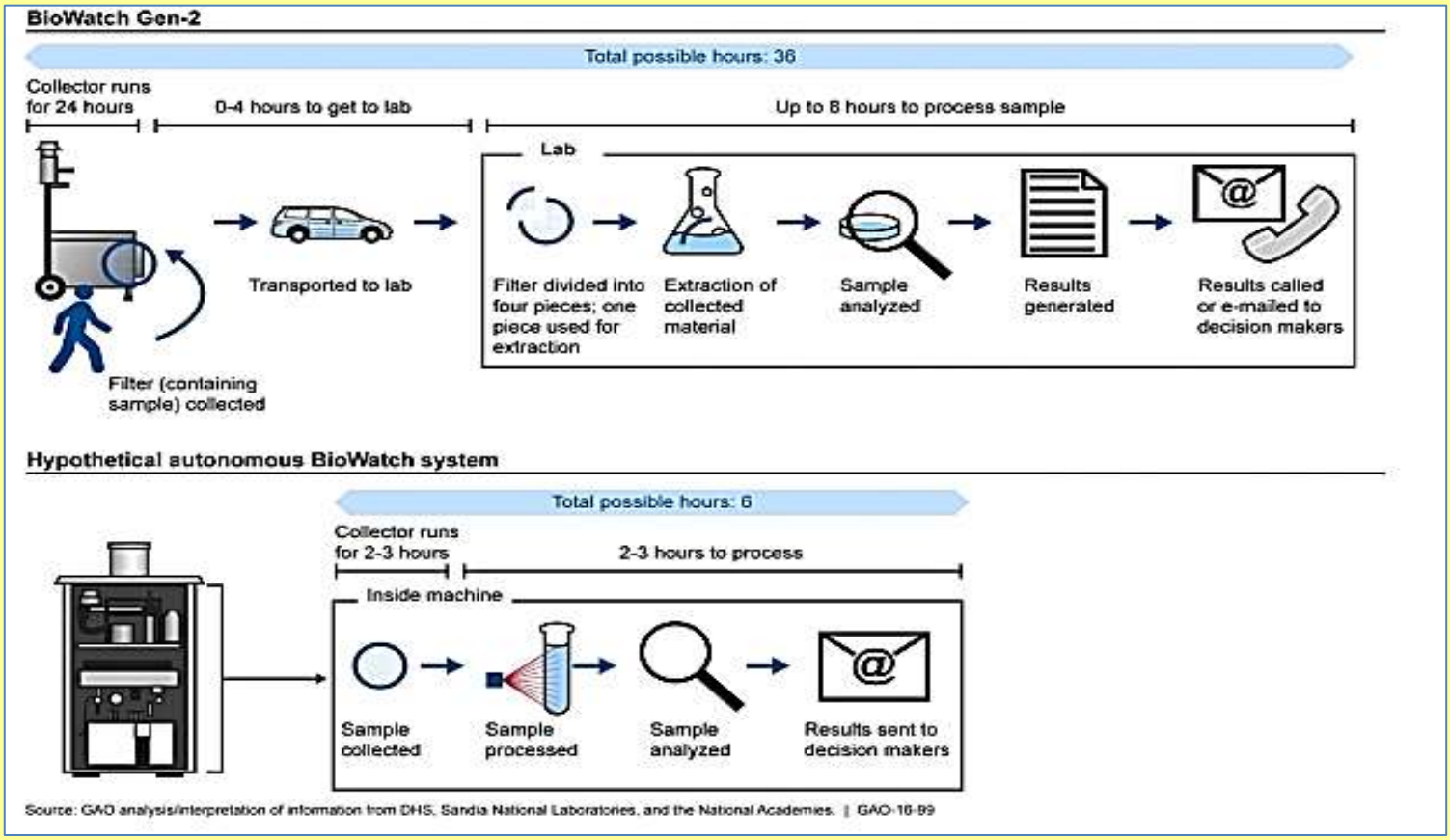
"What the air looks like in Washington during the Cherry Blossom Festival is a lot different than what the air looks like on a cold, rainy afternoon. The air in Denver is different from the air in California," said McDonnell. "There are so many different variables when you are trying to understand particulates in the air."

While emergency workers and authorities can quickly ascertain what sort of damage has been done by a bomb, biological contamination can spread a long way before it is detected.

Today, DHS sniffs for bioterrorism in 30 U.S. cities under the BioWatch program, which gathers air samples over 24 hours, sends them to a lab, and uses polymerase chain reaction analysis to look for DNA from toxins or pathogens.

McDonnell says the 15-year-old BioWatch program has become inadequate — in particular, it's too slow.

"It's 11 to 13 hours after [the sample] is taken to the laboratory before a decision is made" as to whether a biological agent has been deployed, he said. "That gives you up to 39 hours in between samples and



the decision. If you take Penn Station in New York, with 600,000 people a day going through it and a 9-million-person subway system… and our current [concept of operation] is which would let you know, 'Yesterday, someone released smallpox,' you have a global pandemic before we're done doing the analysis."

McDonnell says that while the department will continue to use BioWatch, they will also move toward

replacing it with a new monitoring system. The new system that will add sensors — including ones on government cellphones — and make better use of the ones scattered across a list of government agencies that includes Customs and Border Patrol and the Transportation Securities Administration. They'll also work to better integrate all that data in a way that lets everyone see what everyone else is doing.

Most importantly, DHS wants the new system to constantly scan the environment for subtle irregularities that could point to the presence of a biological agent, rather than just sniffing

for the agents themselves. To prevent false positives, the system will use big-data analytics to determine whether an anomaly warrants human inspection.
"What we are doing is deploying real-time triggers that will do bio-sensing and identify anomalies. To determine that anomaly is going to be difficult. It's going to take some time and some advanced analytics to figure out the bell curve for what's normal in what time of day. There is quite a bit of data. That's going to be a big project for us. But the [concept of operations] looks similar to the nuclear [detection] concept of operations at the end of the day," McDonnell said.
When such an anomaly is detected, "smeone with a handheld kit will go down and do an assessment to see if it's positive for anthrax or not. Now you've gone from 'we had smallpox released yesterday' to, in 20 or 30 minutes, doing incident management."
McDonnell's job was created in December, in what a DHS press release called "one of the most significant reorganizations of the Department in a decade." The House recently voted to make the office permanent. McDonnell was appointed to head the office in May.

Patrick Tucker *is technology editor for Defense One. He's also the author of The Naked Future: What Happens in a World That Anticipates Your Every Move? (Current, 2014). Previously, Tucker was deputy editor for* The Futurist *for nine years. Tucker has written about emerging technology in* Slate, The Sun, *MIT* Technology Review, Wilson Quarterly, The American Legion Magazine, *BBC* News Magazine, Utne Reader, *and elsewhere.*

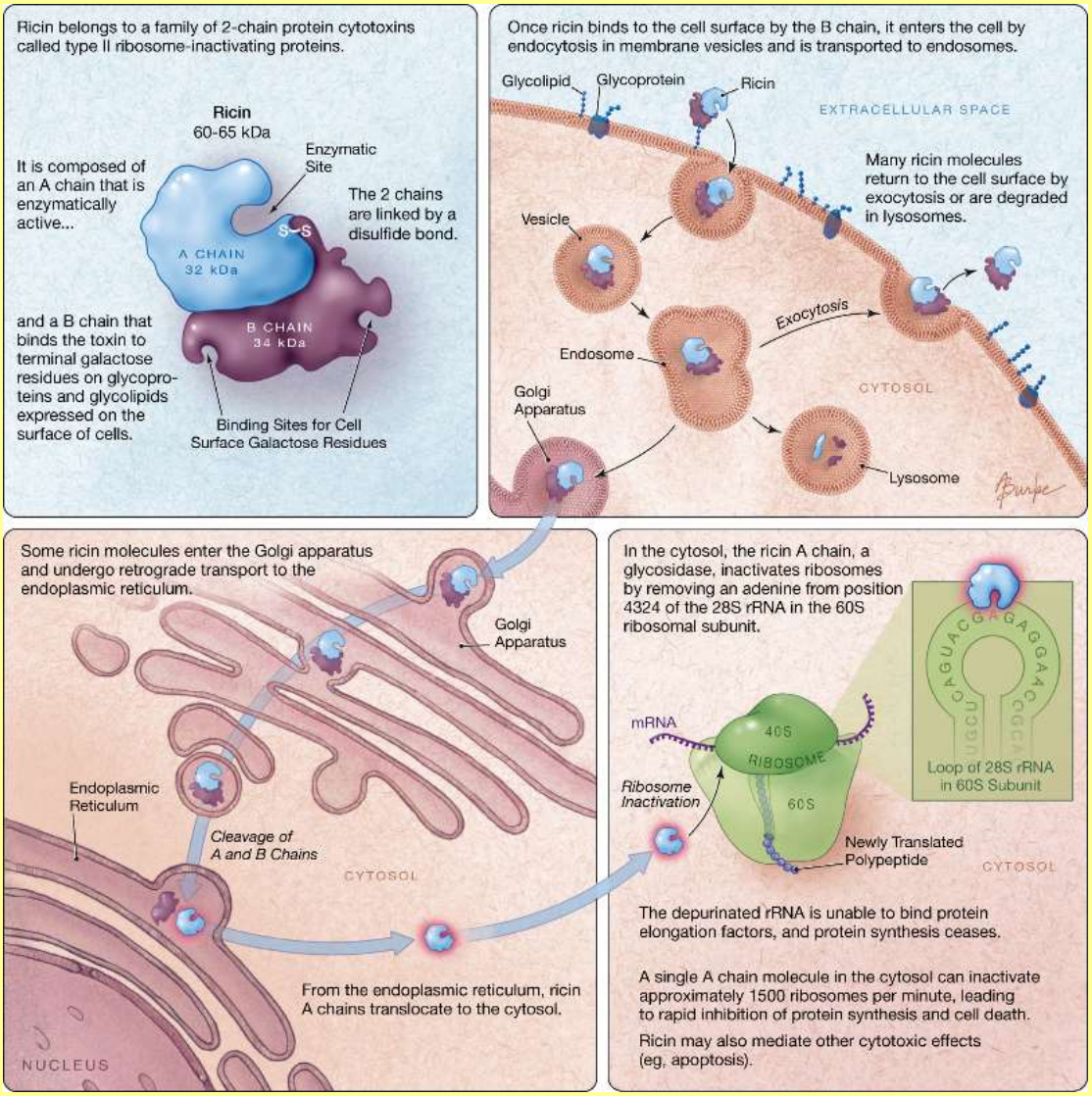
Pentagon: Packages That May Contain Ricin Found on Grounds

Source: https://www.nytimes.com/aponline/2018/10/02/us/politics/ap-us-pentagon-suspected-poison.html

Oct 02 — A Pentagon spokesman says authorities found at least two packages suspected of containing ricin, a poison made from castor beans.
Spokesman Chris Sherwood said the FBI was investigating and few details were available. He said the packages had been found Monday at a delivery facility that is on the Pentagon grounds but not inside the main building that includes the offices of the defense secretary.
Sherwood said the packages were addressed to a person at the Pentagon. He would not reveal the name.
Ricin is part of the waste "mash" produced when castor oil is made. According to the Centers for Disease Control and Prevention, if it is made into a partially purified material or refined, ricin can be used as a weapon capable of causing death under certain circumstances.
In June, a Wisconsin mom was accused of spreading ISIS propaganda online -- including directing one person how to make ricin and how to deploy it at a government facility or water reservoir.
That same month, an Islamic extremist ricin attack planned for Germany was foiled.
======
[Ricin is a poison found naturally in castor beans. If castor beans are chewed and swallowed, the released ricin can cause injury. Ricin can be made from the waste material left over from processing castor beans. It is a potent protein derived from the beans of the castor plant (*Ricinus communis*). Castor beans are used in the production of castor oil, a brake and hydraulic fluid constituent. The aqueous phase of the process, termed the "waste mash", is 5-10 per cent ricin.

Castor oil does not contain ricin. Ricin has been used experimentally in medicine to kill cancer cells. Ricin works by getting inside the cells of a person's body and preventing the cells from making the proteins they need; hence, it is often called a toxalbumin. Without the proteins, cells die. Eventually this is harmful to the whole body, and death may occur.
Ricin can be in the form of a powder, a mist, or a pellet, or it can be dissolved in water or weak acid. It is a stable substance under normal conditions, but can be inactivated by heat above 80 C (176 F).

Effects of ricin poisoning depend on whether ricin was inhaled, ingested, or injected. The major symptoms of ricin poisoning depend on the route of exposure and the dose received, though many organs may be affected in severe cases. Initial symptoms of ricin poisoning by inhalation may occur within 8 hours of



exposure. Following ingestion of ricin, initial symptoms typically occur in less than 6 hours.

Inhalation: within a few hours of inhaling significant amounts of ricin, the likely symptoms would be respiratory distress (difficulty breathing), fever, cough, nausea, and tightness in the chest. Heavy sweating may follow as well as fluid is building up in the lungs (pulmonary edema). This would make breathing even more difficult, and the skin might turn blue. Excess fluid in the lungs would be diagnosed by x-ray or by listening to the chest with a stethoscope. Finally, low blood pressure and respiratory failure may occur, leading to death. In cases of known exposure to ricin, people having respiratory symptoms that started within 12 hours of inhaling ricin should seek medical care.

Ingestion: if someone swallows a significant amount of ricin, he or she would develop vomiting and diarrhea that may become bloody. Severe dehydration may be the result, followed by low blood pressure. Other signs or symptoms may include hallucinations, seizures, and blood in the urine. Within several days, the person's liver, spleen, and kidneys might stop working, and the person could die.

Skin and eye exposure: ricin is unlikely to be absorbed through normal skin. Contact with ricin powders or products may cause redness and pain of the skin and the eyes.

Death from ricin poisoning [may] take place within 36 to 72 hours of exposure, depending on the route of exposure (inhalation, ingestion, or injection) and the dose received. If in suspected situations where ricin may have been disseminated, preliminary environmental testing by public health or law enforcement authorities may detect ricin in powders or materials released into the immediate environment. Persons occupying such areas may initially be observed for signs of ricin poisoning.
No widely available, reliable medical test exists to confirm a person has been exposed to ricin.
Because no antidote exists for ricin, the most important factor is to avoid ricin exposure in the 1st place. If exposure cannot be avoided, the most important factor is then getting the ricin off or out of the body as quickly as possible.
Symptomatic ricin poisoning is treated by giving victims supportive medical care to minimize the effects of the poisoning. The types of supportive medical care would depend on several factors, such as the route by which victims were poisoned (that is, whether poisoning was by inhalation, ingestion, or skin or eye exposure). Care could include such measures as helping victims breathe, giving them intravenous fluids (fluids given through a needle inserted into a vein), giving them medications to treat conditions such as seizures and low blood pressure, flushing their stomachs with activated charcoal (if the ricin has been very recently ingested), or washing out their eyes with water if their eyes are irritated.

Navy vet arrested for allegedly trying to poison Mattis and the Navy's top officer

Source: https://www.militarytimes.com/news/your-military/2018/10/03/navy-vet-william-clyde-allen-iii-arrested-in-ricin-poison-case/61.6K

Oct 04 – A Navy veteran from Utah was arrested Wednesday in connection with packages suspected to contain ricin that were mailed to Pentagon and Navy leadership on Monday, the U.S. Attorney's Office for Salt Lake City confirmed to Military Times.

William Clyde Allen III, 39, was arrested late Wednesday and taken into custody, said U.S. attorney's office spokeswoman Melody Rydalch.

This undated photo released by Davis County Sheriff's Office shows William Clyde Allen III. Allen, 39, a U.S. Navy veteran in Utah was arrested Wednesday, Oct. 3, 2018, in connection with suspicious envelopes that were sent to President Donald Trump and top military officials. (Davis County Sheriff's Office via AP)

A former enlisted sailor who spent four years in the Navy nearly two decades ago, Allen is expected to be formally charged Friday, Rydalch said.
The envelopes of castor seeds, the base of a deadly toxin, were addressed to Defense Secretary James Mattis and Chief of Naval Operations Adm. John Richardson, defense officials said.

Department of Defense employees inside the Pentagon's mail screening facility inspect envelopes and packages on Monday, Oct. 1. Navy veteran William Clyde

The parcels triggered alarms Monday during security screening at a mail processing center that is on the Pentagon campus, but not inside the building.
Allen III was arrested in Utah in connection with packages suspected to contain ricin that were mailed to Pentagon and Navy leadership. (Tara Copp/Military Times)
Allen's Navy service record offers basic insight into his time in uniform. He enlisted in October 1998 and left the service four years later in October 2002 at the rank of E-2, according to a record provided by Navy officials.
He was a damage control fireman apprentice, and put on that rank in March 2002, the service record shows.
His assignments included 17 months aboard the combat support ship Supply, and about 15 months aboard the support ship Detroit.
Before that, he attended the Damage Controlman "A" school at Naval Station Great Lakes in Illinois, according to records.

Law enforcement officers search a house on Wednesday, Oct. 3, 2018, in Logan, Utah. A man suspected of mailing ricin to the Pentagon and President Donald Trump was taken into custody at the scene. (Eli Lucero/Herald Journal via AP)

EDITOR'S COMMENT: If you are searching for ricin no PPE is required! Only gloves and gas masks.

Records show Allen received the Navy "E" ribbon twice, a unit-wide commendation.
He also was awarded a National Defense Service Medal and two Sea Service Deployment Ribbons, which are largely standard issue.
Allen's official service record lists him as being discharged as an E-2, with a date of rank just seven months prior to his discharge. That most likely indicates he was reduced in rank on that date.
Allen registered as an E-4, damage controlman 3rd class, on the 2001 crew roster of the Detroit on the website navysite.de, which maintains crew rosters from many Navy ships. This would indicate he was most likely busted twice before exiting the Navy on Oct. 27, 2001.

The two packages were intercepted by the Pentagon's mail screening facility. A third package addressed to President Donald Trump was mailed to the White House, but was intercepted by the Secret Service.
Ricin is derived from castor beans, which can be harmful if ingested, according to the U.S. Centers for Disease Control and Prevention.
When weaponized by a terrorist or other agent, people can be exposed to the poison via the air, food and water, according to the CDC.
In an impromtu press conference in Logan, law enforcement officials said the address in question was 308 N. 200 West Logan, Utah.
"As there are potentially hazardous chemicals involved, we ask that the public stay away from this location during the entirety of the operation," a local official told media, according to a tweet from a crime reporter on scene.
Logan police department spokesman Capt. Tyson Budge confirmed the tweeted feed's authenticity.
According to the website "Counter Domestic Terrorism" Allen has harassed female veterans online through his Facebook account. Military Times was unable to immediately verify those allegations.

Assessing chemical, biological, radiological and nuclear threats to the food supply chain

By Stephanie Meulenbelt
Source: https://www.tandfonline.com/doi/full/10.1080/23779497.2018.1509675

The food supply chain can be compromised by different factors, including intentionally. There are numerous examples of food sources being tempered with throughout history and even more (frustrated) plots. During the invasion of al-Qaeda sanctuaries in Afghanistan in the early 2000s, for example, (U.S.) agricultural documents, lists of livestock pathogens and manuals for targeting the food supply were discovered (Olson, 2012 Olson, D. (2012, February). Agroterrorism; threats to America's economy and food supply. FBI Law Enforcement Bulletin. Retrieved from https://leb.fbi.gov/articles/featured-articles/agroterrorism-threats-to-americas-economy-and-food-supply [Google Scholar]). More recently, in 2016, a group of Islamic State-aligned terrorists allegedly planned to contaminate Indonesian's (police and army) food and water supplies with cyanide in an attempt to destabilise the state (Boyle, 2016 Boyle, D. (2016, February 17). ISIS are threatening a mass murder using cyanide to poison food supplies, warns Indonesia's security minister. Daily Mail. Retrieved from http://www.dailymail.co.uk/news/article-3451366/ISIS-threatening-mass-murder-using-cyanide-poison-food-supplies-warns-Indonesia-s-security-minister.html [Google Scholar]). Numerous officers, researchers and policy makers consider the food chain to be particularly vulnerable to attacks with chemical, biological, radiological or nuclear (CBRN) agents11. For the purpose of this paper, the term CBRN agent refers to any chemical, biological, radiological or nuclear agent that through its action on life processes can cause death or permanent harm to humans, animals or plants, regardless of their origin. The paper focuses on malicious use of such agents.View all notes (e.g. Mohtadi & Murshid, 2009 Mohtadi, H., & Murshid, A.P. (2009). Risk analysis of chemical, biological, or radionuclear threats: Implications for food security. Risk Analysis, 29(9), 1317–1335.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). They fear the ease with which such an attack may take place and emphasise its potential to create mass casualties. However, using the food chain's carrying capacity to spread a CBRN contamination across a wide geographic area can be extremely complicated and its effects are unpredictable.
The misuse of chemical and biological agents, i.e. to intentionally contaminate food and water supplies, dates back many centuries. Agents' increased effectiveness as a weapon is a more recent phenomenon: they have become more deadly and their means of delivery more sophisticated, particularly those developed under state's weapon programmes. Due to globalisation, open information access and technological advances among others, these weapons, their toxic agents and information on how to fabricate them are now within reach of an increasing number of (non-state) actors.22. For a general overview of non-state actors' motivation to use CBRN agents, the probability of them conducting CBRN attacks and possible consequences thereof, see:

Meulenbelt & Nieuwenhuizen, 2015 Meulenbelt, S.E., & Nieuwenhuizen, M.S. (2015). 'Non-State actors' pursuit of CBRN weapons: From motivation to potential humanitarian consequences. International Review of the Red Cross, 97(899), 831–859.[Crossref], [Web of Science ®], [Google Scholar].View all notes Unsurprisingly, such agents have occurred as a means of attack in terrorist plots in the past decades, including in relation to food. The World Health Organization (WHO) explicitly combines CBRN agents with 'food terrorism', defining it as 'an act or threat of deliberate contamination of food for human consumption with CBRN agents for the purpose of causing injury or death to civilian populations and/or disrupting social, economic or political stability' (WHO, 2002 World Health Organization, Food Safety Department, Zoonoses and Foodborne Diseases (2002). Terrorist threats to food; guidance for establishing and strengthening prevention and response systems. Retrieved from http://www.who.int/iris/handle/10665/42619 [Google Scholar]).

This paper takes the WHO definition as a starting point, but also considers animal feed and water supplies as potential targets. Targeted poisonings, directed at specific individuals, are not part of the main focus of this paper because they generally do not have the potential to create mass casualties or widespread damage. For example, the Polonium-210 poisoning of Alexander Litvinenko in the U.K. in 2006 – although perhaps the only confirmed use of radiological material strong enough to kill an individual with a food related item33. Some argue that Yasser Arafat has also been poisoned with Polonium-210, but this proposition can only be moderately supported (Froidevaux et al., 2016 Froidevaux, P., Bochud, F., Baechler, S., Castella, V., Augsburger, M., Bailat, C., … Mangin, P. (2016). 210Po poisoning as possible cause of death: Forensic investigations and toxicological analysis of the remains of Yasser Arafat. Forensic Science International, 259, 1–9.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]).View all notes – is not considered an attack on the food chain: there was no intent or potential to make use of its carrying capacity. This paper provides insight in the threat posed by CBRN contaminations that do have this potential. In order to do so, it first describes relevant CBRN agents, thereafter likely points of introduction in the food chain, and, thirdly, possible consequences of such attacks before drawing some final conclusions.

CBRN agents with potential to contaminate the food chain

Many CBRN materials are used for food-related benefits, for example, to fertilise soil, for crop protection or to increase durability of food. Therefore, such materials are often present in products and available in close vicinity to foodstuffs in different phases of the food chain. However, when improperly used or misused, i.e. in a way that is harmful or morally wrong, such agents could cause harm. Not all agents have the potential to yield disastrous effects. This section describes those that can, including readily available toxic chemicals, a plethora of (naturally occurring) microbiological pathogens and certain radioactive materials.

Chemical agents

In the past, large-scale food-related misuse of chemicals occurred and led to numerous innocent victims as a direct or indirect result thereof. For example, between 1961 and 1971, U.S. and Vietnam forces used herbicides to defoliate forests and mangroves to clear perimeters for military installations, but also to destroy crops as a tactic for decreasing enemy food supplies (Mager Stellman, Stellman, Christian, Weber, & Tomasallo, 2003 Mager Stellman, J., Stellman, S.D., Christian, R., Weber, T., & Tomasallo, C. (2003). The extent and patterns of usage of agent orange and other herbicides in Vietnam. Nature, 422, 681–687.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). Due to the coloured identification bands painted on their storage barrels, these herbicides are known as the rainbow agents (e.g. Agent Orange and Agent Green). Today, people are still battling the aftermath of their use and the full socioeconomic, environmental and health effects remain partially unknown (some indications are provided by Palmer, 2005 Palmer, M.G. (2005). The legacy of agent orange: Empirical evidence from central Vietnam. Social Science and Medicine, 60(5), 1061–1070.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]).

There are no recorded examples of mass casualties as a result of intentional misuse of chemicals related to food in recent history, though incidents continue to occur, e.g. when pesticides are (deliberately) wrongly used.44. Pesticides are responsible for an estimated

200,000 acute poisoning deaths each year (Human Rights Council, 2017 Human Rights Council. (2017, January 24). Report of the Special Rapporteur on the right to food (A/HRC/34/48). Retrieved from Office of the High Commissioner of Human Rights website: http://ap.ohchr.org/documents/dpage_e.aspx?si=A/HRC/34/48 [Google Scholar]), 99% of which occur when health, safety and environmental regulations are weak. For example, the deaths of farmers due to pesticide poisoning in Maharashtra, India, around October 2017, have opened up a debate over the rationale of using all pesticides in India which are either banned or restricted elsewhere in the world due to their high toxicity (Mohan, 2017 Mohan, V. (2017, October 19). 7 deadly pesticides world has banned used in India. The Times of India. Retrieved from https://timesofindia.indiatimes.com/india/7-deadly-pesticides-world-has-banned-used-in-india/articleshow/61138491.cms [Google Scholar]).View all notes
An interesting example in this regard is the illegal spraying of fipronil at farms in the Netherlands and Belgium, which most likely started in early 2016 but became public in August 2017. Fipronil was used to kill lice present in poultry farms, despite being banned in the EU for use on farm animals. It entered chickens and subsequently eggs and got further into the food chain. Fortunately, no acute health effects occurred, but this scandal had significant economic and political consequences.55. Direct economic damage is estimated at 65–75 million euros, including culling efforts, egg destruction and recalls of egg-based products in 15 EU countries, Switzerland and Hong Kong. Long-term consequences are still unknown (Gallagher, 2017 Gallagher, J. (2017, August 11). Eggs containing fipronil found in 15 EU countries and Hong Kong. BBC News. Retrieved from https://www.bbc.com/news/world-europe-40896899 [Google Scholar]; Van Horne, 2017 Van Horne, P., Van der Meulen, H., & Wisman, A. (2017, August). Eerste indicatie economische gevolgen fipronilaffaire voor de pluimveesector; Op basis van beschikbare informatie voor zover bekend op 16 augustus (Research Nota 2017-091). Wageningen University & Research. [Google Scholar]).View all notes
Despite measures taken to limit use or availability of toxic chemicals, including pest-control products, banned chemicals are still relatively easy available, e.g. on the black market or as part of left-over stocks. Malicious people may be tempted to acquire and use such chemicals to harm people, and have done so in the past. For example, in 2002, seven members of the Johanne Marange Apostolic Church died and another 47 were taken ill after drinking tea laced with pesticides (Mohtadi & Murshid, 2009 Mohtadi, H., & Murshid, A.P. (2009). Risk analysis of chemical, biological, or radionuclear threats: Implications for food security. Risk Analysis, 29(9), 1317–1335.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). Similarly, rodenticides have been used intentionally for numerous poisonings. The toxicity of rat poisons has been particularly recognised in China.66. E.g. in September 2002, 42 people were killed in a restaurant near Nanjing. The perpetrator was a jealous rival restaurant owner. There are also a number of incidents at schools, such as in April 2004, in Tongchuan City, when 74 people were intentionally poisoned through toxic pancakes (Dalziel, 2009 Dalziel, G.R. (2009). Food defence incidents 1950–2008: A chronology and analysis of incidents involving the malicious contamination of the food supply chain. Retrieved from Nanyang Technological University website: http://www3.ntu.edu.sg/rsis/cens/publications/reports/RSIS_Food%20Defence_170209.pdf [Google Scholar]).View all notes
Metals and commonly available (household) chemicals have been used for tempering with food products as well. In 1978, for example, some Israeli-grown oranges injected with mercury turned up in Germany and the Netherlands. The fruit was accompanied by a letter bearing the name of an alleged Palestinian terrorist group that claimed they had contaminated the fruit to sabotage the Israeli economy ('Poisoned Oranges', 1978 Oranges, P. (1978, February 2). Some poisoned Israeli oranges discovered in Europe. The New York Times. Retrieved from http://www.nytimes.com/1978/02/02/archives/some-poisoned-israeli-oranges-discovered-in-europe.html?_r=0 [Google Scholar]). In addition to a handful of Dutch children being temporarily hospitalised, the import of million tonnes of citrus products was halted (Bjarnason, 2012 Bjarnason, M. (2012). Food security: An unfashionable subject often taken for granted. NATO Review Magazine. Retrieved from http://www.nato.int/docu/Review/2012/Food-Water-Energy/Food-security-importance/EN/index.htm [Google Scholar]). Arguably, the group thus succeeded in achieving their goal. Commonly available chemicals have been used to create damage more

recently as well. In 2003, for example, 50 people in more than 20 cities in Italy had to be treated for several ailments after drinking bottled water that had been injected with bleach and acetone (Mohtadi & Murshid, 2009 Mohtadi, H., & Murshid, A.P. (2009). Risk analysis of chemical, biological, or radionuclear threats: Implications for food security. Risk Analysis, 29(9), 1317–1335.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). Although creating mass casualties with such chemicals may prove to be difficult, they still can be appealing to use for contaminating food because they generally do not require complicated weaponisation steps and they still can create major (economic) damage.

Toxins are poisons produced by living organisms and are categorised as biological agents. However, they are also considered to fall within the category of (possible) chemical weapons due their inclusion in the definition of chemical weapons and their exposure effects. Botulinum toxins are among the most deadly substances known. They are associated with consumption of (preserved) foods, especially if improperly processed (WHO, 2017 World Health Organization (2017, October 31). Food safety. Retrieved from http://www.who.int/news-room/fact-sheets/detail/food-safety [Google Scholar]), but also among compounds explored by terrorists for use as weapons (Occupational Safety and Health Administration, n.d. Occupational Safety and Health Administration. (n.d.). Biological agents [overview page]. Retrieved from https://www.osha.gov/SLTC/biologicalagents/ [Google Scholar]). Similarly, ricin has already been used as a weapon in the past and remains a serious threat, including for the food chain.77. In 2010, CBS News reported that the Department of Homeland Security had uncovered a credible threat of attacks using poisons, such as ricin, in salad bars and buffets (Keteyian, 2010 Keteyian, A. (2010, December 20). Latest terror threat in us aimed to poison food. CBS News. Retrieved from http://www.cbsnews.com/news/latest-terror-threat-in-us-aimed-to-poison-food-20-12-2010/ [Google Scholar]).View all notes Ricin can be derived from castor beans and is particularly dangerous if made into a purified material (Centers for Disease Control and Prevention (CDC) (a), n.d. Centers for Disease Control and Prevention (a). (n.d.). Ricin toxin from Ricinus communis (castor beans). Retrieved from https://emergency.cdc.gov/agent/ricin/facts.asp [Google Scholar]). The arrest of a man in Germany in June 2018 exemplified again that people with malicious intent can be capable of producing the toxin (Böhning, 2018 Böhning, D. (2018, June 14). Bio-Gift in Kölner Wohnung - Haftbefehl gegen Tunesier. Welt. Retrieved from https://www.welt.de/vermischtes/article177487096/Festnahme-in-Koeln-Bio-Gift-in-Koelner-Wohnung-Haftbefehl-gegen-Tunesier.html [Google Scholar]).

Biological agents

Biological agents may be attractive as a weapon because, unlike other dangerous substances, they are able to reproduce. Under favourable conditions, a small number of micro-organisms may multiply in a very short time. Biological agents referred to in this paper include pathogenic micro-organisms such as viruses, bacteria (and their toxins) and parasites. Increased presence of biological agents can be found in different activities related to the food chain, including agriculture, farming, food production plants or, more generally, activities where there is contact with animals or products of animal origin, and water management such as purification installations (European Agency for Safety and Health at Work, 2010 European Agency for Safety and Health at Work. (2010, October 25). E-fact 53: Risk assessment for biological agents. Retrieved from https://osha.europa.eu/nl/tools-and-publications/publications/e-facts/efact53/view [Google Scholar]).

The possibility of contaminating food with biological agents has been widely explored by terrorists, and also successfully applied in the past. Most notably in Oregon, U.S. in 1984, when the Bhagwan Shree Rajneesh cult poisoned salad bars with Salmonella typhimurium bacteria in an attempt to influence a local vote by limiting voter turnout. Using a particular strain ordered from a commercial laboratory company, they infected a large part of the community; no one was killed, but 751 people fell ill, 45 of which had to be temporarily hospitalised (Ryan & Glarum, 2008 Ryan, J., & Glarum, J. (2008). Biosecurity and bioterrorism: Containing and preventing biological threats. Burlington, MA: Elsevier. [Google Scholar]). Perhaps if the group had different motives or chosen a different point of entry in the food chain, effects could have been far worse. Salmonella-related safety incidents can exemplify this. For instance, in 1996, Salmonella enteritidis gastroenteritis developed in 224,000 persons in the U.S. after they ate ice cream made from premix that was transported

in improperly washed out tank trailers (Hennessy et al., 1996 Hennessy, T.W., Hedberg, C.W., Slutsker, L., White, K.E., Besser-Wiek, J.M., Moen, M.E., … Osterholm, M.T. (1996). A national outbreak of Salmonella Enteritidis infections from ice cream. The New England Journal of Medicine, 334, 1281–1286.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). The bacterium continues to cause millions of foodborne illnesses each year.

Salmonella may be interesting for those with malicious intent because it is rather easy to come by, being present in the environment and in animals. However, if killing is an actor's objective, another agent may be better suited. For example, one that is stable enough to survive different circumstances it may be exposed to throughout food processing, such as heating or exposure to (ultraviolet) light. There are not many agents that naturally possess such features. Anthrax may be the exception as it is rather stable and persistent, especially in spore form. Otherwise, considerable effort, knowledge and (financial and technical) means are needed to attain such qualities. This could explain why no large-scale food incidents involving an intentional contamination with biological agents have taken place in recent history. However, the possibility that the 2011 Enterohemorrhagic Escherichia coli (EHEC) outbreak in Germany was the result of a deliberate epidemic cannot be discarded (Radosavljevish, Finke, & Belojevic, 2014 Radosavljevish, V., Finke, E.-J., & Belojevic, G. (2014). Escherichia coli O104: H4outbreak in Germany—Clarification of the origin of the epidemic. European Journal of Public Health, 25(1), 125–129.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). It led to almost 4000 infections, including 53 deaths (Robert Koch Institut, 2011 Robert Koch Institute. (2011). Final presentation and evaluation of epidemiological findings in the EHEC O104: H4Outbreak Germany 2011. Retrieved via: http://edoc.rki.de/documents/rki_ab/reQHS31jDrGxc/PDF/23NXL3JomOyAA.pdf [Google Scholar]).

Incidentally, it is important to note the distinction between pathogens like smallpox, plague or Ebola, and non-contagious micro-organisms, such as salmonella and anthrax. The first category is capable of human-to-human transmission, the latter is not. Particular interesting are also zoonoses, which are infections or diseases that can be transmitted directly or indirectly between animals and humans, for instance, by consuming contaminated foodstuffs or through contact with infected animals (European Food Safety Authority, n.d. European Food Safety Authority (n.d.). Food-borne zoonotic diseases. Retrieved from https://www.efsa.europa.eu/en/topics/topic/food-borne-zoonotic-diseasesRetrieved from [Google Scholar]). Due to their potential to spread among humans outside the food chain, contagious micro-organisms may be more interesting agents for terrorist purposes. However, obtaining plant or animal pathogens is generally much easier than acquiring those agents dangerous to humans. Furthermore, from a tactical perspective, certain animal or plant pathogens do not require weaponisation and thus are immediately ready to use. Despite risks of most animal diseases being transmitted to humans via food is (extremely) low, sometimes even non-existent, such outbreaks often do cause the type of disruption terrorists may seek, especially when governments take radical, sometimes unnecessary, measures (WHO, n.d. World Health Organization (n.d.). Zoonoses and the human-animal-ecosystems interface. Retrieved from: http://www.who.int/zoonoses/en/ [Google Scholar]). Whether or not an agent is contagious for humans may not be clear to policy makers or the public.

Radiological and nuclear agents

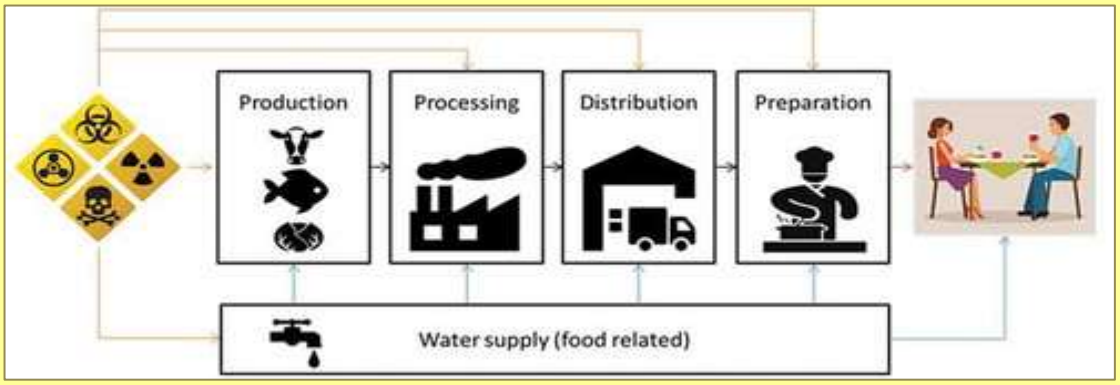
Radiological agents include all radiological substances. Nuclear agents can be seen as a specific subset of radiological agents. The differences relate to their origin. Radiological agents include radioactive material that occur naturally in the environment or are generated as by-products and waste from particular (mineral) processing industries, produced for use in industrial applications and medical therapy. Nuclear agents are radioactive material used to generate nuclear energy via nuclear fission or fusion, such as in nuclear weapons, nuclear power plants or reactors and their waste. Nuclear agents do not naturally occur in the environment (Plutonium) or need to be (highly) enriched and processed (both Plutonium and Uranium) to be suitable for such applications. Such agents can create damage because they emit ionising radiation. Radioactivity can contaminate food in particular after it has been discharged into the environment (FAO & WHO, 2011 Food and Agricultural Organization of the U.N. and World Health Organization. (2011, March 30). Nuclear accidents and radioactive contamination of

foods. Retrieved from http://www.who.int/foodsafety/fs_management/radionuclides_and_food_300311.pdf [Google Scholar]).
In the event of releases of radioactivity following an incident at a nuclear power plant, land, rivers, sea and structures in the vicinity of the power plant can become contaminated with a mixture of radionuclides. The Chernobyl (1986) and Fukushima (2011) accidents, for example, led to contamination of farm-raised (animals and plants) and illustrate that radioactivity can harm the food chain (e.g. RIKEN, 2015 RIKEN. (2015, May 5). Protecting crops from radiation-contaminated soil. Retrieved from Phys Org website: http://phys.org/news/2015-03-crops-radiation-contaminated-soil.html [Google Scholar]; White, 2016 White, G. (2016, May 25). Livestock offspring contaminated by Fukushima radiation. Fukushima Watch. Retrieved from http://fukushimawatch.com/2015-07-30-livestock-offspring-contaminated-fukushima-radiation.html [Google Scholar]; WHO, 2005 World Health Organization. (2005, September 5). Chernobyl: The true scale of the accident. Retrieved from http://www.who.int/mediacentre/news/releases/2005/pr38/en/index1.html [Google Scholar]). Of immediate concern in such cases is iodine (I-131) that can be spread over a wide area, found in water and on crops, and which rapidly transfers from contaminated feed into milk (Food and Agricultural Organization of the U.N. [FAO] and World Health Organization [WHO], 2011 Food and Agricultural Organization of the U.N. and World Health Organization. (2011, March 30). Nuclear accidents and radioactive contamination of foods. Retrieved from http://www.who.int/foodsafety/fs_management/radionuclides_and_food_300311.pdf [Google Scholar]). It decays within a few weeks. In contrast, Caesium can remain in the environment for a long time as it has a half-life of about 30 years. Although an attack directed on nuclear facilities as well as detonation of a nuclear weapon could theoretically result in the release of such agents into the environment, using this modus operandi to contaminate the food chain seems highly unlikely and is therefore not further considered here.
Widespread radiological contamination of food or water sources involving nuclear materials is unlikely in general as well, though an unconfirmed case of plutonium being put into New York City's water reservoir exists. On 1 April 1985, the mayor received an anonymous letter, threatening to contaminate the water supply with plutonium unless all criminal charges against a subway shooting suspect were dismissed by a certain date. Analysis of drinking water samples was requested and the concentration measured was a factor of 100 greater than previously observed results in databases in at least one sample (Bogen et al., 1988 Bogen, D.C., Krey, P.W., Volchok, H.L., Feldstein, J., Calderon, G., Halverson, J., & Robertson, D.M. (1988). Threat to the New York City water supply – Plutonium. Science of the Total Environment, 70, 101–118.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). Additional samples were collected at various distribution points in the water supply system. Plutonium concentrations were much lower and comparable to earlier data. Due to inability to confirm the elevated concentration value for the first sample, it was impossible to conclude whether the threat was actually carried out or whether the sample was contaminated prior to receipt at the laboratory. Either way, the plutonium concentrations always remained far below the permissible level for drinking water.
There are not many additional examples of intentional food-related contamination with radiological materials. Most other cases involved specifically targeted attacks that fall outside the scope of this paper. Two confirmed incidents that occurred in the U.S. in 1995 are worth mentioning though: both food and a water cooler were contaminated with Phosphorus-32, affecting more than 20 people (Mooare, 1995 Mooare, B. (1995, July 18). 26 at NIH exposed to radiation. The Washington Post. Retrieved from https://www.washingtonpost.com/archive/local/1995/07/18/26-at-nih-exposed-to-radiation/a4ad651d-1067-474c-a919-73a943b27716/?utm_term=.2dfbc65abbed [Google Scholar]). Remarkably, in all cases (including the dismissed, specifically targeted attacks), the perpetrators either worked in scientific laboratories that used radiological materials or had direct access to it (Dalziel, 2009 Dalziel, G.R. (2009). Food defence incidents 1950–2008: A chronology and analysis of incidents involving the malicious contamination of the food supply chain. Retrieved from Nanyang Technological University website:

http://www3.ntu.edu.sg/rsis/cens/publications/reports/RSIS_Food%20Defence_170209.pdf [Google Scholar], p. 20). Luckily, their victims suffered from physical discomfort only, or at most gained an increased likelihood of developing health risks associated with radiation exposure in the future.

Points of introduction in food chain

For food to get from production site to the dining table, several steps need to be taken; production, processing, distribution and preparation (CDC (b), n.d. Centers for Disease Control and Prevention (b). (n.d.). How food gets contaminated –The food production chain. Retrieved from https://www.cdc.gov/foodsafety/production-chain.html [Google Scholar]). Although protective mechanisms often have been installed,88. For example, Hazard Analysis and Critical Control Points (HACCP) can be used as a means to monitor foodstuff. Seven basic principles are employed in HACCP plans: hazard analysis, critical control points, establishing critical limits, monitoring procedures, corrective actions, verification procedures and record-keeping and documentation. If a deviation occurs, indicating that control has been lost, it is detected and appropriate steps are taken to assure that potentially hazardous products do not reach the consumer (e.g. FDA Food and Drug Administration. (n.d.). HACCP principles & application guidelines. Retrieved from: https://www.fda.gov/Food/GuidanceRegulation/HACCP/ucm2006801.htm [Google Scholar], n.d. Food and Drug Administration. (n.d.). HACCP principles & application guidelines. Retrieved from: https://www.fda.gov/Food/GuidanceRegulation/HACCP/ucm2006801.htm [Google Scholar]). An interesting analysis on the effectiveness of such systems is made by Pederson et al. (2016 Pederson, B., Gorzkowska-Sobas, -A.-A., Prugger, R., Belenguer, J., Maletti, M.,.L., & Davidson, R.K. (2016). Protecting our food: Can standard food safety analysis detect adulteration of food products with selected chemical agents? TrAC Trends in Analytical Chemistry, 85(B), 42–46.[Crossref], [Google Scholar]), who investigated whether standard food safety analysis can detect adulteration with selected chemical agents.View all notes the complexity of food systems and the variety of ways in which food is produced and distributed continues to create defence difficulties, especially when people attempt to bypass safety and security measures (Benoliel, 2007 Benoliel, I. (2007, Spring). EU defending food chain against bio-attack. European Affairs. Retrieved from http://www.europeaninstitute.org/index.php/41-european-affairs/summer-2007/97-eu-defending-food-chain-against-bio-attack [Google Scholar]). Figure 1 depicts that intentional contamination of food with CBRN agents can occur at any (vulnerable) point along the chain. This section describes the threats per phase.



Simplified depiction of possible introduction points of CBRN agents in the food chain.

Production

Some foods are caught or harvested from the wild, but most food comes from animals and plants. Their production usually occurs on farms or fisheries; places that are often open and unprotected and thus vulnerable to potential attacks. Targeting plants and animals may have advantages over direct attacks on humans as it may present fewer practical roadblocks and they can even be made to look like an act of nature. This type of attack is considered a subset of food terrorism called agroterrorism. Agroterrorism is defined as 'the deliberate introduction of an animal or plant disease for the purpose of generating fear, causing economic losses, or undermining social stability' (Monke, 2004 Monke, J. (2004). Agroterrorism: Threats and Preparedness

(Congressional Research Service, RL32521). Retrieved from Federation of American Scientists website: https://fas.org/irp/crs/RL32521.pdf [Google Scholar], p.1).
Chemicals can cause large-scale damage to crops, but attempts to eradicate illegal drug crops exemplify the massive logistical efforts needed to make a substantial dent in agricultural production (e.g. Jelsma, 2001 Jelsma, M. (2001, March). Vicious circle: The chemical and biological 'war on drugs'. Retrieved from Transnational Institute website: https://www.tni.org/files/download/viciouscircle-e.pdf [Google Scholar]). It may thus be difficult or even impossible for non-state actors to achieve significant effects using only chemicals. Crop diseases could create more damage as they can be introduced in limited amounts, but still infect large areas due to reproduction and rapid spread. Yet, it is extremely challenging to obtain, let alone create and effectively disperse a sufficient amount of agent that can bypass disease monitoring systems. Introducing crop-eating organisms could be easier and may have been used as a means of attack in the past. In 1989, for example, a group called 'the Breeders' claimed responsibility for releasing crop-eating fruit flies in California as retaliation for state-mandated pesticide spraying (Hirsch, 2013 Hirsch, J. (2013, December 16). Food (in)security: Are farms the next terrorist target? Modern Farmer. Retrieved from https://modernfarmer.com/2013/12/food-insecurity-farms-next-terrorist-target/ [Google Scholar]). The medfly infestation did not fit the natural pattern, but investigations found insufficient evidence to identify it as an intentional introduction (Monterey WMD-Terrorism Database Staff & Staff, 2011 Monterey WMD-Terrorism Database Staff & Sheer, J.L.O. (2011). Breeders: A case study. R. Katz & R.A. Zilinskas (Eds.), Encyclopedia of bioterrorism defense 2nd ed., Hoboken: Wiley-Blackwell. [Google Scholar]).
Livestock has been targeted by multiple actors as well, either directly or via introduction of a toxic additive to their food. During World War II, for example, the British prepared and tested anthrax-infected 'cattle cakes' that could be airdropped onto German livestock fields (Kosal & Anderson, 2004 Kosal, M.E., & Anderson, D.E. (2004). An unaddressed issue of agricultural terrorism: A case study on feed security. Journal of Animal Science, 82, 3394–3400.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). In the 1950s, the Kenyan Mau Mau allegedly injected British-owned cattle with a plant toxin (e.g. O'Hara, 2006 O'Hara, P. (2006). The illegal introduction of rabbit haemorrhagic disease virus in New Zealand. Scientific and Technical Review of the Office International Des Epizooties, 25(1), 119–123.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). Direct contamination of animals using biological agents has also been explored and used as a tactic. For example, a group of New Zealand rural farmers that was frustrated by official responses to rabbit control problems, introduced and spread Rabbit haemorrhagic disease virus in a clandestine operation in 1997 (Mohtadi & Murshid, 2009 Mohtadi, H., & Murshid, A.P. (2009). Risk analysis of chemical, biological, or radionuclear threats: Implications for food security. Risk Analysis, 29(9), 1317–1335.[Crossref], [PubMed], [Web of Science ®], [Google Scholar], p. 1324). Remarkably, since then, changes to the law have been made to legitimise the possession and spread of certain virus-infected material. In fact, the Ministry of Primary Industries approved a nation-wide release of a new Rabbit Haemorrhagic Virus Disease strain, which took place over March and April 2018 (Ministry for Primary Industries, 2018 Ministry for Primary Industries, New Zealand (2018, February 28). Application for approval of use of rabbit haemorrhagic virus disease RHDV1-K5. Retrieved from https://www.mpi.govt.nz/news-and-resources/consultations/application-for-approval-of-use-of-rabbit-haemorrhagic-virus-disease-rhdv1-k5/ [Google Scholar]).
In the aftermath of natural Foot and Mouth Dis-ease (FMD), mad cow disease (Bovine Spongiform Encephalopathy, BSE) and avian influenza outbreaks, stricter controls and tighter mechanisms have also been promulgated, but it is not a watertight system (Benoliel, 2007 Benoliel, I. (2007, Spring). EU defending food chain against bio-attack. European Affairs. Retrieved from http://www.europeaninstitute.org/index.php/41-european-affairs/summer-2007/97-eu-defending-food-chain-against-bio-attack [Google Scholar]). Farms are seen as a particular weak link in the food chain. Some larger farms have taken security measures, such as electronic alarms or security gate check-ins, but many maintain an old-fashioned security: lock, key and a watchful eye (Hirsch, 2013 Hirsch, J. (2013, December 16). Food (in)security: Are farms the next terrorist target? Modern Farmer. Retrieved from https://modernfarmer.com/2013/12/food-insecurity-farms-next-terrorist-target/ [Google Scholar]). Since livestock in many countries is concentrated in

confined spaces at isolated locations, they can be an easy target. Fast spread among animal population in such locations is more or less ensured. Farms may also share equipment, vehicles and veterinary instruments, potentially allowing animal pathogens to spread beyond the original target (Olson, 2012 Olson, D. (2012, February). Agroterrorism; threats to America's economy and food supply. FBI Law Enforcement Bulletin. Retrieved from https://leb.fbi.gov/articles/featured-articles/agroterrorism-threats-to-americas-economy-and-food-supply [Google Scholar]). On the other hand, as soon as a contamination is known, it may be relatively easy to contain.

Significant containment challenges may continue to exist for FMD, which has been said to present a major, if not the biggest, threat to agriculture.99. U.S. agricultural experts are unanimous in their assessment that foot-and-mouth disease is the most lethal weapon when considering acts of agroterrorism (Knowles et al., 2005 Knowles, T., Lane, J., Bayens, G., Speer, N., Jaax, J., Cater, D., & Bannister, A. (2005, December). Defining law enforcement's role in protecting American agriculture from agroterrorism (doc. no. 212280). Retrieved from National Criminal Justice Reference Service website: https://www.ncjrs.gov/pdffiles1/nij/grants/212280.pdf [Google Scholar], p. 3).View all notes Infecting a single animal may be sufficient to ensure rapid dissemination, since the virus is extremely contagious (Wolf, 2016 Wolf, J. (2016, February). Foot and mouth disease virus: A global threat to agriculture. mBiosphere. Retrieved from https://www.asm.org/index.php/mbiosphere/item/388-foot-and-mouth-disease-virus-a-global-threat-to-agriculture [Google Scholar]). Arguably, it can be spread by wiping saliva from an infected animal (e.g. on a handkerchief) and then transferring the virus to healthy animals by wiping their noses (Olson, 2012 Olson, D. (2012, February). Agroterrorism; threats to America's economy and food supply. FBI Law Enforcement Bulletin. Retrieved from https://leb.fbi.gov/articles/featured-articles/agroterrorism-threats-to-americas-economy-and-food-supply [Google Scholar]). In contrast to other biological agents, this implies that technical capabilities may be less or even irrelevant for FMD. Furthermore, since it occurs naturally in animals in parts of Africa, Asia, the Middle East and South America, with sporadic outbreaks elsewhere, the virus is readily accessible to people with malicious intent (Knowles et al., p 19).

Incidentally, an interesting issue to take into consideration in regard to livestock's vulnerability to contamination relates to antibiotics. In addition to commercial reasons, antibiotics are added to animal feed or drinking water to keep them healthy. Due to consequent public health issues, farmers and the veterinary profession have been put under high pressure to reduce the use of antibiotics.1010. The practice of adding antibiotics to animal feed and drinking water can cause bacteria to develop a resistance, which can be passed on to people through eating meat from animals carrying such bacteria (and through the environment). Since illnesses caused by drug-resistant strains of bacteria are more likely to be fatal when medicines used to treat them are rendered less effective, governments around the world consider this a major public health threat (Food and Drug Administration [FDA], 2013 Food and Drug Administration. (2013, December 11). Phasing out certain antibiotic use in farm animals. Retrieved from: http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm378100.htm [Google Scholar]).View all notes Yet, this will make animals more vulnerable to diseases and rapid spread thereof, including as a result of intentional introductions.

Processing

Processing refers to changing crops or animals into what is sold as food, e.g. washing, pasteurising and cooking. CBRN agents that may have been introduced at the production stage may be affected during this step. Most likely, processing will make an agent less toxic, though the possibility of it getting more toxic cannot be ruled out. Processing facilities themselves also present opportunities for agent introduction. Fruit- and vegetable-packing plants are among the most vulnerable venues for attacks, due to their smaller scale and lack of effective barriers to prevent contamination and further spread thereof (Leikin, 2014 Leikin, J.B. (2014, April). Intentional food poisoning. Chicago Medicine Magazine, 20–22 [Google Scholar]). Such vulnerabilities may be exploited. For example, approximately 28 individuals in Australia and New Zealand contracted Hepatitis A from eating tampered with frozen berries originating from a Chinese facility (Winfield, 2016 Winfield, G. (2016, February). Discomfort food. CBRNe World Magazine. Retrieved from

http://www.cbrneworld.com/_uploads/download_magazines/Discomfort_food.pdf. [Google Scholar], p. 37). Other small-scale manufacturers that specialise in ready-to-eat meats or aggregated foodstuffs may also be vulnerable. In particular, facilities that deal in already-prepared products that do not require cooking provide a viable portal to introduce agents (Olson, 2012 Olson, D. (2012, February). Agroterrorism; threats to America's economy and food supply. FBI Law Enforcement Bulletin. Retrieved from https://leb.fbi.gov/articles/featured-articles/agroterrorism-threats-to-americas-economy-and-food-supply [Google Scholar]).

Most food-related companies are part of a larger food chain. Contamination of products in one company could therefore potentially have widespread consequences. For example, large players in the food industry may use contract manufacturing with smaller companies. Outsourcing presents a risk as it could mean loss of control of the production process while still being accountable for end products or brands. Most companies comply with the general obligation to ensure that their products are safe for consumption. Yet, cases of adulteration exist. In 2008, for example, Sanlu Foods was accused of adulterating powdered milk with melamine to show a higher protein level. It affected some 300,000 individuals, including six infants who died of kidney stones (Gossner et al., 2009 Gossner, C.M.-E., Schlundt, J., Embarek, P.B., Hird, S., Lo-Fo-Wong, D., Ocampo Beltran, J.J., … Tritscher, A. (2009). The melamine incident: Implications for international food and feed safety. Environmental Health Perspectives, 117(12), 1803–1808.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). The Chinese powdered milk industry has yet to recover.

Major food processing companies are also vulnerable for blackmailing by outsiders threatening to contaminate their products. Besides major economic harm, this could lead to health damage when threats are actually executed, including during other food chain stages. For example, between 1999 and 2002, a Dutch man poisoned yogurts, puddings and other foodstuffs in an extortion scheme against a number of major Dutch food companies. It took tens of police officers and even FBI involvement to catch him (Wiegers, 2003 Wiegers, A. (2003, August 21). Afpersing Campina meest vergaande misdaad met internet [Extortion Campina most far-reaching crime with internet]. Netkwesties. Retrieved from http://www.netkwesties.nl/241/afpersing-campina-meest-vergaande.htm [Google Scholar]). Recalls were carried out, products were immediately removed from the shelves and at least one person fell ill (Deutsch, 2003 Deutsch, A. (2003, October 11). Dutch court orders evaluation of food-company extortionist. USA Today. Retrieved from http://usatoday30.usatoday.com/tech/world/2003-10-11-dutch-poisoner_x.htm [Google Scholar]). Such extortion threats directed at specific (commercial) organisations are more common than is generally believed. Furthermore, there is a perception that such threats, including CBRN-related contaminations, are underreported.1111. Underreporting may be a result due to ignorance on the part of authorities or because of their attempts to suppress evidence. Even when an incident is reported, depending on how 'terrorism' is defined, it may not be coded as such. Fear of copycat incidents and to minimise damage to consumer confidence and business may also lead to underreporting as is in the case of extortion incidents. Furthermore, incidents may simply be missed (Mohtadi & Murshid, 2009 Mohtadi, H., & Murshid, A.P. (2009). Risk analysis of chemical, biological, or radionuclear threats: Implications for food security. Risk Analysis, 29(9), 1317–1335.[Crossref], [PubMed], [Web of Science ®], [Google Scholar], p. 1319).View all notes

Personnel play an essential role in ensuring safe and secure food processing. Yet, the 'insider threat' is a big concern related to actors compromising the food chain. In addition to a number of examples already described, in January 2014, a Japanese man was arrested on the suspicion of having poisoned frozen foods with a phosphorous-based insecticide (Malathion) at the factory where he was employed. More than 2800 people across the country ate frozen products produced at this plant and fell ill ('Suspect arrested', 2014 Suspect arrested. (2014, January 25). Suspect arrested in food poisonings. The Japan Times. Retrieved from https://www.japantimes.co.jp/news/2014/01/25/national/suspect-arrested-in-food-poisonings/#.WyT4P9JlLml [Google Scholar]). This man was able to move back and forth between production lines and stated that it was easy for him to put pesticides into products due to limited (safety and) security measures ('Food poisoning easy', 2014 Food poisoning easy (2014, April 9). Lax security made food poisoning easy: Suspect. The Japan Times. Retrieved from https://www.japantimes.co.jp/news/2014/04/09/national/crime-legal/lax-

security-made-food-poisoning-easy-suspect/#.WyTyk9JlLml [Google Scholar]). It is thus crucial to stay sharp on who works in facilities and has access to food. Yet, many food processing and packaging plants employ large numbers of unscreened (seasonal) workers and commonly operate uneven standards of internal quality (Interpol, 2016 Interpol. (2016, May 19). Countering terrorism threat to food supplies focus of international symposium. Retrieved from https://www.interpol.int/News-and-media/News/2016/N2016-064 [Google Scholar]).

Distribution

Distribution refers to getting food from production site or processing plant to consumers. It can involve transporting foods just once, such as trucking products from a farm to the local farmers' market, but often involves many stages (CDC (b), n.d. Centers for Disease Control and Prevention (b). (n.d.). How food gets contaminated –The food production chain. Retrieved from https://www.cdc.gov/foodsafety/production-chain.html [Google Scholar]). During all these steps, there is a possibility of contamination. For example, if food is left in a too warm environment (temperature could also deliberately be tempered with) or products are transported in improperly cleaned vehicles. Most processed food travels to distribution centres, where a lot of food products may be located. A single contamination could therefore have significant (latent) ongoing effects, particularly if the source is not immediately apparent and products are kept in storage for a longer period of time (Chalk, 2005 Chalk, P. (2005, March). The U.S. agricultural system: A target for al Qaeda? Terrorism Monitor Retrieved from https://jamestown.org/program/the-u-s-agricultural-system-a-target-for-al-qaeda-2/ [Google Scholar]).
Traceability is important during the distribution phase. Producers must be able to identify where and from whom they receive materials as well as to whom they distribute (Benoliel, 2007 Benoliel, I. (2007, Spring). EU defending food chain against bio-attack. European Affairs. Retrieved from http://www.europeaninstitute.org/index.php/41-european-affairs/summer-2007/97-eu-defending-food-chain-against-bio-attack [Google Scholar]). For ready-to-eat products this may be easy, but it gets more complicated for goods that are sold in bulk. Such products are frequently traced by batches and products often mixed. What may start as a local contamination can have widespread and serious consequences. In 2008, for example, the Peanut Corporation of America's (PCA) King Nut facility produced a batch of Salmonella-Typhimurium-contaminated peanut butter. It was distributed to food manufacturers in many U.S. states, which incorporated it into some 1500 separate brands and 2000 individual products. More than 700 persons in 46 U.S. states and one person in Canada were infected with salmonella (CDC, 2009 Centers for Disease Control and Prevention. (2009, May 11). Multistate outbreak of Salmonella Typhimurium infections linked to peanut butter, 2008–2009 (FINAL UPDATE). Retrieved from https://www.cdc.gov/salmonella/2009/peanut-butter-2008-2009.html [Google Scholar]). In 2015, PCA's executive was handed a 28-year prison sentence for knowingly shipping out contaminated food (Basu, 2015 Basu, M. (2015, September 22). 28 years for salmonella: Peanut exec gets groundbreaking sentence. CNN. Retrieved from http://edition.cnn.com/2015/09/21/us/salmonella-peanut-exec-sentenced/ [Google Scholar]). It was the toughest penalty yet for a corporate executive in a food poisoning outbreak.

Preparation

Food is most vulnerable to contamination just before consumption. Unsurprisingly, most cases of (both accidental and) deliberate contamination can be found within this phase. Products have already passed strict food safety rules at earlier levels; thus, contaminated food will not likely be detected until after it is eaten. Furthermore, CBRN agents that are introduced at this stage will not be exposed to additional processing steps or at least the perpetrator has control over such processes. This increases agents' chances of survival and creating damage. On the other side, introducing CBRN agents to food at this stage is unlikely to create widespread contamination and mass casualties, as there is no chance of further using the food system's distribution capacity.
Intentional contaminations of food or beverages in this phase often involve acquaintances attempting to do harm to specific individuals, and the bulk of such cases involve less than five or even no casualties (Dalziel, 2009 Dalziel, G.R. (2009). Food defence incidents 1950–

2008: A chronology and analysis of incidents involving the malicious contamination of the food supply chain. Retrieved from Nanyang Technological University website: http://www3.ntu.edu.sg/rsis/cens/publications/reports/RSIS_Food%20Defence_170209.pdf [Google Scholar], p. 17). However, examples of more large-scale poisonings exist as well. The Bhagwan cult's salmonella attack remains the most infamous and successful act, but incidents have taken place more recently as well. For example, a person in Japan caused four people to die and 63 to be hospitalised after serving a curry with arsenic at a summer festival in 1998 (e.g. 'Wakayama curry poisonings', 2002 Wakayama curry poisonings. (2002, June 6). Death sentence sought for Hayashi over Wakayama curry poisonings. The Japan Times. Retrieved from https://www.japantimes.co.jp/news/2002/06/06/national/death-sentence-sought-for-hayashi-over-wakayama-curry-poisonings/ [Google Scholar]). In 2003, a former grocery store worker laced about 250 pounds of ground beef with insecticide, sickening 92 people in the U.S. ('Beef with poison', 2003 Beef with poison. (2003, May 22). Man admits lacing beef with poison. Chicago Tribune. Retrieved from http://articles.chicagotribune.com/2003-05-22/news/0305220330_1_randy-jay-bertram-pounds-of-ground-beef-insecticide [Google Scholar]). And in May 2016, a man went into multiple Michigan grocery stores and sprayed a poisonous mixture on open food (Berlinger, 2016 Berlinger, J. (2016, May 5). Man sprayed poison on open food at grocery stores, FBI says. CNN. Retrieved from http://edition.cnn.com/2016/05/05/health/michigan-food-contamination-poison/ [Google Scholar]). Health effects appeared to be non-existent in this last incident.

Incidentally, people with malicious intentions have themselves also been victims of food poisoning actions. For example, Islamic State (IS) militants, who themselves encouraged attacks on food and water supply as possible means of attack,1212. For example, they called to poison athletes during the 2016 Olympics in Brazil, by way of putting poison or medications in food and beverages (Newton & Summers, 2016 Newton, J., & Summers, C. (2016, July 21). Brazilian police arrest 10 people and hunt two more as they smash ISIS plan for 'terror attacks' on Rio Olympics. Mail Online. Retrieved from http://www.dailymail.co.uk/news/article-3700912/Al-Qaeda-group-calls-terror-attacks-athletes-Olympics-targeting-UK-French-teams.html#ixzz50ktQUYqH [Google Scholar]).View all notes have been targeted by poisoned food on multiple occasions. In November 2014, for example, some men infiltrated an IS camp posed as cooks and slipped a deadly substance into their lunch (Gee, 2014 Gee, C. (2014, November 8). A dozen ISIS fighters killed after chefs infiltrate camp and POISON terrorists' lunch. The Mirror. Retrieved from http://www.mirror.co.uk/news/world-news/dozen-isis-fighters-killed-after-4590573 [Google Scholar]). At least a dozen fighters were killed. In July 2015, 45 militants were reported dead (Akbar, 2015 Akbar, J. (2015, July 8). 45 ISIS fighters 'die after eating poisoned Ramadan meal in Iraq'. Mail Online. Retrieved from http://www.dailymail.co.uk/news/article-3153194/45-ISIS-fighters-die-eating-poisoned-Ramadan-meal-Iraq.html [Google Scholar]). And two years later, in July 2017, another couple of IS fighters died and tens were sickened as a result of (deliberate) food poisoning ('Die of food poisoning', 2017 Die of food poisoning. (2017, July 16). 5 ISIS terrorists, including Asian commander, die of food poisoning. The Baghdad Post. Retrieved from http://www.thebaghdadpost.com/en/story/14465/5-ISIS-terrorists-including-Asian-commander-die-of-food-poisoning [Google Scholar]).

Water supply

An attack on the entire water supply system is not easy to accomplish. It requires inherent knowledge of its structure and workings. Most agents are vulnerable to treatment used to make water potable for human use. Brucellosis and tularaemia, for example, are considered to be water threats, but they may be quickly neutralised by chlorine, which is commonly used in water purification systems (Gleick et al., 2006 Gleick, P.H., Wolff, G.H., Palaniappan, C.H., Samulon, M., Lee, A., & Katz, D. (2006). The world's water 2006–2007: The biennial report on freshwater resources. Washington, DC: Island Press [Google Scholar]). Most biological agents cannot survive in water, though anthrax in spore form may be of concern. Achieving a significant chemical contamination of the water supply generally requires very large volumes due to dilution. Yet, certain pesticides and inorganic chemicals may cause disruption. In 1980, for example, water was contaminated with a pesticide (chlordane) in three suburbs of Pittsburgh, U.S. It forced officials to shut down the water supply for two weeks and bring in water for 10,000 residents (Dalziel, 2009 Dalziel, G.R. (2009). Food defence incidents 1950–

2008: A chronology and analysis of incidents involving the malicious contamination of the food supply chain. Retrieved from Nanyang Technological University website: http://www3.ntu.edu.sg/rsis/cens/publications/reports/RSIS_Food%20Defence_170209.pdf [Google Scholar], p. 10). Roughly 150 people became ill, but this number could have been much higher if the strong odour had not prevented people from ingesting the water. Similarly, water contamination with radioactivity is also unlikely to create many victims due to dilution.

Water for irrigation and water used as an ingredient in food processing can facilitate food terrorism. Contamination of the water supply for agricultural purposes, for example, may hurt animals or damage crops (and humans indirectly as well if they eat contaminated products). In 1970, for instance, Ku Klux Klan members in Alabama killed and sickened cattle by contaminating black farm owners' water supply with a cyanide salt (Cameron & Pate, 2001 Cameron, G., & Pate, J. (2001). Covert biological weapons attacks against agricultural targets: Assessing the impact against us agriculture. Terrorism and Political Violence, 13(3), 61–82.[Taylor & Francis Online], [Web of Science ®], [Google Scholar]). More recently, in 2010, irrigation water for tomatoes and vegetables seedlings stocks was contaminated with an herbicide in Queensland, Australia. In addition to seven million seedlings being killed, this incident led to economic losses at both the local and national level (50 million and 100 million Australian dollars, respectively) and put more than 3000 employees temporarily out of work (Kennedy, 2010 Kennedy, S. (2010). Food contamination – An economic and health threat. Industry Today. Retrieved from http://industrytoday.com/article/food-contamination-an-economic-and-health-threat/ [Google Scholar]). Two similar cases of intentional contamination occurred in 2002 and 2006.

Targeted attacks on water supplies at particular facilities are probably easier to conduct, especially if purification processes have already occurred. In addition to many plots to do so, such attacks have actually taken place in the past. For example, in 1992, PKK people put a lethal dose of potassium cyanide into water tanks of a Turkish airbase, but it was discovered before anyone was poisoned (Gleick, 2013 Gleick, P.H. (2013). Water and terrorism. Water Policy, 8, 481–503.[Crossref], [Google Scholar], p. 22). The media reported that proposals to poison the water supplies of major cities in the West 'as a possible response to Western offensives against Islamic organisations and states' were made at a meeting of fundamentalist groups in Tehran, under the auspices of the Iranian Foreign Ministry (Gleick, 2013 Gleick, P.H. (2013). Water and terrorism. Water Policy, 8, 481–503.[Crossref], [Google Scholar], p. 20). Another example includes water source poisoning as part of a harassment strategy against displaced populations in Darfur, Sudan in 2004 (Amnesty International, 2004 Amnesty International. (2004, February 3). Sudan Darfur: "Too many people killed for no reason" (AI Index: AFR 54/004/2003). Retrieved from https://www.amnesty.org/download/Documents/92000/afr540082004en.pdf [Google Scholar], p. 20). Fortunately, no casualties were reported in relation to those events.

Possible consequences and effects

Consequences and effects of CBRN contaminations of the food chain can range from minor to disastrous. Particular effects that can be expected include health implications (casualties), economic damage and (sociopolitical) disruption. Adequately predicting possible consequences and effects is complicated by factors resulting from methods to produce, process, distribute and prepare food, which also vary depending on cultural and geographical differences. Actual risks posed thus have to be examined on a case-by-case basis. This paper provides some general observations.

Health implications

This section focuses on health implications resulting from a CBRN attack on food among the human populace only, for two reasons. First, consequences of attacks on animal populations are generally considered to be economic. Second, there are no examples of attacks directly targeting animals (or animal feeds or crops for that matter) that resulted in human fatalities further down the supply chain (Dalziel, 2009 Dalziel, G.R. (2009). Food defence incidents 1950–2008: A chronology and analysis of incidents involving the malicious contamination of the food supply chain. Retrieved from Nanyang Technological University website:

http://www3.ntu.edu.sg/rsis/cens/publications/reports/RSIS_Food%20Defence_170209.pdf [Google Scholar]). The number of casualties that could result from a CBRN attack on the food chain depends both on the type and dosage of the agent used, its point of entry and the security, monitoring and control measures in place, but includes also individual resistance, the speed and scope of discovery by (local) authorities and the provision of medical treatment.

It is argued that the potential impact on human health of intentional food contamination can be estimated by extrapolation from examples of unintentional outbreaks of foodborne disease. Possibly the largest incident in history is an outbreak of hepatitis A. It was associated with consumption of clams in Shanghai, China, in 1988, affecting nearly 300,000 people (Tang et al., 1991 Tang, Y.W., Wang, J.X., Xu, Z.Y., Guo, Y.F., Qian, W.H., & Xu, J.X. (1991). A serologically confirmed, case-control study, of a large outbreak of hepatitis A in China, associated with consumption of clams. Epidemiology and Infection, 107(3), 651–657.[Crossref], [PubMed], [Web of Science ®], [Google Scholar]). However, efforts to strengthen food safety systems have decreased possibilities of such large-scale outbreaks. Smaller scale incidents continue to occur. For example, in 2010, some 225 people in 44 U.S. states fell ill by salmonella in imported black pepper used in sausages (Layton, 2010 Layton, L. (2010, February 15). Salmonella blamed as hundreds fall ill after eating Italian sausages. Washington Post. Retrieved from http://www.washingtonpost.com/wp-dyn/content/article/2010/02/14/AR2010021403551.html [Google Scholar]). And in March 2015, more than 600 people, mostly children, fell ill after eating tainted sandwiches provided as part of a NGO event in Cambodia's Siem Reap province (e.g. Dara, 2015 Dara, M. (2015, March 30). Hundreds fall ill after eating sandwiches at NGO event. Cambodia Daily. Retrieved from https://www.cambodiadaily.com/archives/hundreds-fall-ill-after-eating-sandwiches-at-ngo-event-80967/ [Google Scholar]). Fortunately, most cases of intentional contamination did not result in substantial casualties. On average, less than a hundred people fall ill and less than ten people die yearly from malicious (CBRN) food and water contamination.1313. Between 1950 and 2008, 391 fatalities and 4355 injuries occurred from malicious food contamination, leading to an average of almost seven deaths (and 75 injuries) per year (Dalziel, 2009 Dalziel, G.R. (2009). Food defence incidents 1950–2008: A chronology and analysis of incidents involving the malicious contamination of the food supply chain. Retrieved from Nanyang Technological University website: http://www3.ntu.edu.sg/rsis/cens/publications/reports/RSIS_Food%20Defence_170209.pdf [Google Scholar], p. 23).View all notes In comparison: every year an estimated 600 million people – almost 1 in 10 people in the world – fall ill after eating unintentionally contaminated food, 420,000 of whom ultimately die (WHO, 2017 World Health Organization (2017, October 31). Food safety. Retrieved from http://www.who.int/news-room/fact-sheets/detail/food-safety [Google Scholar]).

It should be noted that attacks that fail to kill or injure large numbers of people may still have health-related repercussions. Any type of major food chain contamination can create serious effects, but psychological symptoms are more likely to occur when CBRN agents are intentionally used (or their use is suspected). CBRN agents' intangible nature, uncertainties about being contaminated or not and a general lack of public understanding of likely effects may evoke fear. Especially when (a claim of) a contamination concerns consumables that are widely eaten. When many people report to health facilities, it can be difficult to differentiate between the 'worried-well' and individuals with actual physical injuries or disease. This not only complicates assurance of rapid diagnosis and adequate treatment, but also presents a danger of medical systems being flooded.

Economic damage

Rather than health implications, the potential economic costs of CBRN attacks on the food chain could be emphasised, in particular if directed at agriculture (Mohtadi & Murshid, 2009 Mohtadi, H., & Murshid, A.P. (2009). Risk analysis of chemical, biological, or radionuclear threats: Implications for food security. Risk Analysis, 29(9), 1317–1335.[Crossref], [PubMed], [Web of Science ®], [Google Scholar], p. 1324). Attacks targeting livestock and plants can cause economic damage on three levels (Olson, 2012 Olson, D. (2012, February). Agroterrorism; threats to America's economy and food supply. FBI Law Enforcement Bulletin. Retrieved from https://leb.fbi.gov/articles/featured-articles/agroterrorism-threats-to-americas-economy-and-food-supply [Google Scholar]). First, direct losses due to containment measures, such as orders not to transport,

quarantines of suspected stock and costs related to culling and destruction of (live)stock – even as a precautionary measure. Second, indirect effects would arise, such as compensation of losses suffered by industries. And, third, costs related to protective trade embargoes. For example, the estimated cost of the FMD outbreak in the United Kingdom in 2002 was in excess of 20 billion dollars (Grote & Fittipaldi, 2007 Grote, J.H., & Fittipaldi, J.J. (2007, May). Agroterrorism: Preparedness and response challenges for the departments of defense and army (AEPI and USAWC Research Paper). Retrieved from Homeland Security Digital Library website: https://www.hsdl.org/?view&did=478445 [Google Scholar]). It included the culling costs of over four million sheep, cattle and pigs as well as impact on animal exports. Tourist trade effects continued to be felt over six years after the outbreak. The cause was accidental, but did stir up fears as it happened concurrently with 9/11 (Hirsch, 2013 Hirsch, J. (2013, December 16). Food (in)security: Are farms the next terrorist target? Modern Farmer. Retrieved from https://modernfarmer.com/2013/12/food-insecurity-farms-next-terrorist-target/ [Google Scholar]).

Even if an episode is relatively minor, deliberate CBRN contamination of food can have serious economic and trade repercussions. In addition to the case of mercury-contaminated citrus fruits from Israel in 1978, this was exemplified by a comparable incident with Chilean grapes that took place in 1989. Two punctured grapes containing cyanide were found after an anonymous call. The Food and Drug Administration (FDA) announced an embargo on all fruit from Chile, resulting in orders around the world being cancelled, shipments stopped and tonnes of fruit destroyed. Damage amounted to several hundred million dollars and many growers and shippers went bankrupt (World Health Organization, Food Safety Department, Zoonoses and Foodborne Diseases, 2002 World Health Organization, Food Safety Department, Zoonoses and Foodborne Diseases (2002). Terrorist threats to food; guidance for establishing and strengthening prevention and response systems. Retrieved from http://www.who.int/iris/handle/10665/42619 [Google Scholar]). Much later, it has been suggested that this entire incident may have been a hoax (Long, 1994 Long, W.R. (1994, December 31). ASIA: Between U.S. and Chile, a grape divide: A report that the 1989 poison scare was probably a hoax has growers angry once again. And California counterparts aren't helping matters. Los Angeles Times. Retrieved from: http://articles.latimes.com/1994-12-31/news/mn-14948_1_california-grapes [Google Scholar]). Similarly, a number of countries (temporarily) closed their borders to New Zealand's meat after its Prime Minister received a letter claiming that a vial of FMD was released into the animal population near Auckland ('FMD "hoax" aftermath', 2005 FMD 'hoax' aftermath. (2005, May 11). NZ prepares for foot and mouth 'hoax' aftermath. Global Meet News. Retrieved from http://www.globalmeatnews.com/Industry-Markets/NZ-prepares-for-foot-and-mouth-hoax-aftermath [Google Scholar]). Officials almost immediately dismissed it as a hoax, but did dispatch some teams to survey and investigate a number of farms as a precautionary and reassurance measure.

A rumour of food being contaminated or only the suspicion thereof can thus have overwhelming (economic) effects, especially if governments or the public overreact. For example, a more careful assessment by its authorities could possibly have prevented amplification of a mass hysteria outbreak and the withdrawal of 30 million cans and bottles of Coca-Cola from sale in Belgium in 1999.1414. Within 48 h after the news reported a number of school children falling ill after drinking a can of Coca-Cola, other children, from the same and other schools, also reported unwell. The national health authorities stepped in and banned the sale of Coca-Cola, while hundreds more people phoned the National Poisons Centre to say they, too, had been poisoned, including people in the North of France. No one was found to be seriously ill. Finally, it turned out to be an outbreak of mass hysteria, which followed an unrelated alert over potentially cancer-causing dioxins in Belgian meat and poultry (Dillner, 1999 Dillner, L. (1999, July 6). A case of mass hysteria. The Guardian. Retrieved from https://www.theguardian.com/lifeandstyle/1999/jul/06/healthandwellbeing.health [Google Scholar]).View all notes Similarly, misidentifying an infection vehicle in an actual outbreak can also cause unnecessary damage. During the 2011 EHEC outbreak in Germany, for instance, it took some time before the source was identified (sprouts). Initially, Spanish cucumbers were blamed and the entire Spanish fruit and vegetable sector suffered needless consequences (Tremlett & Pidd, 2011 Tremlett, G., & Pidd, H. (2011, May 31). Germany admits Spanish cucumbers are not to

blame for E coli outbreak. The Guardian. Retrieved from https://www.theguardian.com/uk/2011/may/31/e-coli-deaths-16-germany-sweden [Google Scholar]).

Economic disruption may be a primary motive for a deliberate act; targeting a manufacturer, industry or a country. Many countries enjoy a safe, plentiful and (relatively) inexpensive food supply, which helps drive their economic prosperity. Many jobs are linked to food industries and billions of dollars are involved in trading products (Olson, 2012 Olson, D. (2012, February). Agroterrorism; threats to America's economy and food supply. FBI Law Enforcement Bulletin. Retrieved from https://leb.fbi.gov/articles/featured-articles/agroterrorism-threats-to-americas-economy-and-food-supply [Google Scholar]). Terrorists may realise that economic vitality supports a country's strength. One pillar of al-Qaida's strategy against the U.S., for example, was focused on inflicting economic harm; it presented a way to destroy U.S.'s ability to protect its military power abroad (Hofman & Weimann, 2009 Hoffman, B., & Weimann, G. (2009, May 13). Econo-Jihad. The National Interest. Retrieved from: http://nationalinterest.org/article/econo-jihad-3120 [Google Scholar]). Furthermore, political impact after inflicting economic harm may be exacerbated. Sociopolitical consequences are difficult to measure, but include undermining of confidence in and support of governments and could ultimately result in destabilisation (World Health Organization, Food Safety Department, Zoonoses and Foodborne Diseases, 2002 World Health Organization, Food Safety Department, Zoonoses and Foodborne Diseases (2002). Terrorist threats to food; guidance for establishing and strengthening prevention and response systems. Retrieved from http://www.who.int/iris/handle/10665/42619 [Google Scholar]).

Sociopolitical destabilisation

Although the food system is primarily a commercial venture, it is highly likely that citizens will blame governments in case of major food incidents. For example, BSE was first identified in U.K. cattle in 1986. Originally, no link of possible consequences on human health was established. However, during the 1996 epidemic, the government announced that it seemed possible that victims had caught Creutzfeldt-Jakob Disease by eating meat from BSE-infected cattle ('BSE and CJD', n.d. BSE and CJD. (n.d.). BSE and CJD: Crisis chronology [overview page]. BBC News. Retrieved from http://news.bbc.co.uk/hi/english/static/in_depth/health/2000/bse/default.stm [Google Scholar]). A special BSE Inquiry was set up in 1998 to investigate this 'public health scandal'. It took major efforts to restore public confidence in beef products, but also in credibility of the government. By calling attention to the inability of governments to protect the food chain, actors could raise doubts about (controlling) authorities. Loss of confidence in governments' capabilities could particularly occur if response to a crisis is in-/over effective, or perceived as such. Although emergency systems to respond to catastrophic incidents that threaten the health of the population are in place in most countries, these response systems do not always include consideration of terrorism and rarely include consideration of food as a vehicle for delivering harmful agents (Interpol, 2016 Interpol. (2016, May 19). Countering terrorism threat to food supplies focus of international symposium. Retrieved from https://www.interpol.int/News-and-media/News/2016/N2016-064 [Google Scholar]). Insufficient preparedness and/or means to counter a food threat could lead to incorrect investigations, misdiagnosis and failure to identify and detain affected food. This would weaken or even preclude an effective response to food sabotage incidents. It can also reinforce overreaction to an attack; taking (too) rigorous measures just to be on the safe side. An appropriate and measured response, based on careful risk assessments, is thus essential.

Furthermore, any significant or continuing interruption in supply may rather quickly drive food prices up and lead to shortages as supermarkets generally stock only a 7-day supply (Olson, 2012 Olson, D. (2012, February). Agroterrorism; threats to America's economy and food supply. FBI Law Enforcement Bulletin. Retrieved from https://leb.fbi.gov/articles/featured-articles/agroterrorism-threats-to-americas-economy-and-food-supply [Google Scholar]). In a country where regular food supply cannot be assured, an attack on the food chain can even have immediate and severe consequences if pre-existing food shortages are worsened by deliberate contamination (World Health Organization, Food Safety Department, Zoonoses and Foodborne Diseases, 2002 World Health Organization, Food Safety Department, Zoonoses and Foodborne Diseases (2002). Terrorist threats to food; guidance for establishing and strengthening prevention and response systems. Retrieved from http://www.who.int/iris/handle/10665/42619 [Google Scholar]). Food insecurity, i.e.

insufficient food to avoid hunger in a country, or famine can have serious impact on social and political stability: it heightens the risk of protest, rioting, civil conflict and democratic breakdown, thereby threatening economic, national and, in extreme cases, even international security (Brinkman & Hendrix, 2011 Brinkman, H.-J., & Hendrix, C.S. (2011, July 4). Food insecurity and violent conflict: Causes, consequences, and addressing the challenges (occasional paper no. 24). Retrieved from World Food Programme website: https://www.wfp.org/content/occasional-paper-24-food-insecurity-and-violent-conflict-causes-consequences-and-addressing- [Google Scholar]). At times, these links are obvious, such as when a spike in food prices leads to riots and unrest in countries. For example, Haiti in 2008, when protests turned deadly and the Prime Minister was ousted (Klarreich, 2008 Klarreich, K. (2008, April 14). Food riots lead to Haitian meltdown. Time. Retrieved from http://content.time.com/time/world/article/0,8599,1730607,00.html [Google Scholar]). Often, however, food shortage should be seen in a wider perspective of sociopolitical discontent, e.g. in Venezuela, where major food riots took place in June 2016 (e.g. Gupta & Ulmer, 2016 Gupta, G., & Ulmer, A. (2016, June 12). 'We want food!' looting and riots rock Venezuela daily. Reuters. Retrieved from: http://www.reuters.com/article/us-venezuela-looting-idUSKCN0YY0IR [Google Scholar]).

Conclusions

This paper discussed CBRN threats to the food supply chain by describing various parameters, including the type of agents capable of yielding damage, possible points of introduction and potential consequences of intentional contamination. It was observed that the majority of food-related CBRN attacks included use of commonly available household, agricultural or industrial chemicals. In addition to their widespread availability, they are easy to handle, generally more stable than biological agents and therefore have a better chance of creating victims if added to food, including earlier in the food chain. However, a successful biological attack may have more devastating effects. Certain biological agents are also easy to come by as they may be present in the environment, for example, when a disease is endemic. Yet, such agents were used only in few food attack cases, not in the least since effective dispersion is extremely challenging. Similarly, only a few cases involved radiological contamination. They included targeted, small-scale poisonings rather than attempts to create mass casualties. Interestingly, all culprits worked in environments in which radiological materials were at their disposal.

CBRN agents can be introduced into the food system during production, processing, distribution and preparation phases. If actors are able to contaminate food early in the supply chain, it could potentially have widespread impact due to the system's distribution capacity. Yet, the earlier in the food chain an agent is introduced, the more an actor is dependent on processes that are not (entirely) within his control. Such processing steps will likely make an agent less toxic, though the possibility of it getting more toxic cannot be dismissed. Either way, one would need inherent knowledge of the food chain's working, but also have access to vulnerable parts to bypass quality and security checks. Introduction of CBRN agents at the food preparation or serving stage is thus easier. This is also the phase where most intentional food contamination cases can be found. Rather than large-scale damages though, such attacks are more likely to cause local impact.

Concerning possible consequences, it can be concluded that episodes of intentional food contaminations can be serious, but they rarely result in mass fatalities. Economic damage is more likely to occur. Millions of dollars lost as a result of import restrictions and destruction of (suspected) contaminated food products are no exception, in particular if crops or livestock are involved. Even the sole suspicion or rumour of food being contaminated can have devastating economic effects, especially if response is ineffective. From a review of past incidents, it is apparent that governments and the public may overreact to (alleged) food contaminations. Economic impact of an intentional food contamination may thus be pursued by non-state actors. They may also believe that they can undermine confidence in and support of governments by exacerbating impact of food incidents and, ultimately, facilitate sociopolitical destabilisation.

In conclusion, the food supply chain has been contaminated with CBRN agents in the past and this modus operandi remains of interest to people with malicious intent. Concerns about its security are therefore reasonable. However, existing measures and food processing steps reduce chances that actors can take advantage of the chain's carrying capacity to spread an agent across a wide geographic area. Conducting a systemic attack on the food system with

potential to create mass casualties is therefore much more difficult than generally believed. Without this insight, food threats may be incorrectly assessed and complicate an appropriate and measured response. In particular in cases of overreaction, an unsuccessful attack or even an ineffective plot could thus cause actual mass disruptions.

▶▶ Notes and references are available at surce's URL.

Stephanie Meulenbelt *holds a MA in Criminology and LLM in International Law. She is a scientific advisor and researcher at the Centre for Environmental Safety and Security, National Institute for Public Health and the Environment (RIVM) in the Netherlands as well as team member of RIVM's CBRN response team. Threat analyses and risk assessments are part of her work, which focuses on (inter)national security topics, including CBRN issues. Prior to her current position, she worked at the CBRN Protection department of the Netherlands Organisation for Applied Scientific Research TNO and the Organisation for the Prohibition of Chemical Weapons.*

Conspiracy Theories on Biological Weapons

Source: https://euvsdisinfo.eu/report/us-prepares-biological-weapons-against-russia/

Oct 04 – Never heard of the Lugar laboratory in Georgia? Neither have many of us. But it is a familiar name for the readers of a whole network of websites promoting the most obscure pro-Kremlin conspiracies globally.

Just to highlight some examples:

2016: The US is constructing secret biological labs in Georgia, Kazakhstan, Azerbaijan and Ukraine to attack Russia.

2017: American laboratory in Georgia creates biological weapons.

2018: US laboratory in Georgia is like a Nazi death camp and people living close to it like Mengele's patients.

One strand of Russia's large and months-long disinformation campaign around the Salisbury attack - which backfired latest in September and continues to backslide - has been spreading the usual smokescreen that anybody else but Russia is behind the use of chemical weapons on European soil.

When the attempt to confuse and distract the majority of the European audience about the attack failed, efforts shifted and started to focus on the disinformation heavy users. In general, this aim of pushing the conspiracies from marginal to the mainstream attention has already gained results among the Russian-speaking audience: Conspiracy theories are on average six to nine times more frequent now than they were in 2011 in Russian media.

In the specific case of Georgia, this has led to coordinated efforts, including a press conference organised in Moscow right after the UK released the names of the two

Salisbury attack suspects. In the briefing, Georgia's ex-security chief (who fled to Moscow years ago) claimed the Lugar laboratory creates biological weapons, and the topic was extensively covered by Russian TV channels.

In April, these claims were presented by Russia's Foreign Ministry that came out with its own hint: A Georgian trace might be found in the Skripal poisoning! These conspiracies have reached Bulgaria, English-language blogs and ZeroHedge - and of course Russia's disinformation channels Russia Today and Sputnik.

So, finally, let us introduce you to the The Central Public Health Reference Laboratory (CPHRL)! It is a laboratory based in Tbilisi, Georgia, which detects and tackles disease outbreaks. The United States provided USD 350 million for the construction and technical equipment of the laboratory. From this year on, the Government of Georgia will assume responsibility for full funding and operation of the Lugar center and laboratory network. In fact, Russia has itself given support to a similar facility in Armenia (also facing repeated pro-Kremlin disinformation attacks).

Well-researched journalistic investigations highlight this specific disinformation campaign: we recommend you to read more on Myth Detector and Codastory.

Earlier, we have reported how the pro-Kremlin disinformation machinery's production line was cranking out false claims of the threat of a civil war in Sweden, France, Spain and Ukraine

This week, the civil war road show travelled north east and we heard that same urgent alert regarding the Baltic countries: now it is Latvia that has apparently joined the European countries waging an internal war.

Ukraine is the only country from these targets of Russia's disinformation where in fact a war is ongoing. And despite Russia's disinformation, it is not a civil war, but a war provoked and maintained by Russia itself.

Russia claims US tested biological weapons in Georgia, killing 73

Source: https://www.dw.com/en/russia-claims-us-tested-biological-weapons-in-georgia-killing-73/a-45752240

Oct 04 – The Russian Ministry of Defense claimed on Thursday that the US undertook a secret biological weapons testing program in Georgia, killing at least 73 people.

The latest claims come just hours after international condemnation of Russia for a series of hacking attempts, including an alleged attempted hack on the chemical weapons agency that was investigating whether Moscow had poisoned Russian former double agent Sergei Skripal in the UK.

The US Department of Defense told DW that the accusations were "an invention of the imaginative and false Russian disinformation campaign against the West."
Russia's Defense Ministry claims that the Lugar Center, a US-funded medical facility in the Caucasus nation, was used as a cover for testing biological agents.
"The almost simultaneous deaths of a large number of volunteers implies that the Lugar Center was testing a highly toxic chemical or a highly lethal biological agent under the guise of [medical] treatment," Igor Kirillov, the chief of the Russian military's radiation, chemical and biological protection unit, said on Thursday, as quoted by Russian news agency Interfax. "The demonstrated documents showed that the test resulted in mass fatalities among patients. Despite the fact that 24 had died in December 2015 alone, the clinical tests went on bypassing international standards and took place against the patients' will. This resulted in the death of another 49 people."
Exiled Georgian politician the source
Kirilov said that Igor Giorgadze had provided the reports and that the medication being tested was called "Sovaldi."
The former Georgian security minister in question, Giorgadze, first fled Georgia for Moscow in the 1990s. He or his supporters have been accused of involvement in two assassination attempts against former Georgian presidents. Giorgadze also founded a political movement calling itself "anti-Soros."
US denies claims
It is not the first time the claims have been made, and the United States has previously labeled the allegations as "absurd."
Defense Department spokesman Eric Pahon told DW on Thursday that the fresh claims by the Russian authorities are "obvious attempts to divert attention from Russia's bad behavior on many fronts."
Pahon cited Russia's role in propping up Syrian President Bashar Assad's regime, its "illegal occupations" in Crimea or Georgia and its "blatant violations of the INF treaty [Intermediate-Range Nuclear Forces Treaty]."
Pahon denied that the US was developing biological weapons in the Lugar Center, calling it a "joint human and veterinary public health facility."
"These are also not US facilities," he said.

Microbiologists Are Suddenly Really, Really Worried About Synthetic Smallpox

Source: https://futurism.com/smallpox-synthesis-pandemic

Oct 05 – Earlier this year, scientists published a paper describing how they pieced together segments of DNA in order to bring back a previously eradicated virus called horsepox.
The paper, written by two University of Alberta researchers and the co-founder of a New York pharmaceutical company, was controversial because, as various experts told the magazine *Science*, someone could use a very similar process to bring back a related virus: smallpox.
Smallpox, you'll recall, killed hundreds of millions of people before the World Health Organization declared it eradicated in 1980. That was the result of a long vaccination campaign — so the idea of piecing the virus back together from bits of DNA raises the specter of a horrifying pandemic.
Two journals rejected the paper before *PLOS One*, an open access peer-reviewed journal, published it. Critics argue that the paper not only demonstrates that you can synthesize a deadly pathogen for what *Science* reported was about $100,000 in lab expenses, but even provides a slightly-too-detailed-for-comfort overview of how to do it.
Some of the horsepox scientists' coworkers are still pretty upset about this. *PLOS One*'s sister journal, *PLOS Pathogens,* just published three opinion pieces about the whole flap, as well as a rebuttal by the Canadian professors.
Overall, everyone's pretty polite. But you get the sense that microbiologists are really, really worried about someone reviving smallpox.

MIT biochemist Kevin Esvelt, for instance, wrote on Thursday that the threat is so grim that we shouldn't even talk about it:

At present, we decidedly err on the side of spreading all information. Despite entirely predictable advances in DNA assembly, every human with an internet connection can access the genetic blueprints of viruses that might kill millions. These and worse hazards are conveniently summarized by certain Wikipedia articles, which helpfully cite technical literature relevant to misuse.

Note the deliberate absence of citations in the above paragraph. Citing or linking to already public information hazards may seem nearly harmless, but each instance contributes to a tragedy of the commons in which truly dangerous technical details become readily accessible to everyone. Given that it takes just one well-meaning scientist to irretrievably release a technological information hazard from the metaphorical bottle, it may be wise to begin encouraging norms of caution among authors, peer reviewers, editors, and journalists.

Then, in a Q&A with an MIT blogger, also published Thursday, Esvelt blamed interest in smallpox synthesis on people who talk to the media as well:

DNA synthesis is becoming accessible to a wide variety of people, and the instructions for doing nasty things are freely available online.

In the horsepox study, for instance, the information hazard is partly in the paper and the methods they described. But it's also in the media covering it and highlighting that something bad can be done. And this is worsened by the people who are alarmed, because we talk to journalists about the potential harm, and that just feeds into it.

The Canadian professors — though not their colleague from the pharmaceutical company, interestingly — fired back by arguing that, well, it was gonna happen anyway:

Realistically all attempts to oppose technological advances have failed over centuries. We suggest that one should instead focus on regulating the products of these technologies while educating people of the need to plan mitigating strategies based upon a sound understanding of the risks that such work might pose. In these discussions, a long-term perspective is essential.

It's grim to envision engineered smallpox infecting and killing humans, the way its naturally-evolved predecessor did. Perhaps some subjects aren't worth studying, after all.

Lessons from the 1918 flu pandemic, 100 years on

Source: https://www.eurekalert.org/pub_releases/2018-10/f-lft100118.php

This year marks the centenary of the 1918 influenza pandemic, the worst flu outbreak in recorded history. A new study into the human, viral and societal factors behind its severity provides valuable lessons that could save lives in future pandemics. Publishing in *Frontiers in Cellular and Infection Microbiology*, the authors warn that while the world is better prepared than 100 years ago, new challenges will affect the impact of the next influenza virus pandemic -- including changing population demographics, antibiotic resistance and climate change.

"We've seen three additional influenza pandemics since 1918: the 1957 'Asian' flu, the 1968 'Hong Kong' flu and the 2009 'swine' flu. Although milder than the 1918 pandemic, these highlight the constant threat that influenza virus poses to human health," says University of Melbourne Professor Katherine Kedzierska of the Peter Doherty Institute for Infection and Immunity (Doherty Institute), Australia.

"Like the 1918 pandemic, the severity of any future outbreak will result from a complex interplay between viral, host and societal factors," adds the Doherty Institute's Dr. Carolien van de Sandt. "Understanding these factors is vital for influenza pandemic preparedness."

The 1918 influenza pandemic infected a third of the world's population and killed 50 million people. However, many people managed to survive a severe infection and others displayed only mild symptoms. "We always wondered why some people can effectively control viral infections while others succumb to the disease," says Kedzierska. To investigate this -- and why the 1918 outbreak was so virulent -- Kedzierska, van de Sandt and Dr. Kirsty Short of Australia's University of Queensland reviewed a large number of influenza studies.

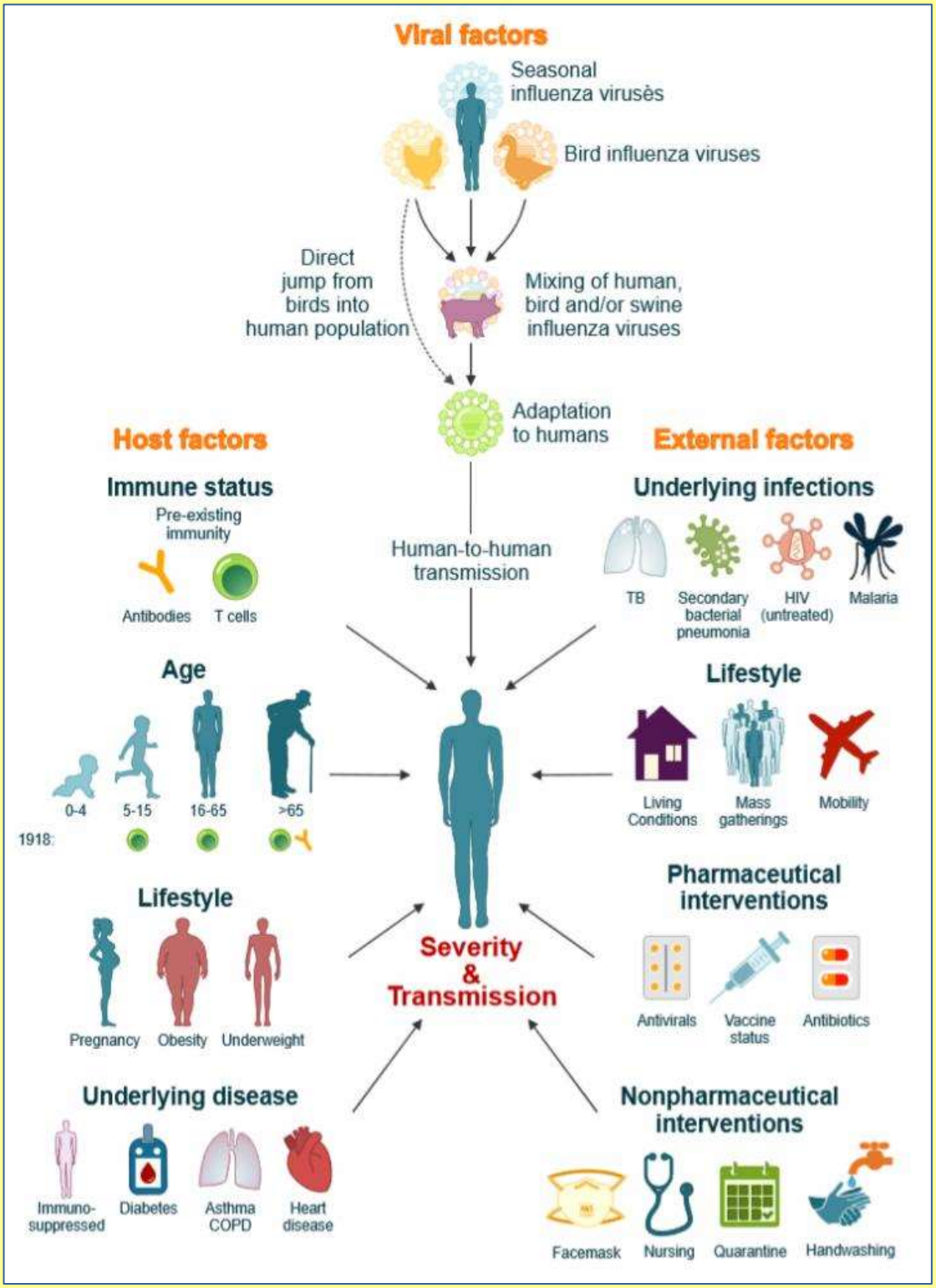


IMAGE: The severity and transmissibility of pandemic influenza viruses are the result of a complex interplay of viral, host and external factors. We have come a long way since 1918 and pandemic preparedness programs have learned from the 1918 and later pandemic outbreaks. Although unlikely, we cannot exclude the possibility that an influenza pandemic with similar severity will repeat itself in the future. However, lessons learned from the 1918 influenza pandemic will ensure that we are better prepared. Credit: Kedzierska, Van de Sandt and Short

One explanation for the pandemic's severity is the viral strain itself. Some studies show the 1918 virus could spread to other tissues beyond the respiratory tract, resulting in more widespread damage. In addition, the virus had mutations that allowed it to be more easily transmitted between humans.
Unlike in 1918, when the cause of influenza was unknown, scientists today can evaluate the pandemic potential of new viruses, both in animals and once a strain has crossed into humans. But, as the authors point out, such surveillance efforts are required across the world -- a factor that will become even more important with continued climate change.
"Climate changes affect animal reservoirs of influenza viruses and bird migration patterns. This could spread viruses to new locations and across a wider range of bird species," says van de Sandt.
The authors identify public health as another important factor. In 1918, people suffering from malnutrition and underlying diseases, such as tuberculosis, were more likely to die from the infection. This is still relevant today: climate change could result in crop losses and malnutrition, while increasing antibiotic resistance could see bacterial infections becoming more prevalent. Future pandemics will also face the challenge of obesity, which increases the risk of dying from influenza.
Population demographics also play a role. Strangely, one of the most severely affected groups in 1918 was one that is usually resilient -- young adults. The researchers think older people may have been spared due to previous exposure to other viruses, giving them greater immunity to the 1918 viral strains. However, given that seasonal flu typically kills the very old, today's aging population will likely be another challenge in any future pandemic.
"Providing emergency vaccines during future pandemics should take in account different age groups, viral and host factors," says Kedzierska.
The researchers also report that basic methods to reduce disease transmission, such as banning public gatherings and hand washing, helped to reduce levels of infection and death during the 1918 pandemic -- but only when they were applied early and for the entire duration of the pandemic.
"Until a broadly-protective vaccine is available, governments must inform the public on what to expect and how to act during a pandemic," says van de Sandt. "An important lesson from the 1918 influenza pandemic is that a well-prepared public response can save many lives."
If a similar pandemic occurred today, scientists estimate the death toll could be as high as 147 million. While it is impossible to know when or how the next flu pandemic will emerge, one thing is certain -- future pandemics won't be exactly like the 1918 pandemic, but it still has lessons to teach us.

FAS and FBI launch bioagents education app

Jointly developed by the Federation of American Scientists and Federal Bureau of Investigation, the Bioagents Education app concisely details nearly 50 biological agents that are important to biological research but could also misused as biological weapons.

Get it from:
https://play.google.com/store/apps/details?id=org.fas.biothreat&hl=en_US&utm_source=FAS+General&utm_campaign=53eee6191b-EMAIL_CAMPAIGN_2017_02_21_COPY_01&utm_medium=email&utm_term=0_56a7496199-53eee6191b-199312625
or
https://itunes.apple.com/us/app/id520691350?utm_source=FAS+General&utm_campaign=53eee6191b-EMAIL_CAMPAIGN_2017_02_21_COPY_01&utm_medium=email&utm_term=0_56a7496199-53eee6191b-199312625

'A Bioterrorist Attack Is Coming,' Panel Warns, But America's 'Fear Level Is Down'

Source: https://pjmedia.com/homeland-security/a-bioterrorist-attack-is-coming-panel-warns-but-americas-fear-level-is-down/

Oct 10 – The nation is going to come under attack with a bioweapon, seasoned policymakers warned this week, and awareness, preparation and prevention measures that comes in "fits and starts" aren't enough to confront the threat.

The Blue Ribbon Study Panel on Biodefense functions with a mission akin to "21st century Paul Reveres," former Sen. Joe Lieberman (I-Conn.), co-chairman of the group, said at a Tuesday forum on the risks of reactionary biodefense.

Lieberman co-chairs the privately funded commission founded in 2014 with former Pennsylvania governor and Homeland Security Secretary Tom Ridge. Former Secretary of Health and Human Services Donna Shalala, former Senator Majority Leader Tom Daschle (D-S.D.), former Rep. Jim Greenwood (R-Pa.), and former Assistant Attorney General for National Security Kenneth Wainstein round out the panel.

"We need to be a lot more preemptive than reactive… it's not necessarily good governance to wait until a crisis occurs," Ridge said of the conference theme.

Lieberman said the panel has the responsibility to "warn our government and, to the extent we can, the American people that a bioterrorist attack is coming -- but when, we don't know -- and another infectious disease pandemic is also coming."

"We can say with a reasonable certainty that both awful events will occur. And the question is how do we determine to the best of our ability when they're about to occur, how do we prevent them and, if we're unable to prevent them, how do we organize to respond as quickly as possible to them," he added. "The bottom line is we don't think we're ready."

Whereas "fear is a great motivator" in homeland security, as demonstrated after the 9/11 attacks, "certainly with regard to a bioterror attack the fear level is down," Lieberman said.

Daschle recounted Oct. 16, 2001, when a letter containing anthrax was opened in his office in the Hart building on Capitol Hill. An intern opened an envelope and "powder just exploded in front of her," and there were 28 people in the room at the time who were shut in there from morning until night while officials figured out the next course of action.

Six people had already died at the time, the longtime senator noted, resulting in an "enormous amount of anxiety" among his staff.

Daschle recalled "a lot of confusion, chaos" as "no one really knew what to do."

Fearing that everyone may have gotten anthrax spores on their clothing, everyone from Daschle's office was asked to go home and bring their clothing in garbage bags back to the Capitol the next day. The antibiotic Cipro was prescribed for each staffer for at least 100 days, and Daschle noted "we didn't have one serious medical issue in that time."

The senator's Hart office was contaminated. Anthrax powder had gotten into the HVAC system, so officials were worried it had spread to the rest of the building and who knows where.

The Hart building was shut down for months. "Our office had to be totally gutted all the way down to the beams; everything was taken out," Daschle said, from the furniture to the flooring.
With senators temporarily evicted from Hart, Daschle recalled Republicans offering Democrats office space. "It was the most incredible demonstration of bipartisanship – of course, we had already seen a lot of it coming out of 9/11," he said.
"I have mixed feelings about that time: I shudder to think what could have happened had my staff not gotten the best care they could, I shudder to think about how much of a tragedy those 28 people might have faced in their lives, but then I think with enormous gratitude how grateful we should be for the professionals who responded, for the kind of attitude the senators all expressed and demonstrated, and ultimately how we were all able to get through it, as difficult a time as it was," Daschle added.
The anthrax investigation included 10,000 interviews on six continents and 400 in-depth interviews with potential suspects. Congressional mail is now opened off-site.
"We were in some way in a daze in that period of time," Lieberman said, noting the fear that the anthrax letters signaled a wider, coordinated attack.

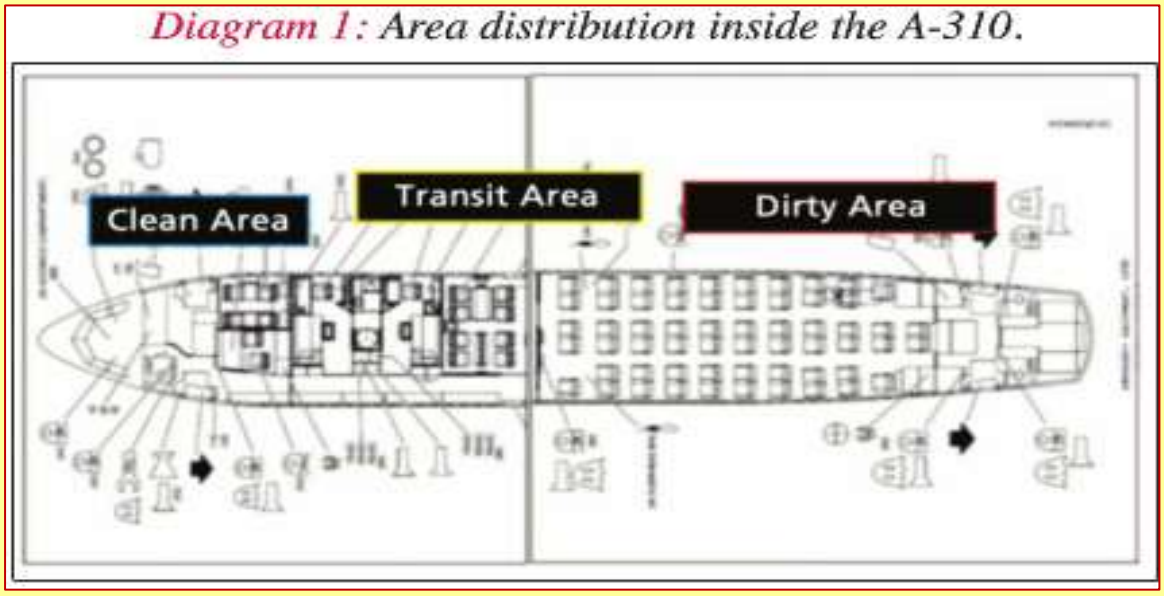
Air MEDEVAC of patients with high-risk of contamination due to infectious diseases: Our own experience after three medical cases

By Major Francisco Canatalejo Perez, MD
International Review of the Armed Forces Medical Services
Sept 2018; Vol 91/3; pp. 5-17.
Source: http://www.cimm-icmm.org/page/anglais/review91.php

ABSTRACT

Spanish troops deployed in international operations all over African tropical areas with emerging infectious diseases may be exposed to risky infection situations due to the severe infectious illnesses that can affect the population, in addition to the potential use of biological weapons in current international conflicts. This risk can be extended to the entire local population under their Spanish responsibility. This situation caused that the Spanish Unified Defense Medical Command and, in this particular case, the Spanish Medical Unit Evacuation (UMAER), updated its procedures of defense NBC in force since the beginning of these missions of Spanish Armed Forces in African territory. The response to the biological threat in those tropical environments was strengthened and the possibility of air transport of patients with transmissible infectious diseases for their definitive treatment in national territory was worked on and trained. This article is a report of what happened during those missions. It is recognition of all people involved in the missions and their efforts.

VOL. 91/3



DRC Ebola cases mount, with in-school infection a new worry

Source: http://www.homelandsecuritynewswire.com/dr20181012-drc-ebola-cases-mount-with-inschool-infection-a-new-worry

Oct 12 – As the Ebola outbreak in the Democratic Republic of the Congo (DRC) reaches 194 cases and deaths hit 122, a humanitarian group yesterday added a new concern—the virus has now spread within a school. The group also said response efforts were again interrupted by regional violence.
DRC health officials yesterday confirmed 6 new Ebola cases in the latest hot spot of Beni, including 3 deaths, as the number of suspected cases continues to pile up. Of the 194 total cases, 159 are confirmed and 35 are listed as probable.
In addition, a World Health Organization (WHO) official says the epidemic will likely carry well into 2019.

Officials probe 25 suspected cases

The DRC's health ministry said the 6 new cases in Beni include 3 deaths in the community, a concerning report because it means high levels of exposure to people who cared for the dead. The ministry also noted a death in a previously reported patient.
Health officials are following up on 25 suspected cases, which is up from 20 the day before. The DRC has now reported 29 new cases in just 6 days, or 15% of the total cases in the entire outbreak, which began in August.
CIDRAP notes that the event already ranks as the seventh-largest Ebola outbreak ever. Everyone remembers the colossal 2014-16 outbreak in West Africa, which grew to almost 29,000 cases. But only five other outbreaks have surpassed 200 infections, and they ranged from 224 to 425 cases.
Among them are the very first known Ebola outbreaks. In separate epidemics in 1976, the virus infected at least 284 people in Sudan and 318 in Zaire, which is now the DRC.
The vast majority of new cases in the current DRC outbreak have been in Beni, an area of rebel violence and community resistance to vaccine efforts. Yesterday DRC officials implemented new measures to help slow the outbreak in the region, including making it illegal to harbor suspected Ebola patients and keep them away from Ebola treatment centers.

In-school transmission

New York City–based humanitarian nonprofit the International Rescue Committee (IRC) said yesterday that the disease has now spread in a DRC school. The IRC also noted in a news

release that the number of new cases each day has more than doubled since Oct 1, likely spurred by a suspension of response activities late last month in Beni because of rebel violence.
"This is a sign not only that the outbreak is not under control, but that without full engagement from the community, things could get a lot worse," said Michelle Gayer, the IRC's senior director of emergency health.
Gayer added, "We have recently seen the transmission of Ebola within a school, opening up a new front in the fight against the disease." She expressed deep concern over interruptions in response efforts in Beni.
"We are operating within a highly volatile environment where the security situation continues to deteriorate, threatening the lives and livelihoods of the community and disrupting the response. Programs are again suspended today due to unrest and violence. Each time the Ebola response is interrupted lives are at risk. Teams are not able to trace the contacts of patients, vaccinate those in need and ensure safe burial practices," she said.
"We are at a critical moment in the response and our teams are highly concerned that the number of new cases could continue to escalate," Geyer said. "It's vital that over the coming days organizations continue to work alongside the local community to strengthen the relationship and work to increase access to people in need."

No quick end in sight
Peter Salama, the WHO director of emergency response, told Reuters today that he sees no quick solution to ending the DRC epidemic.
"We anticipate that now we'll be looking at least another 3-4 months in order to really stem this outbreak, with a strong focus in Beni and surrounding areas," he said. "I'd say that's the best case scenario."
Salama added that the next few days will reveal whether the latest wave in Beni is over, and much depends on the security of responders in the region and the level of community resistance.
"If, however, this peak is accompanied by a peak in insecurity which limits our ability to get to all these cases and their contacts, then we could see a much larger wave building. A lot is depending on that security situation," he added.

Weapons of mass (economic) destruction: rethinking biosecurity in Australia

By John Coyne and Paul Barnes
Australian Strategic Policy Institute
Source: http://apo.org.au/node/194586

Sept 2018 – While Australia no longer rides upon the sheep's back, strong economic and cultural links with agriculture remain and our economy is still intrinsically linked to agricultural production.
As the so-called 'strawberry sabotage' clearly demonstrates, accidental or deliberate biosecurity breaches present very real existential and economic threats to Australia that can harm agricultural exports as well as impact food security and trigger concerns about its safety.
This report highlights the importance of Australia's effective and successful plant and animal biosecurity systems and border protection services to our wellbeing and economy, and adds a further perspective on new and emerging threats that need to be addressed.

Confronting the threat of bioterrorism: realities, challenges, and defensive strategies

By Prof Manfred S Green, MBChB, Prof James LeDuc, PhD, Prof Daniel Cohen, PhD and Prof David R Franz, PhD

The Lancet – Infectious Diseases

Published:October 16, 2018

Source: https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(18)30298-6/fulltext

Global terrorism is a rapidly growing threat to world security, and increases the risk of bioterrorism. In this Review, we discuss the potential threat of bioterrorism, agents that could be exploited, and recent developments in technologies and policy for detecting and controlling epidemics that have been initiated intentionally. The local and international response to infectious disease epidemics, such as the severe acute respiratory syndrome and west African Ebola virus epidemic, revealed serious shortcomings which bioterrorists might exploit when intentionally initiating an epidemic. Development of new vaccines and antimicrobial therapies remains a priority, including the need to expedite clinical trials using new methodologies. Better means to protect health-care workers operating in dangerous environments are also needed, particularly in areas with poor infrastructure. New and improved approaches should be developed for surveillance, early detection, response, effective isolation of patients, control of the movement of potentially infected people, and risk communication. Access to dangerous pathogens should be appropriately regulated, without reducing progress in the development of countermeasures. We conclude that preparedness for intentional outbreaks has the important added value of strengthening preparedness for natural epidemics, and vice versa.

As Ebola spreads in Congo, WHO weighs emergency declaration

Source: http://www.homelandsecuritynewswire.com/dr20181016-as-ebola-spreads-in-congo-who-weighs-emergency-declaration

Oct 16 – The Democratic Republic of the Congo (DRC) recorded six more cases of Ebola over the weekend, including three community deaths, which raise more concern about the spread of the disease in the region.

The new cases lift the outbreak total to 211, including 135 deaths. Twenty-four suspected cases are still under investigation.

On Saturday, the DRC health ministry confirmed two cases in Beni, and yesterday recorded two more cases in Beni, and one each in Masereka and Butembo. There are now 104 confirmed or suspected cases from Beni, which makes that city the new epicenter of outbreak activity.

The current outbreak began in August in Mabalako, the initial hot spot, which to date has 94 confirmed or suspected cases.

"Beni #DRCis epicenter of Ebola outbreak now due to a toxic mix of factors driving the increasing force of infection: acute insecurity limiting access to affected communities & families; chronic mistrust in the community after years of conflict; and fear and rumors about #Ebola," Peter Salama, the World Health Organization's (WHO's) deputy director-general of emergency response, said on Twitter.

According to Salama, 75 percent of all cases confirmed this month occurred in Beni.

On 13 October, Oly Ilunga Kalenga, the DRC's minister of health reviewed the situation in Beni, and said the second wave of cases seen in recent weeks is not part of the known contacts identified in epidemiologic investigations.

Kalenga did say, however, that authorities were getting more notifications of possible cases, meaning recent efforts to increase surveillance in Beni have proved effective.

Community deaths threaten region

CIDRAP reports that of the new cases reported yesterday, three were community deaths, which means the deaths occurred outside of a health care facility or an Ebola treatment center.

The DRC said the three deaths involved dignified and secure burials, but community deaths always increase the risk of Ebola transmission, because viral loads often at their highest level at the time of death.

The DRC is continuing to use Merck's unlicensed Ebola vaccine in a ring vaccination campaign. Since 8 August, 16,973 people have been vaccinated, including 6,832 in Beni.

Tedros convenes emergency panel

On Monday, the director-general of the WHO, Tedros Adhanom Ghebreyesus, announced a meeting of the Emergency Committee under the International Health Regulations, which will take place in Geneva on Wednesday. The goal of the meeting will be to determine if the ongoing situation in eastern DRC constitutes a public health emergency of international concern, and what recommendations should be made to manage the outbreak.

On 28 September, the WHO raised the risk assessment of national and regional levels from high to very high due to ongoing security challenges in the region.

Today Stat reported that American health personnel from the Centers for Disease Control and Prevention (CDC) were pulled from the outbreak zone last month because of local insecurity. According to Stat, the order to remove personnel came from the State Department.

Paralyzing Mystery Illness Afflicts Kids in 22 States

Source: http://www.governing.com/topics/health-human-services/Paralyzing-Mystery-Illness-Afflicts-Kids-in-22-States.html

Oct 17 – U.S. health officials on Tuesday reported a jump in cases of a rare paralyzing illness in children, and said it seems to be following an every-other-year pattern.

At least 62 cases have been confirmed in 22 states this year, and at least 65 additional illnesses in those states are being investigated, according to the Centers for Disease Control and Prevention. Similar waves of the same illness occurred in 2014 and 2016.

CDC officials say they haven't found the cause. Some possible suspects, such as polio and West Nile virus, have been ruled out. Another kind of virus is suspected, but it's been found in only some of the cases.

2-in-1 anthrax & plague could nullify bioterrorism threat

Source: https://medibulletin.com/2-in-1-anthrax-plague-could-nullify-bioterrorism-threat/

Oct 17 – **A team of researchers has engineered a virus nanoparticle dual vaccine. It will protect against Bacillus anthracis and Yersinia pestis, the organisms that cause anthrax and plague respectively.**

These two are the most commonly used organisms for bioterrorism. At present, according to USFDA, there is a vaccine available for anthrax but no vaccine is available for plague.

In India, the last major outbreak of plague occurred in the district of Beed, Maharashtra (bubonic type) and Surat in Gujarat (pneumonic type) in September 1994. A total of 876 cases and 54 deaths were reported.

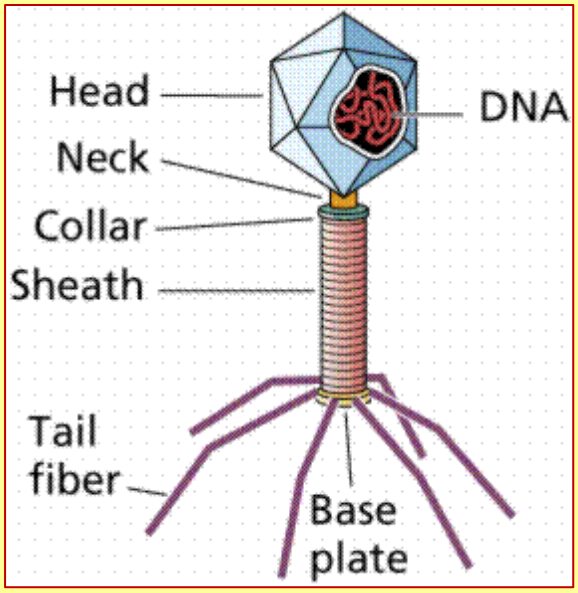
The National Centre for Disease Control (NCDC), Delhi has identified four specific areas where plague is affecting wild animals in India; the tri-junction of south India (Karnataka, Andhra Pradesh and Tamil Nadu), Beed belt in Maharashtra, Rohru in Himachal Pradesh and Uttarakhand. Plague is a very severe communicable disease (pneumonic type), with case fatality rates of 50-60% if left untreated.

IN INDIA, THE LAST MAJOR OUTBREAK OF PLAGUE OCCURRED IN THE DISTRICT OF BEED, MAHARASHTRA (BUBONIC TYPE) AND SURAT IN GUJARAT (PNEUMONIC TYPE) IN SEPTEMBER 1994.

A TOTAL OF 876 CASES AND 54 DEATHS WERE REPORTED

Anthrax is normally present in animals in southern India but is less frequent to absent in the northern Indian States.

National Centre for disease control (NCDC), Delhi reported 6 outbreaks of anthrax in India during the year 2014.



Anthrax is highly fatal when transmitted through inhalation and it's spores can remain viable for many years, and can be disseminated as invisible aerosol which can affect thousands of people at the same time.

The Centers for Disease Control and Prevention lists Yersinia pestis and (the agent for plague) and Bacillus anthracis (the agent of anthrax) as important organisms that might be used for bioterrorism. Following the horrific attack on the World Trade Center in New York City on September 11, 2001, there were subsequent mailings of anthrax spores through the US postal department to various media and congressional offices leading to the development of inhalational anthrax in 11 people. Ongoing revelations of terrorist plans and activities in many countries, have made bioterrorism a prominent source of concern to hospital infection-control programs.

Using the virus bacteriophage T4, scientists developed the vaccine by incorporating key antigens of both *B. anthracis* and *Y. pestis* into one formulation. Two doses of this vaccine provided complete protection against both inhalational anthrax and pneumonic plague in animal models.

Even when animals were threatened with lethal doses of both anthrax lethal toxin and *Y. pestis* CO92 bacteria, the vaccine was shown to be effective.

The study was published in mBio, an open-access journal of the American Society for Microbiology.

"This dual anthrax-plague vaccine is a strong candidate for stockpiling against a potential bioterror attack involving either one or both of these biothreat agents," the researchers noted in the study.

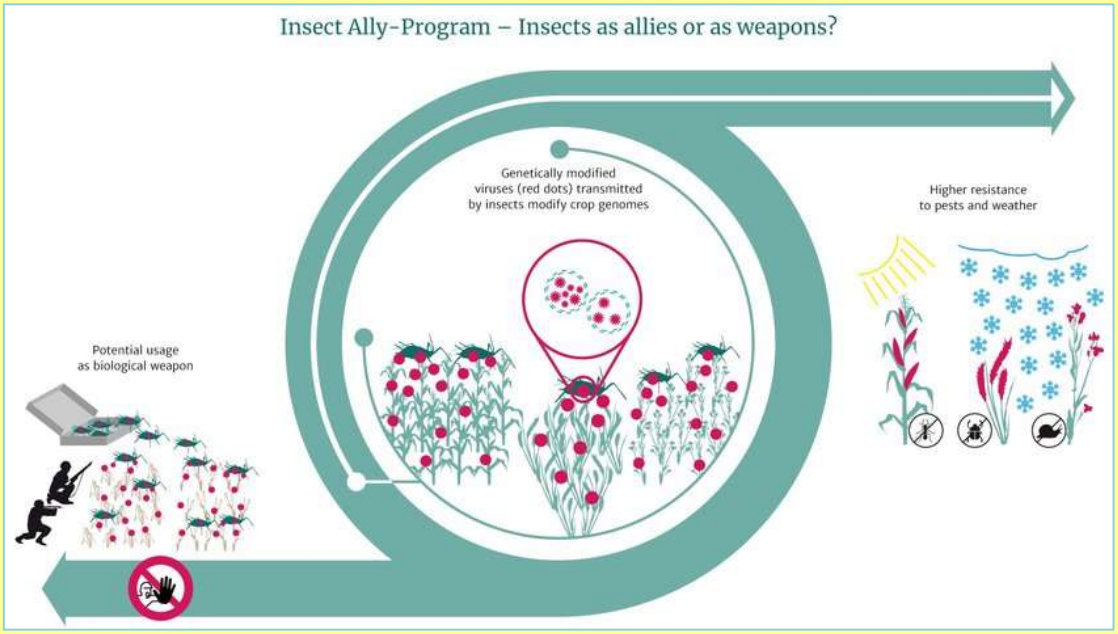
Their results demonstrate that T4 nanoparticle is a novel platform for developing multivalent vaccines against pathogens of high public health concern.

Insects as potential weapons in biological warfare

Source: http://www.homelandsecuritynewswire.com/dr20181023-insects-as-potential-weapons-in-biological-warfare

Oct 23 – Owing to present-day armed conflicts, the general public is well aware of the terrifying effects of chemical weapons. Meanwhile, the effects of biological weapons have largely disappeared from public awareness. A project funded by a research agency of the U.S. Department of Defense is now giving rise to concerns about being possibly misused for the purpose of biological warfare. The program called Insect Allies intends for insects to be used for dispersing genetically modified viruses to agricultural plants in fields. These viruses would

be engineered so they can alter the chromosomes of plants through 'genome editing'. This would allow for genetic modifications to be implemented quickly and at a large scale on crops that are already growing in fields, such as corn. In the journal *Science*, scientists from the Max Planck Institute for Evolutionary Biology in Plön and the Institut des Sciences de l'Evolution de Montpellier along with legal scholars from the University of Freiburg point out that this type of system could be more easily developed for use as a biological weapon than for the proposed agricultural purpose.
MPG notes that the programs funders argue that that genome editing using synthetic viruses will open up unprecedented possibilities for changing the properties of crop plants already growing in fields. Plants could, for example, be genetically altered to nearly instantly become less susceptible to pests or droughts. Until now, genetic engineering of commercial seeds always occurred in laboratories. With farmers planting seeds, needing to anticipate what environmental conditions will likely arise during a growing season. This means that, in the case of an unexpected drought, only farmers who had already planted drought-resistant seeds would gain a benefit. However, the originators of this project claim that genetic engineering in fields would offer farmers the possibility to alter the genetic properties of their crops at any time. Use of this technology would represent a radical break with many existing farming practices, potentially jeopardizing their coexistence.

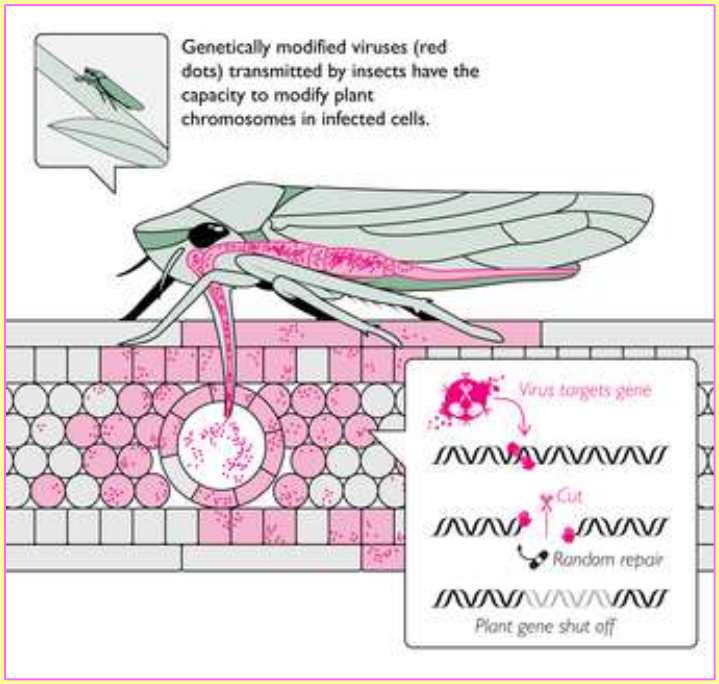


At the end of 2016, DARPA (Defense Advanced Research Projects Agency) put out a call for tenders for a 4-year research work plan. This program has distributed a total of $27 million, aiming to develop genetically modified viruses that can genetically edit crops in fields. The first of three consortia, drawn from fourteen American research facilities, announced their participation in mid-2017. Maize and tomato plants are reportedly being used in current experiments, while dispersal insect species mentioned include leafhoppers, whiteflies, and aphids. The DARPA work plan will culminate in large-scale greenhouse demonstrations of the fully functional system including insect-dispersed viruses.

Missing public debate

In public statements, DARPA asserts that developments resulting from the Insect Allies Program are intended for routine agricultural use, for example for protecting crops against droughts, frost, flooding, pesticides or diseases. However, most countries using such technology would require comprehensive changes to approval processes for genetically modified organisms. Farmers, seed producers and not least the general public would also be massively affected by a use of such methods.
"There is hardly any public debate about the far-reaching consequences of proposing the development of this technology. The Insect Allies program is largely unknown, even in expert circles," says Guy Reeves of the Max Planck Institute for Evolutionary Biology in Plön.

However, scientists and legal scholars from Plön, Freiburg and Montpellier believe that a broad social, scientific and legal debate of the issue is urgently required. Among other concerns it is their opinion, that no compelling reasons have been presented by DARPA for the use of insects as an uncontrolled means of dispersing synthetic viruses into the environment. Furthermore, they argue the findings of the Insect Allies Program could be more easily used for biological warfare than for routine agricultural use. "It is very much easier to kill or sterilize a plant using gene editing than it is to make it herbicide or insect-resistant," explains Reeves. Considering these, and other, concerns articulated in the *Science* article, the DARPA program risks being perceived as a program that is not justified for peaceful purposes, as is required according to the Biological Weapons Convention. This, in turn, may lead to other countries developing their own weapons in this area.



The program aims to develop virus-transmitting insects that infest crops. With teh help of the genome editing tool Crispr-Cas the viruses can modify the plants' genomes.

In international law, the decisive factor is whether a biological research program exclusively serves peaceful purposes. The Biological Weapons Convention, to which more than 180 States are parties, obliges all parties to never under any circumstances develop or produce agents or toxins of types or in quantities "that have no justification for prophylactic, protective or other peaceful purposes". In addition, the Convention prohibits to develop or produce "weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict." The authors argue that the insects used to deliver the viral agents might be perceived as means of delivery in terms of the Convention.

Biological Weapons Convention

Because of the broad ban of the Biological Weapons Convention, any biological research of concern must be plausibly justified as serving peaceful purposes. The Insect Allies Program could be seen to violate the Biological Weapons Convention, if the motivations presented by DARPA are not plausible. This is particularly true considering that this kind of technology could easily be used for biological warfare," explains Silja Vöneky, a law professor from Freiburg University.

The authors of the *Science* article are also concerned that the Insect Allies Program might encourage other states to increase their own research activities in this field – regardless of whether this program proves to be technically successful or not. Past efforts for banning the development of biological weapons have shown how important it is that this ban be applied by states such as the USA, who are considered an example by other countries. Based on this, the authors propose that the US should make proactive efforts to avoid any suspicion of engaging technologies that have the alarming potential for use in biological warfare.

— Read more in R. G. Reeves et al., "Agricultural research, or a new bioweapon system?" Science 362, no. 6410 (5 October 2018).

Researchers design 'smart' surfaces to repel everything but targeted beneficial exceptions

Source: https://phys.org/news/2018-10-smart-surfaces-repel-beneficial-exceptions.html

Oct 24 – Researchers at McMaster University have solved a vexing problem by engineering surface coatings that can repel everything, such as bacteria, viruses and living cells, but can be modified to permit beneficial exceptions.

The discovery holds significant promise for medical and other applications, making it possible for implants such as vascular grafts, replacement heart valves and artificial joints to bond to the body without risk of infection or blood clotting.

The new nanotechnology has the potential to greatly reduce false positives and negatives in medical tests by eliminating interference from non-target elements in blood and urine.

The research adds significant utility to completely repellent surfaces that have existed since 2011. Those surface coatings are useful for waterproofing phones and windshields, and repelling bacteria from food-preparation areas, for example, but have offered limited utility in medical applications where specific beneficial binding is required"It was a huge achievement to have completely repellent surfaces, but to maximize the benefits of such surfaces, we needed to create a selective door that would allow beneficial elements to bond with those surfaces," explains Tohid DIdar of McMaster's Department of Mechanical Engineering and School of Biomedical Engineering, the senior author of a paper that appears today in the journal *ACS Nano*.

In the case of a synthetic heart valve, for example, a repellent coating can prevent blood cells from sticking and forming clots, making it much safer.

"A coating that repels blood cells could potentially eliminate the need for medicines such as warfarin that are used after implants to cut the risk of clots," says co-author Sara Imani, a McMaster Ph.D. student in Biomedical Engineering.

Still, she explains, a completely repellent coating also prevents the body from integrating the new valve into the tissue of the heart itself.

By designing the surface to permit adhesion only with heart tissue cells, the researchers are making it possible for the body to integrate the new valve naturally, avoiding the complications of rejection. The same would be true for other implants, such as artificial joints and stents used to open blood vessels.

"If you want a device to perform better and not be rejected by the body, this is what you need to do," says co-author Maryam Badv, also a McMaster Ph.D. student in Biomedical Engineering. "It is a huge problem in medicine."

Outside the body, selectively designed repellent surfaces could make diagnostic tests much more accurate by allowing only the particular target of a test—a virus, bacterium or cancer cell, for example—to stick to the biosensor that is looking for it, a critical advantage given the challenges of testing in complex fluids such as blood and urine.

The researchers, who collaborated with Jeffrey Weitz of the Thrombosis & Atherosclerosis Research Institute at Hamilton Health Sciences to understand the challenges related to making successful implants, are now working on the next stages of research to get their work into clinical use.

Scientists Discover a New Agent Against Anthrax

Source: https://www.infectioncontroltoday.com/bioterrorism/scientists-discover-new-agent-against-anthrax

Oct 22 – A team led by professor Arne Skerra at the Technical University of Munich (TUM) has developed an **innovative strategy for preventing the anthrax bacterium from absorbing iron, which is crucial for its survival. It does so by neutralizing a special iron complexing agent produced by the bacterium. Because the anthrax pathogen only spreads in the body when it receives access to the essential element, this is expected to provide an effective treatment against the life-threatening infection.**

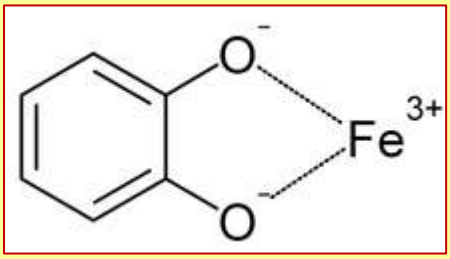
Anthrax is a disease caused by bacteria. Although the pathogen responsible for anthrax can be treated with antibiotics, the toxin which it releases in the body is particularly dangerous. If the infection is recognized too late, it is often lethal.

The anthrax pathogen can survive in the soil for decades in the form of spores. Grazing livestock, such as cows or sheep, ingest the spores and become infected with anthrax. Persons who work with these livestock animals or with animal products may become infected; however, it is very rare for anthrax to occur in animal herds in Germany today.

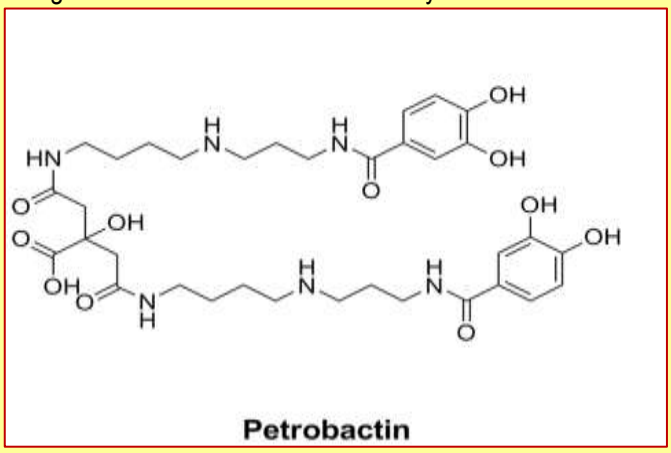
Furthermore, humans may also become infected with the illness if the meat of infected animals is not sufficiently heated. In late August of this year, livestock in the southeast of France became infected with anthrax -- the most serious outbreak in 20 years, according to the French media. Populations of chimpanzees and gorillas living in the wild are also endangered by anthrax.

Today, anthrax constitutes a global threat primarily due to its potential use as a bioweapon. In 2001, several letters with anthrax spores were distributed in the United States of America. Five people died at the time

Just like any cell in the body, bacteria require the essential trace element iron. However, in body fluids, iron is tightly bound to proteins and, therefore, not easily available. Accordingly, bacteria produce special complexing agents called **siderophores** (iron carriers) in order to bind the few available iron ions and subsequently absorb them via their own import systems. The human immune system prevents this via a protein that circulates in the blood called **siderocalin**. It has a high affinity for common iron siderophores and scavenges them, allowing them to be removed via the kidneys.



Petrobactin is a peculiar iron carrier produced by the anthrax pathogen which is not recognized by siderocalin. The aim of Prof. Skerra from the Department of Biological Chemistry was to disable this anthrax siderophore, thereby inhibiting the reproduction of the anthrax pathogen. With the aid of Anticalin® technology, which was developed by his department, he and his team were able to reconstruct the body's own siderocalin. The result was "petrocalin," which is able to neutralize the anthrax pathogen's siderophore.



"The newly developed petrocalin captures petrobactin, thereby depriving the anthrax pathogen of access to vital iron and acting as a protein antibiotic," says Skerra. "In collaboration with professor Siegfried Scherer from the Department of Microbial Ecology, we have been able to demonstrate that this approach works in bacterial cultures."

Skerra's strategy opens up a new avenue of treatment for anthrax infections by effectively suppressing the spread of the bacterium in the patient's body. The biochemical and protein structure analyses will be published by Skerra and his colleagues in the journal Angewandte Chemie, also providing insight into the molecular mechanisms.