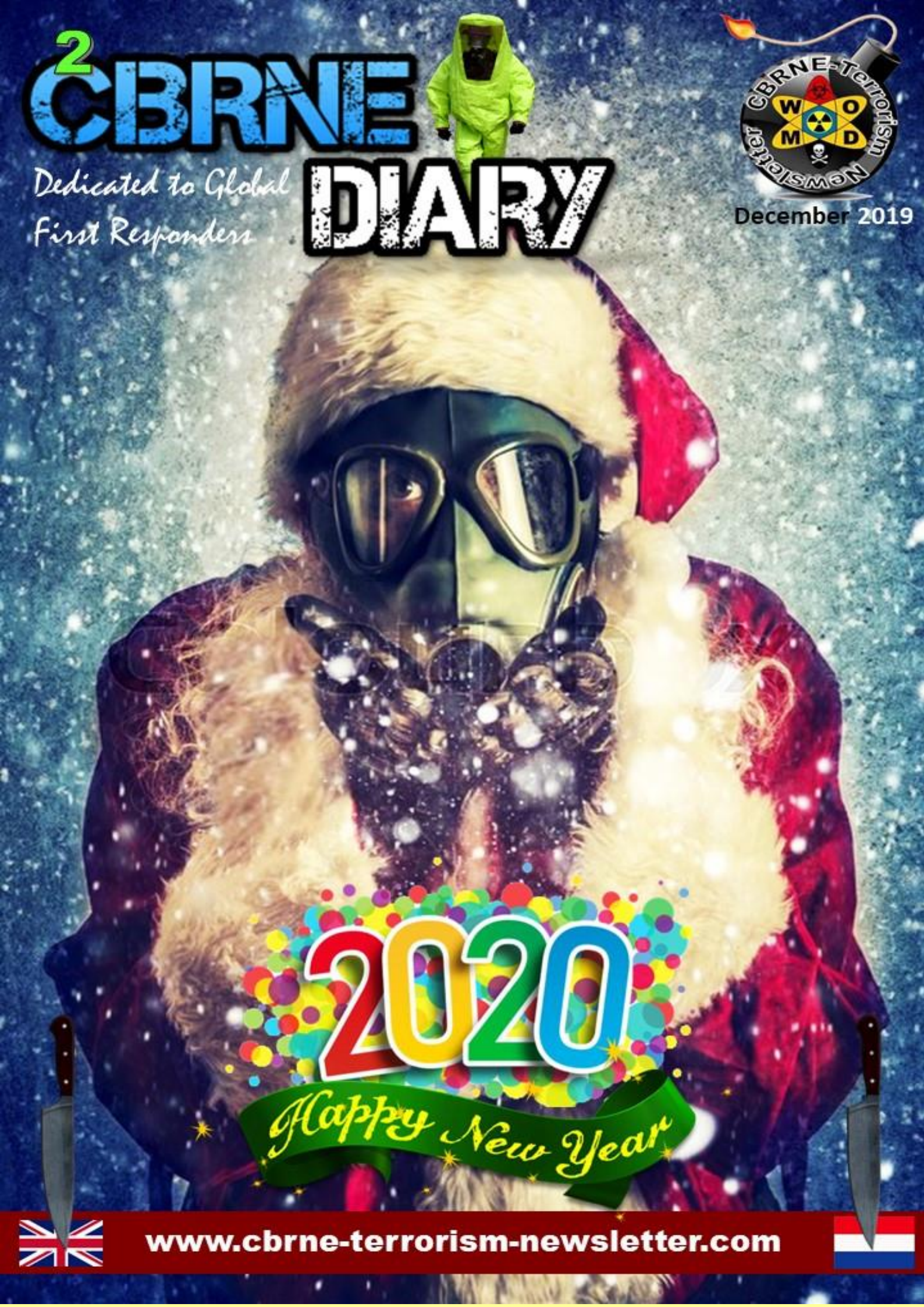
2 CBRNE DIARY

Dedicated to Global First Responders

CBRNE-Terrorism Newsletter

December 2019



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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

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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,

Transition to December was marked by two knife attacks in London (UK) and The Hague (NL). December and coming holidays period was always a target due to mass gathering in celebrating sites at major cities and capitals. Let us hope that the end of 2019 will make the difference.

What happened around the globe – latest news:

- Al Qaeda plans new series of spectacular attacks against airliners and airports
- We all witness the strange phenomenon of illegal immigrants crossing borders bearing the latest models of expensive smartphones but without ID documents. Why don't they take a photo of their ID with their mobiles. Read more about the state of the art technologies used in ID in the countries of interest and be surprised – with the exception of Syria. A second problem is the statement of their age when comes to peti crimes, rapes and violent behavior. Science have some good answers to that but why we do not use them?
- Armed Toyota trucks – perhaps a solution for many countries in areas of possible dispute or conflict
- K9 decontamination – do you know how to do it?
- History of Iran's chemical weapons – it does not matter if the majority of chemical weapons have been destroyed. The "know how" is still available and production is still a dreadful possibility
- Toxic mystery behind Kim Jong-Nam's assassination in the Malaysian airport
- Sakigake pilot project – Japan's proposal for countering CBRN threats
- F. tularensis vaccine on the way – by Emergex)
- Clinical anthrax drills' methodology – a must read paper if interested to conduct similar exercises in order to test hospitals' preparedness to deal bioterrorism incidents
- Global measles deaths – thousands died from a vaccine-preventable disease. What a pity and how endless human stupidity can be!
- Lessons learned from Fukushima soil decontamination – an ongoing problem towards Tokyo2020 Olympics
- Smart vehicle-camera system to spot IEDs

Take care CBRN First Responders and enjoy some quality time with families and friends because tomorrow the unexpected might happen and you will be there in the line of suty – as you always do!

The Editor-in-Chief

Resurgent Al-Qaeda plan new series of spectacular attacks against airliners and airports

Source: https://stockdailydish.com/resurgent-al-qaeda-plan-new-series-of-spectacular-attacks-against-airliners-and-airports/

Nov 24 – The terrorist group behind the world trade centre attacks in New York in 2001 are plotting a series of deadly new attacks that are 'keeping ministers awake at night '.
Security Minister Ben Wallace said that **Al-Qaeda are planning the attacks on airports and airliners, and even plan to use explosive-packed drones to take down targets in a bid to become the world 's most feared terrorist organisation once more**.
Wallace had met with airport officials a week ago to discuss the matter just days before a rogue drone brought Gatwick Airport to a standstill.
Speaking to the, Wallace also discussed the 'insider threat' of terrorists working undercover in our airports.
'**The aviation threat is real.** Aviation is still a blue riband event for these terrorists. Al-Qaeda are resurgent. They have reorganised. They are pushing more and more plots towards Europe and have become familiar with new methods and still aspire to aviation attacks, ' he said.
The Minister added that a joint Home Office and Department for Transport programme had pumped £25m into researching the defence of such threats.
The decline of Isis will also open up avenues for Osama bin Laden's brainchild to stake a claim at being the world's main terrorist organisation.
Wallace likened Isis to the latest 'boyband' but added that the 'dormant' Al Qaeda were always plotting in the background, and that a large aviation attack would be its calling card.
The organisation, founded during the Soviet intervention in Afghanistan in 1988 has camps in the aforementioned as well as Pakistan, Iraq and Sudan.
It started the 'global war on terror' but largely faded as Isis began its ascendancy, attracting global attention and funds.
The organisation and its affiliates are now active in Syria, Afghanistan, Yemen, Libya and other countries across the Middle East.
Wallace, who served in the army in Northern Ireland, said improvements in airport security meant terrorists were less likely to smuggle explosive through terminal security systems but: 'They have explored other ways of getting bombs on planes.'
'If you can't get in the front door, you're going to try to get in the back door,' he said.
'In 2019 we should be alert to al-Qaeda. They are re-energising some previous links and support and their ambition towards aviation is real. We saw in Australia that terrorists do what works and they don't give up,' he warned, referencing a failed aviation terrorism attempt in 2017.
Wallace said that while 13 Islamist terror plots have been thwarted in Britain since March 2017, new leaders are 'stepping up' and inspiring others to execute a 'reunion tour' of attacks on the west.
There have been a series of terror attempts in the west since 9/11, with Isis claiming a bulk of them in recent years.
Critics have slammed US President Donald Trump for his decision to withdraw his troops from Syria, claiming it offers a platform for the organisation to build, despite Trump declaring victory over them.
The UK found out about his decision only when he tweeted it on Wednesday and UK intelligence bosses are worried his decision will offer Isis a safe haven.

Failed terror attempts since 9/11
Federal prosecutors on December 23, 2001 identified a 28-year-old man who allegedly tried to blow up a trans-Atlantic flight as Richard C. Reid
London-born Richard Reid was sentenced in 2003 in a US federal court in Boston for trying to ignite two bombs in his shoes on a Paris-to-Miami flight on American Airlines.
He was subdued by passengers before he could detonate the explosives.
Reid is serving life without parole for trying to kill 197 people on board a the transatlantic jet on December 22, 2001.
He pleaded guilty in 2003 to attempted murder at his trial for trying to kill all those on board American Airlines Flight 63 from Paris to Miami.
Reid, dubbed 'shoe bomber' allegedly tried to set his shoes, containing the explosives, aflame and ignite the them as he sat in the coach section of a Boeing 767.

He told the court, during his hearing, that he was an enemy of the U.S. and 'a soldier of Allah'. He had received Al-Qaeda training.
'Underwear bomber' Umar Farouk Abdulmutallab, tried to blow up an international flight on Christmas Day 2009, and was jailed for life without parole.
The Nigerian national was on a suicide mission for Al-Qaeda when he attempted to detonate a bomb in his underpants as the plane, en route from Amsterdam, approached Detroit.
The mandatory punishment had never been in doubt after he surprised the courtroom and pleaded guilty to all charges on the second day of his trial in October.
Abdulmutallab, 25, the well-educated son of a wealthy banker, sat with his hands folded under his chin, leaning back in his chair as the sentence was announced.
During his trial he said the bomb in his underwear was a 'blessed weapon' to avenge poorly treated Muslims around the world.
It failed to fully detonate aboard the flight, which was carrying nearly 300 people, but caused a brief fire that badly burned his groin.
The 2017 Jakarta to Sydney flight terror attempt.
The ISIS-inspired group responsible, planned to use an improvised device to bring down a commercial plane in an Islamist-inspired conspiracy.
Khaled Khayat, aged in his 50s, was the apparent instigator of the planned terror attack, according to ABC reports.
He was taken into police custody along with his relative Mahmoud Khayat and father-and-son pair Khaled Merhi and Abdul Merhi in August last year after coordinated raids at their properties across Sydney.
Tarek Khayat, 46, – brother of Khaled – admitted to being a financial officer for the terror group Islamic State in Raqqa, Syria, and was ordered to face death by hanging.
Moments after he received his sentence, Khayat told Newscorp he was not involved in the plot to bring down an Etihad flight, departing Sydney in July last year, and said reports of his alleged involvement were 'propaganda'.

The Violent Brutality of Growing Up in A Shame Honor Culture –Predicated on the Destruction of the Mother and her Maternal Bond

By Nancy Hartevelt Kobrin, Ph.D.

Mentalities/Mentalités Volume 33, Number 1, 2019

Source: http://www.mentalitiesjournal.com/wp-content/uploads/2019/11/The-Violent-Brutality-of-Growing-Up-in-A-Shame-Honor-Culture.pdf

Nancy Hartevelt Kobrin, Ph.D. *is a psychoanalyst, Arabist and counter terrorist expert specialising in Early Childhood Development and the Mind and Body Language of the Jihadi. She is a fellow at the American Center of Democracy and author of* ***The Banality of Suicide Terrorism*** *(also in Hebrew & forthcoming in Urdu);* ***Penetrating the Terrorist Psyche;The Maternal Drama of the Chechen Jihadi,*** *(soon in Urdu);* ***The Jihadi Dictionary*** *plus N. Simms & N. Kobrin,* ***Children Killing Children*** *(under publication consideration) and* ***Mailing Mogadishu – Its Last Two Somali Jews*** *(in the works).*

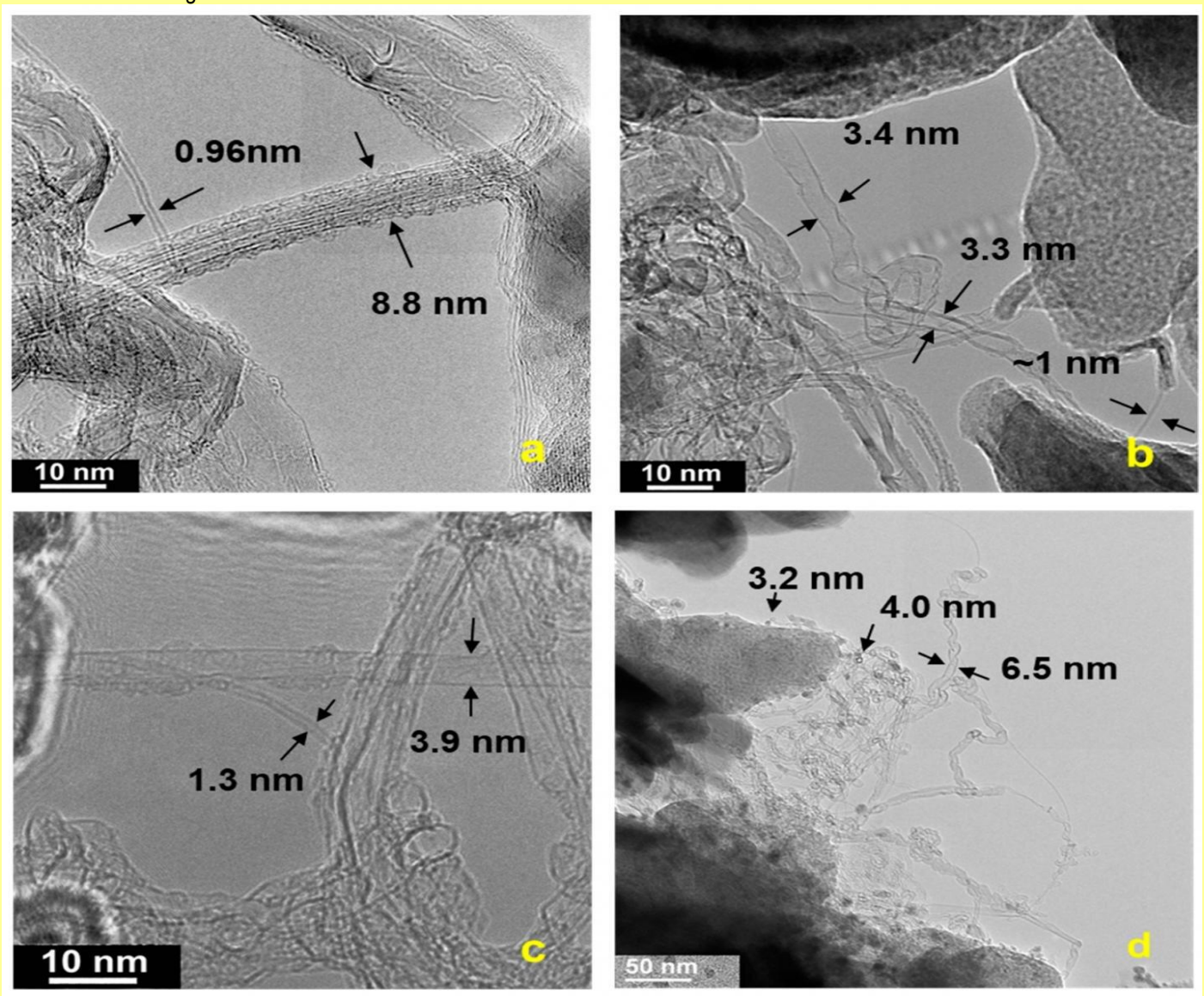
Old Newspapers Can Be Used to Grow Carbon Nanotubes

Source: https://www.eurasiareview.com/24112019-old-newspapers-can-be-used-to-grow-carbon-nanotubes/

Nov 24 – A research collaboration between Rice University and the Energy Safety Research Institute (ESRI) at Swansea University has found that old newspapers can be used as a low cost, eco-friendly material on which to grow single walled carbon nanotubes on a large scale.
Carbon nanotubes are tiny molecules with incredible physical properties that can be used in a huge range of things, such as conductive films for touchscreen displays, flexible electronics, fabrics that create energy and antennas for 5G networks.
The new study, published in the *MDPI Journal C* , details the research experiments carried out in producing carbon nanotubes which could have the potential to solve some of the problems associated with their large scale production such as:

- The high cost of preparing a suitable surface for chemical growth.
- The difficulties in scaling up the process, as only single surface growth processes have been previously available.

The research team discovered that the large surface area of newspapers provided an unlikely but ideal way to chemically grow carbon nanotubes.
Lead researcher Bruce Brinson said: "Newspapers have the benefit of being used in a roll-to-roll process in a stacked form making it an ideal candidate as a low-cost stackable 2D surface to grow carbon nanotubes."
However, not all newspaper is equally good – only newspaper produced with sizing made from kaolin, which is china clay, resulted in carbon nanotube growth.



TEM images of raw carbon soot grown on kaolin sized paper showing (a) roped single-walled carbon nanotubes (SWCNTs) helically wrapped by a SWCNT, and large SWCNTs, (b) collapsed, (c) folded, and (d) twisted nanotubes. Scale bar = 10 nm (a-c) and 50 nm (d). CREDIT: Rice University

Co-author Varun Shenoy Gangoli said: "Many substances including talc, calcium carbonate, and titanium dioxide can be used in sizing in papers which act as a filler to help with their levels of absorption and wear. However it was our observation that kaolin sizing, and not calcium carbonate sizing, showed us how the growth catalyst, which in our case was iron, is affected by the chemical nature of the substrate."
ESRI Director Andrew Barron, also a professor at Rice University in the USA, said: "While there have been previous research that shows that graphene, carbon nanotubes and carbon dots can be been synthesised on a variety of materials, such as food waste, vegetation

waste, animal, bird or insect waste and chemically grown on natural materials, to date, this research has been limited.
"With our new research, we have found a continuous flow system that dramatically reduces the cost of both substrate and post synthesis process which could impact on the future mass manufacture of single walled carbon nanotubes."

A pressing problem – IDs and age identification of illegal immigrants and refugees

Thousands of illegal immigrants and refugees are invading Greek borders and almost all of them have no papers or state incorrect ages. Lack of identification papers slow down the recording process and as a result all these people are packed into arrival hot spots that are not qualified to host them properly. The big question is: do they actually have identity papers or not. Below is a small Internet search on existing ID legislation in their homelands and some of the current methodologies that can reveal/estimate the actual age of these people when in doubt of who old they are.

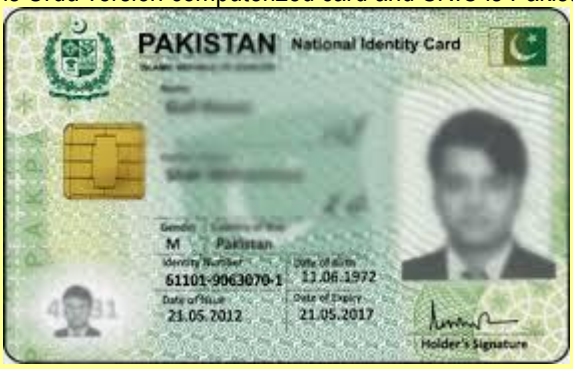
Afghan identity card

The electronic **Afghan identity card** (e-Tazkira) is a national identity document issued to all citizens of Afghanistan. It is proof of identity, residency and citizenship.

The electronic national ID card was officially launched in Kabul on 3 May 2018 when President Ashraf Ghani and the First Lady, Rula Ghani, were handed their e-ID cards. Distribution of e-ID cards or e-Tazkira has also begun to all the people of Afghanistan. The new Afghan national electronic identity card complies with international standards for identity documents.
The national identity card is valid for five or ten years and it costs may be 10 Af or more. Applications are filed at ministry of interior offices. When applying, a valid certificate from local authority is needed in order to check the identity. If the applicant does not have a valid document, then the applicant must be accompanied in person by another that does have such a document, that person must be a near relative or an employer or municipal official who knows the applicant. There is no age limit to get a card, but people below 18 must be accompanied by their guardian at application.
The identity card is plastic and rectangular in shape, about 86 × 54 millimeters in size. On one side is a gold-plated contact chip, and on the right-hand side is the small photograph of the bearer, personal information is available in English on the same side. On the top of the card on both side, the name Afghanistan is written in three languages, Pashto, Dari and English. On other side is personal information about bearer in two languages Pashto and Dari. The national identity card is equipped with a contact chip ready to function as an electronic identity card (eID).

Pakistan Identity Card

The **Computerized National Identity Card (CNIC)** is an identity card issued by Pakistan's National Database and Registration Authority (NADRA). The card is issued first at the age of 18. There are two types of Identity card in Pakistan CNIC and SNIC. CNIC is Urdu version computerized card and SNIC is Pakistan's first national electronic identity card.



In Pakistan, all adult citizens must register for the Computerized National Identity Card (CNIC) with a unique number upon reaching the age of 18. It serves as an identification document to authenticate an individual's identity as the citizen of Pakistan. Before introduction of the CNIC, manual National Identity Cards (NICs) were issued to citizens of Pakistan. Today, the Government has shifted all its existing records of National Identity Cards (NIC) to the central computerized database managed by NADRA. New CNIC's are machine-readable and carry facial and fingerprint information.
Every citizen is required to have a NIC number, and the number is required for many activities such as getting a driver license or passport, registering a vehicle, receiving social insurance/Zakat funding, enrolling in school, college or technical institute, filing a legal affidavit, wiring funds,

paying taxes, opening a bank account, getting a utility connection (electricity, phone, mobile phone, water and sewer, natural gas), etc. However, since some births in the country are not registered, and some Pakistanis do not conduct any of the activities described above, a few do not have ID cards. Obtaining an CNIC also costs PKR 200, and this inevitably reduces the number of people who can afford it. In 2007, NADRA announced that it had issued 60 million CNIC (the C standing for computerised) numbers, which is approximately one-third of the population. The authority had issued the 10 millionth CNIC on February 11, 2002; 20 millionth on June 18, 2002; 30 millionth on December 22, 2003; 40 millionth on October 1, 2004; and 50 millionth CNIC on February 14, 2006.

A unique 13-digit number are assigned at birth when the parents complete the child's birth registration form (Form RG-2, commonly known as B-Form), and then a National Identity Card (NIC) with the same number is issued at the age of 18. Until 2001, NIC numbers were 11 digits long. In 2001-2002, the authority started issuing 13-digit NIC numbers along with their new biometric ID cards. The first 5 digits are based on the applicant's locality, the next 7 are serial numbers, and the last digit is a check digit. The old manual NIC numbers are invalid as of 1 January 2004.

The ID card has the following information on it: Legal Name, Gender (male, female, or transgender), Father's name (Husband's name for married females), Identification Mark, Date of Birth, National Identity Card Number, Family Tree ID Number, Current Address, Permanent Address, Date of Issue, Date of Expiry, Signature, Photo, and Fingerprint (Thumbprint) NADRA also records the applicant's religion, but this is not noted on the CNIC itself. NADRA has registered over 90% of women in the Pakistani nation.

In Pakistan, all adult citizens must register for the Computerized National Identity Card (CNIC), with a unique number, at age 18. CNIC serves as an identification document to authenticate an individual's identity as the citizen of Pakistan. Before introduction of the CNIC, National Identity Cards (NICs) were issued to citizens of Pakistan. Now, government has introduced the Smart National Identity Card (SNIC),

NADRA introduced the Smart National Identity Card (SNIC), Pakistan's first national electronic identity card, in October 2012. Pakistan's SNIC contains a data chip and 36 security features. The SNIC complies with ICAO standard 9303 and ISO standard 7816-4. The SNIC can be used for both offline and online identification, voting, pension disbursement, social and financial inclusion programmes and other services. NADRA aims to replace all 89.5 million CNICs with SNICs by 2020.

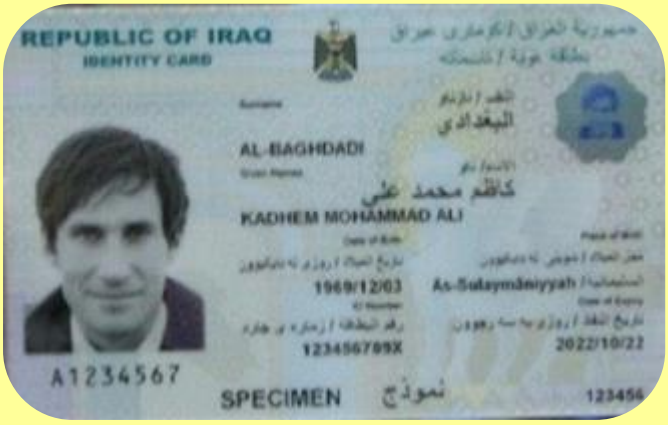
Pakistani citizens living abroad can apply for NICOP. NICOP stands for National Identity Card for Overseas Pakistanis. NICOP (National Identity Card for Overseas Pakistanis) is a registration document to be issued to a valid/legitimate citizen of Pakistan. Previously it was issued to overseas Pakistanis working/living/staying/studying abroad for consecutive time period of six months or possessing dual nationalities but now it can be issued to any citizen of Pakistan.

Bangladeshi National Identity Card

The **National Identity Card** (Bengali: জাতীয় পরিচয়পত্র) or **NID** card is a compulsory identity document issued to every Bangladeshi citizen upon turning 18 years of age. The NID is a government issued photo ID just like the Bangladeshi Driver's licence, which is also a biometric, microchip embedded, smart identity card. The NID is required by Bangladeshi citizens for multiple essential public services, such as obtaining utility connections, as well as private services, such as opening bank accounts, in Bangladesh. Initially paper based laminated NID cards were issued since 2006. Then the paper based laminated NID cards were replaced by biometric and microchip embedded Smart NID cards for all adult citizens in Bangladesh from 2016 onwards. This was done to ensure security for the card holder as well as prevent counterfeiting and fraudulence. The government provides the Smart NID card free of charge to all adult citizens of Bangladesh. Expiration: 15 years from the date of issuance. Biometric identification has existed in Bangladesh since 2006. All Bangladeshis who are 18 years of age or older are issued identity cards and included in a central biometric database, which is used by the Bangladesh Election Commission to oversee the electoral procedure in Bangladesh. Before 2016, only normal identity cards were issued which only included the ID holder's name; father's and mother's names; date of birth; ID number; photo; thumb and index fingerprints; and signature. These paper-based laminated NID cards were easy to counterfeit. However, starting in October 2016, they were replaced by biometric, microchip embedded, smart identity cards in order to ensure security for the card holder as well as prevent counterfeiting and fraudulence. The smart NID cards include all ten fingerprints in addition to other biometric and identity information.

The National Identity Registration Wing (NIDW) of the Bangladesh Election Commission introduced the Smart National Identity Card in October 2016. This card has an integrated circuit embedded in it and it is also known as a "chip-based card" or "smart NID card" in

Bangladesh. It is a pocket-sized plastic card, almost the size of a credit card, with the embedded integrated circuit storing all the data. To maintain the security of the smart card, twenty-five international certifications and standards have been ensured. Since they are machine readable cards, the smart cards have additional safety measures to prevent forgery. The card holders currently receive twenty-two different types of services including banking, electronic Tax Identification Number (e-TIN), driving license, passport, etc.



Iraq National Card

The **Iraqi National Card** (البطاقة الوطنية/كارتى نيشتمانى) is an electronic biometric card issued by the Ministry of Interior from January 1, 2016. It replaced the Nationality Certificate (شهادةالجنسية/ڕەگەزنامە) and Civil Identification Document (هوية الأحوال المدنية/كارتى بارى كەسێتى) previously issued. In 2018 it will also replace the Residency Card (بطاقة السكن/كارتى زانيارى). This card has a high security platform and is connected directly to the Iraqi Civil System. Cost: 5,000 dinars (issue 1st time); expiration: 10 yrs after issuance.

The new National Card is an ID-1 (credit card size) plastic card with an embedded RFID chip. It is covered with multi-color guilloches. All the information on it is given in Arabic and Kurdish.

Iranian identity card

Every citizen age of 15 and above, whether resident or not, is assigned a "National Identity Number" is required to apply for a **National Identity Card**, known as *Kart-e-Melli* in Persian language (Persian: کارت ملی) any of the local branches of the National Organization For Civil Registration Post Office or E-Government offices

In order to apply for an NID Card, the applicant must be at least 15 years old Iranian citizen and have attested photograph to their Certificate of Identity booklet - issued by National Organization For Civil Registration. Expiration: 7 yrs. from date of issuance.

Starting 2015 National Organization For Civil Registration started Smart National ID Card for all the new applicant and features Bio metric, smart chip, laser hologram, and 3 sets of public key and private key currently the NID Cards are not only compulsory for many tasks in Iran and Iranian Missions abroad (e.g. obtaining a passport, driver's license, draft document) they are the only form of ID acceptable by Banks for any transaction. Although only NIN is required to deposit cash and NID may not be presented.

Syrian identity card

The National Identity Card is called "hawillya" in Arabic. Syrian citizens can obtain their identity card by the age of 14 or 15 years after their parents make the application for them and provide copies of the birth certificate and the Family Book ("Deftar Ayli"). Every Syrian family has a "Deftar Ayli" which is acquired when the parents get married.

1.indication of the province and provincial capital. 2. indication of the Civil Status branch office in a small town or village, where the person was registered. 3. The seven digits automated number.

The "hawillya" is a light green laminated document containing the following information: name of the holder, the holder's father's and mother's names, date and place of birth, the civil registration number, the identity card number, date and city of issuance and a stamp from the Ministry of the Interior. Old identity cards have the civil registration number written by hand, while new ones have the numbers typed.

The document can only be renewed in Syria at the Ministry of the Interior.

The "hawillya" is a proof of citizenship and is used for banking, land transactions, court appearances, marriage, etc. It is a central document for day-to-day life and there are no other documents used by adults other than the military booklet.
The ID-cards are valid for ten years and thereafter should be renewed. When the ID card is renewed picture, serial number and issuing date will be changed (the serial number is a different number than the national number). Expiring date is not given on the ID card, but date of issuance is located on the back of the card just above the 2D barcode. It is the Civil Status Department who register and issue ID cards. The Civil Status Department in Damascus stated that it is unlikely for siblings or spouses to have numbers close to one anotherdue to the automated process of generating national numbers.

Family booklet (left)**:** Records all members of the family: The mother, the father and all the children. When two people get married, they move from their parents' booklet and into their own.

Age estimation

Three age estimation methods: dental development, hand and wrist development, and a method combining both measurements. The methods involving dental development provided more accurate age estimates of chronological age. The method exclusively based on hand and wrist development resulted in outcomes that were highly discrepant from the chronological age.
Source: https://www.sciencedirect.com/science/article/pii/S0003996917303436

Current methods based on psychological development, dental status, and skeletal maturation (hand-wrist; medial clavicle).

Source: https://www.dovepress.com/forensic-age-estimation-in-living-individuals-methodological-considera-peer-reviewed-fulltext-article-RRFMS

Dental system in an integral part of the human body, its growth and development can be studied in parallel with other physiological maturity indicators such as bone age, menarche, and height. Several authors have shown that dental parameters are more suitable for age estimation in children because the variability is lower since calcification rate of teeth is more controlled by environmental factors. The rate of formation of permanent teeth is not affected by the premature loss of the primary teeth. Forensic identification by its nature is a multidisciplinary team effect relying on positive identification methodologies as well as presumption or exclusionary methodologies. Typically, this effort involves the cooperation and coordination of low enforcement officers, forensic pathologist, forensic odontologists, forensic anthropologists, serologists, criminalist, and other specialists as deemed necessary. The most common roll of the forensic dentist is the identification of deceased individuals. Many studies have concluded that tooth formation is a more reliable indicator of dental maturity than gingival emergence or eruption. Tooth eruption is mostly influenced by environmental factors such as available space in the dental arch, extraction of primary tooth, teeth tipping, or impaction of teeth. Until quite recently, clinical eruption has been the only criterion used for dental maturity or dental age. Tooth development shows less variability than other developmental features and also low variability in relation to chronological age.
Source: http://www.jisppd.com/article.asp?issn=0970-4388;year=2018;volume=36;issue=2;spage=185;epage=190;aulast=De

EDITOR'S COMMENT: With the exception of Syria, all other countries from which thousands of people are flooding Greece (the gate for EU) as illegal immigrants or refugees are providing state-of-the-art IDs. So, why almost all of them have no

identification papers? In addition, there are proven scientific methods that can provide an accurate or proximal age identification. So, why they are not used? In many instances, adolescents or adults claim that they are "children" in order to take advantage of the special provisions given to unaccompanied minors. It seems that both Greece and those involved in related services are not functioning properly. Just ignorance or a hidden cause? The above are appricable to all nationals worldwide; so, practically there is no excuse for having no papers or lying. The first thing you do both in war, conflict or unrest is to put your ID and/or passport (if available) in your pocket and then run for your life (if directly threaten). You know, we are not as stupid as we look!

New supercar added to Dubai Police luxury patrol fleet

Source: https://www.khaleejtimes.com/news/government/photos-new-supercar-added-to-dubai-police-luxury-patrol-fleet-

Nov 26 – Dubai Police has announced the addition of a new luxury supercar to its swanky patrol fleet on Monday - the Mercedes-AMG GT 63 S (above).

Major General Abdullah Khalifa Al Marri, Commander-in-Chief of Dubai Police, said that Dubai Police Force has always sought, through the introduction of its supercars fleet, to enhance security presence in tourist destinations such as the Burj Khalifa, Sheikh Mohammed Bin Rashid Boulevard, Jumeirah Beach Residence and La Mer, while upgrading systems at the same time.

Editor's favorite: Hybrid BMWi8

Powerful patrol car

The car is powered by a 4.0-liter twin-turbo V8, racing at 639 horsepower and a maximum torque of 900 Nm. All that throbbing energy is routed through a nine-speed automatic and the AMG-tuned 4Matic all-wheel-drive system. It accelerates from 0 to 100 kmph in 3.2 seconds, and claims a top speed of 315 kmph.

The car is listed at **Dh775,000 (193,000 euro)** on DubaiCars.com.

Lt Col Dr. Mubarak Saeed Salem Bin Nawwas Al Kitbi, Director of Tourist Police Department at the General Department of Criminal Investigations, said that Mercedes-AMG GT 63 S is a qualitative addition to the luxury patrol fleet, adding that the new sports coupe

would be stationed at different tourist spots across the emirate to serve the public.

"The addition of the Mercedes-AMG GT 63 S increases the number of luxury patrol vehicles in the Dubai Police fleet to 15", he added.

Height 776 in Chechnya: 6th Company's last stand

Source: https://defensionem.com/height-776-chechnya-6th-company/

What Terrorist Migration Over European Borders Can Teach About American Border Security

Source (full paper): https://cis.org/Report/Terrorist-Migration-Over-European-Borders

Nov 06 – The irregular migrant flow was exploited in order to dispatch terrorist operatives clandestinely to Europe. IS and possibly other jihadist terrorist organizations may continue to do so. (— "European Union Terrorism Situation and Trend Report 2017").

It remains a theoretical vulnerability but not one that terrorists have been able to exploit. (— Nicholas Rasmussen, former National Counterterrorism Center director under the Obama administration, January 2019, regarding such infiltration over the U.S. southern border).

Key Findings

- At least 104 Islamist extremists entered the European Union's (EU) external borders using long-haul irregular migration methods between 2014-2018, establishing proof of concept for a previously theoretical terrorism travel tactic over borders.
- Of the 104 migrant terrorists identified for the 2014-2018 period, 28 successfully completed attacks that claimed the lives of 170 victims and wounded 878. An additional 37 were arrested or killed plotting attacks, and 39 others were arrested for illegal involvement with foreign terrorist organizations.
- A majority of the 104 terrorists applied for international protections such as asylum and were able to remain in European nations for an average of 11 months before attacks or arrests for plots, demonstrating that asylum processes accommodated plot incubation.
- While total numbers of migrant-terrorists were a fraction of overall irregular migration, their activities demonstrate that small numbers present outsized threats to the United States should only a few strike here. In Europe, a relative few upended longstanding political power balances, prompted a major military campaign, forced massive public expenditures on new security policies, prompted the British vote to exit the European Union, and disrupted the free movement of people within the Schengen zone.
- American security and counter-terrorism intelligence measures likely have prevented some migrant-terrorists from conducting attacks and may partly explain the absence of attacks to date from over the U.S. southern border. However, an elevated threat of terrorist infiltration via the border persists due to neglect and exploitable flaws in the American measures.

New Hoodie Will Protect the Hearing of Military Dogs

Source: https://i-hls.com/archives/97126

Dec 14 – A high-tech hoodie is currently being developed by the United States Army and a biodefense device company in order to help protect the hearing of military canines from loud noises. The **Canine Auditory Protection System** is made of lightweight acoustic absorption material and resembles a tight hoodie. The system sits over the dog's ears in order to protect them.

Military dogs, along with the human handlers, are often exposed to loud noises such as aircraft, gunfire and explosions. Such loud noises are capable of permanently damaging the hearing of an unprotected ear, whether it be human or dog. Tests of the Canine Auditory Protection Systems help show that the system significantly helps reduce short term hearing loss for military dogs.

Even short helicopter rides are capable of temporarily decreasing a canine's hearing abilities. This could lead to impaired performance during missions.

The system is slightly thicker than an inch and is made of lightweight acoustic absorption materials that block sound. The system is intended to sit on the dog's head like a hoodie and seal the ears from any unwanted noise.

Stripes.com mentions that the system is compatible with goggles to allow dogs to work in tight spaces.

Although the technology is currently in development, it is still unclear when the system will be made available to military dog handlers.

Hearing loss is the leading military related disability for American military veterans and it is widely considered that military dogs are subjected to similar exposure of hearing damage. Army officials mention that protecting a dog's hearing effectively increases its working life.

Military dogs deal with a wide range of military operations, especially those involving loud noise. Two months ago a military dog helped lead to the death of ISIS leader Abu Bakr al-Baghdadi in Syria. The dog has suffered mild injuries after chasing al-Baghdadi into a dead-end tunnel, where al-Baghdadi blew himself up.

One Size Fits All – Not the Right Approach for Airport Security

Source: https://i-hls.com/archives/97054

Dec 12 – "Terrorists have targeted airports on several occasions and are actively seeking suitable weaknesses in the global aviation system," said the UK Department for Transport's (DfT) head of aviation security Kashif Chaudry. In order to prevent future terrorist attacks and potential bomb threats, countries worldwide must collaborate to beef up security systems in airports and use modern technologies such as AI.

"We want to be able to upgrade the algorithms to actually meet new challenges," he added.

"At the moment, we are very much about a one-size-fits-all approach. The challenge for us in the future is how we can be more data-driven, make better use of artificial intelligence and take risk-based judgement that actually enables us to provide additional scrutiny."

Terrorists are developing more innovative techniques, and are getting increasingly "sophisticated" in their plans. "To avoid future attacks, we cannot just rely upon what we've used in the past. Given how terrorist attacks at airports have been happening for more than five decades, we have to be more agile."

He said it is imperative to find a security measure that can be sustained for as long as necessary, stressing that for better aviation security "you need technology".

Chaudry affirmed that In August this year, UK Prime Minister Boris Johnson announced that **all UK airports would be required to use 3D scanning by December 2022, meaning passengers would no longer need to remove liquids and electronic equipment from cabin baggage.** Having already been trialled at Heathrow Airport, this technology can even scan explosives in liquid bottles.

He added that modern 3D screening equipment, which could also be used for check-in baggage, "need to be adaptable and upgradable" and not something "that becomes defunct and discarded in a matter of years".

A key element in improving airport security is the need to pin down potential "insider threats", according to airport-technology.com. **"Your staff need to be scanned, checked and have had background checks because that gives the assurance, they will not use our knowledge to compromise us," he noted.**

The Counter Terrorist

December 2019

Source: https://issuu.com/sbradman/docs/ct_mag_december_2019_final?mc_cid=8d9fbd3add&mc_eid=98b026d505

These Toyota trucks are popular with terrorists — here's why

Source: https://www.businessinsider.com/why-isis-uses-toyota-trucks-2015-10

ISIS in Libya @7our/Twitter

Lukman Faily, the Iraqi ambassador to the US, told ABC that in recent years, as ISIS has risen to prominence in Iraq and Syria, the terrorist group has acquired hundreds of new Toyota pickup trucks.

"This is a question we've been asking our neighbors," Faily told ABC. "How could these brand-new trucks ... these four-wheel drives, hundreds of them — where are they coming from?"

But ISIS — also known as the Islamic State, ISIL, and Daesh — is far from the first terrorist group to favor the automaker's tough trucks.

As Ravi Somaiya pointed out in Newsweek in 2010, the Toyota Hilux pickup has been a fixture of several extremist movements over the past few decades.

"The Toyota Hilux is everywhere," Andrew Exum, a former US Army Ranger who is now the US deputy assistant secretary of defense for Middle East policy, told Newsweek. "It's the vehicular equivalent of the AK-47. It's ubiquitous to insurgent warfare. And actually, recently, also counterinsurgent warfare. It kicks the hell out of the Humvee."

The Hilux is apparently a durable truck that has proven useful for terrorists who are fighting against lightly armed special forces.

The truck is "fast, maneuverable, and packs a big punch [when it's mounted with] a 50-caliber [machine gun] that easily defeats body armor on soldiers and penetrates lightly armored vehicles as well," Alastair Finlan, who specializes in strategic studies at Aberystwyth University in the UK, told Newsweek.

Hiluxes also stand up to more than just normal vehicular wear and tear. In 2006, British TV show "Top Gear" conducted an experiment that illustrated this.

"The show's producers bought an 18-year-old Hilux diesel with 190,000 miles on the odometer for $1,500," Somaiya wrote for Newsweek. "They then crashed it into a tree, submerged it in the ocean for five hours, dropped it from about 10 feet, tried to crush it under an RV, drove it through a portable building, hit it with a wrecking ball, and set it on fire.

"Finally, they placed it on top of a 240-foot tower block that was then destroyed in a controlled demolition. When they dug it out of the rubble, all it took to get it running again was hammers, wrenches, and WD-40. They didn't even need spare parts."

The truck is so popular with militants that it has been

closely associated with them for decades.
"Anecdotally, a scan of pictures from the last four decades of guerrilla and insurgent warfare around the world — the first iteration of the Hilux appeared in the late '60s — reveals the Toyota's wide-ranging influence," Somaiya wrote for Newsweek.
"Somali pirates bristling with guns hang out of them on the streets of Mogadishu.The New York Times has reported that the Hilux is the pirates' 'ride of choice.' A ragtag bunch of 20 or so Sudanese fighters raise their arms aloft in the back of a Hilux in 2004. Pakistani militants drive through a crowd, guns high, in 2000. It goes on. Nicaragua, Ethiopia, Rwanda, Liberia, the Democratic Republic of the Congo, Lebanon, Yemen, Iraq — US Special Forces even drive Toyota Tacomas (the chunkier, US version of the Hilux) on some of their deployments."
The Hilux is a Toyota truck model sold overseas that's similar to the Tacoma, ABC explains.
The trucks "have become fixtures in videos of the ISIS campaign in Iraq, Syria, and Libya, with their truck beds loaded with heavy weapons and cabs jammed with terrorists," according to ABC.
ISIS militants use new Hilux models and older versions in their videos. Toyota Land Cruisers have also made appearances in ISIS propaganda.
Ed Lewis, Toyota's Washington-based director of public policy and communications, told ABC that Toyota has "briefed Treasury on Toyota's supply chains in the Middle East and the procedures that Toyota has in place to protect supply chain integrity" and that the company has a "strict policy to not sell vehicles to potential purchasers who may use or modify them for paramilitary or terrorist activities."
Some of the Toyotas now in ISIS's possession have been rebranded with the seal of the "caliphate," or the Islamic State the group has created as it has seized control of territory in the Middle East.
The Hilux is so popular with ISIS fighters that it has now become "almost part of the ISIS brand," Mark Wallace, a former US ambassador to the United Nations who is CEO of the Counter Extremism Project, told ABC.
"In nearly every ISIS video, they show a fleet — a convoy of Toyota vehicles and that's very concerning to us," Wallace said.
ISIS's propaganda has been so effective that "Saturday Night Live" parodied the relationship between Toyota and ISIS earlier this year:
The start of the skit is similar to a Toyota commercial that shows a father driving his daughter, who has joined the military after high school, to the airport in a Camry sedan.
In the "SNL" version, when the daughter gets out of her dad's Camry, she runs over to a Toyota truck packed with militants:
As for how terrorists in the Middle East get their hands-on Toyota trucks, the company has said it's impossible to track the vehicles.
Brig. Gen. Saad Maan, an Iraqi military spokesman, told ABC that the Hiluxes likely come from middlemen who smuggle the trucks into the country.

This Is Your Brain on Terrorism - The Science Behind a Death Wish

Source: https://www.foreignaffairs.com/articles/2019-12-02/your-brain-terrorism

Dec 02 – In September 2014, when the Islamic State (ISIS) was at the height of its power, Director of U.S. National Intelligence James Clapper acknowledged that the United States had underestimated the terrorist group's will to fight. "We underestimated the Viet Cong and the North Vietnamese and overestimated the will of the South Vietnamese," he told *The Washington Post*. "In this case, we underestimated ISI[S] and overestimated the fighting capability of the Iraqi army … It boils down to predicting the will to fight, which is an imponderable."
Scholars and policymakers have long sought to determine what drives people to keep fighting when the chips are down, and, if need be, to give their lives to a cause. Traditional explanations, based on rational choice theory or focused on mental abnormalities, have largely failed to explain what motivates the members of extremist insurgent movements. But Clapper was wrong to suggest that the will to fight is imponderable. In fact, it is possible to predict who is willing to fight and die, based on a combination of cultural and psychosocial factors. Research on the human brain suggests that people fight when their sacred values—that is, the values that define their identity and therefore can't be compromised—are under threat.
In a series of behavioral studies of frontline combatants in Iraq and brain imaging studies of self-identified extremists in Spain, research teams of which I am a part at Artis International, Oxford University, and other partner universities found that those most willing to make costly sacrifices, including fighting and dying, were motivated by sacred values and shunned deliberative reasoning. Even more consequential for policymakers working to prevent and counter radicalization, we found that social exclusion and political marginalization heightened the importance of sacred values—and even caused non-sacred

values to mimic sacred ones—increasing people's willingness to fight and die for those values.

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

Lessons on Terrorism and Rehabilitation from the London Bridge Attack

By Greg Barton

Source: http://www.homelandsecuritynewswire.com/dr20191203-lessons-on-terrorism-and-rehabilitation-from-the-london-bridge-attack

Dec 03 - Can prison rehabilitation programs work, and is it sensible to try and rehabilitate seriously radicalized individuals convicted on terrorism charges?

These are questions not just for the U.K., in the wake of the second London Bridge attack over the weekend, but for the entire world. There are no easy answers and no simple options. As the numbers of people detained and eventually released on terrorism charges mount up around the world, so too does the question of what to do with them. Politicians find it easy to speak in terms of "lock them up and throw away the key". But our legal systems don't allow this and the results, even if allowed, would almost certainly be worse. Some answers, and some difficult questions, can be found in the lives of four participants in the events in London: Jack Merritt, Saskia Jones, Marc Conway and James Ford.

All four were participating in an event organized to reflect on the first five years of the University of Cambridge's Learning Together program. Merritt was a young graduate who was helping coordinate the program. Jones was a volunteer in the program. Tragically, their idealism and desire to give back to society saw them lose their lives to a man whom they thought they had been able to help.

Merritt's father told the media: "Jack lived his principles; he believed in redemption and rehabilitation, not revenge, and he always took the side of the underdog."

In her tribute to her murdered daughter, Jones's mother said: "Saskia had a great passion for providing invaluable support to victims of criminal injustice, which led her to the point of recently applying for the police graduate recruitment program, wishing to specialize in victim support."

Jones, 23, and Merritt, 25, were both University of Cambridge graduates working at the Learning Together program. They lost their lives to a knife-wielding murderer who does not deserve to have his name remembered. Their 28-year-old assailant had been released from prison 12 months earlier, having served but eight years of a 16 year sentence.

In a catastrophic system-failure, his automatic release was processed without his case ever being reviewed by a parole board, despite the sentencing judge identifying him as a serious risk who should only ever be released after careful review. He had gamed the system, presenting himself as repentant and reformed.

In fact, he had never undergone a rehabilitation program in prison and only had cursory processing on his release. Systemic mistakes and the lack of resources to fund sufficient and appropriate rehabilitation programs meant he was one of many whose risk was never adequately assessed.

Conway had formerly served time at a London prison and is now working as a policy officer at the Prison Reform Trust. He witnessed the fatal attack and rushed directly towards the attacker, joining others who sought to pin him down.

Another man participating in the offender rehabilitation event was James Ford. He too saw the attack unfolding and immediately confronted the assailant.

In a deeply tragic irony, the two victims who lost their lives to a man who made a mockery of their idealism were assisted by two others who appear to have genuinely benefited from prison rehabilitation programs. But even here, the complexities and ambiguities of this sort of difficult endeavor were played out as clearly as any playwright could ever conceive of scripting.

Ford was a convicted murderer attending the Learning Together conference on day-release. He had brutally killed 21-year-old Amanda Campion, a young woman who was particularly vulnerable because of her intellectual disability. In the eyes of Campion's family, Ford is no hero.

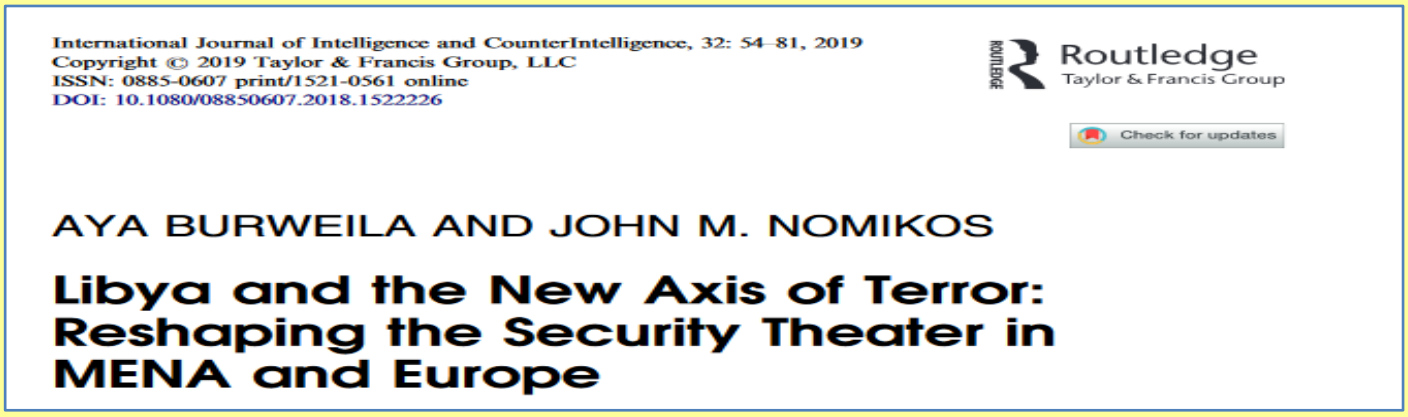
However, Professor of Criminology at Birmingham City University David Wilson, who chairs the Friends of Grendon Prison program, says that Ford underwent extensive rehabilitation initiatives, including an intensive period of psychotherapy.

On this occasion, the convicted murderer did the right thing. Even though this doesn't make him a hero, it does give some reason for hope. For Wilson, the murderous terrorist and the convicted murderer who rushed to contain him represent a tale of two prisoners: "I know through my work that people do change and they change as a consequence of innovative but challenging regimes such as the one at HMP Grendon."

In the wake of the attack, UK Prime Minister Boris Johnson said the cases of 74 people released early after being jailed for terror offences will be reviewed. This is certainly sensible

and necessary, but much more is required. Indefinite detention is not an option in the majority of cases, and the UK is dealing with hundreds of people convicted of terrorism offences either currently in prison or recently released.
The numbers in Australia are only a fraction of this but still run into the high dozens and are growing every year. For Australia's near neighbors, Indonesia, Malaysia and the Philippines, the numbers, including projected returnees from the Middle East, run into the thousands.
Professor Ian Acheson, who has advised the government on how to handle extremist prisoners, told the BBC it was not "a question of an arms race on sentencing toughness", but about what is done when offenders are in custody.
Acheson said his panel's recommendations had been agreed to but not implemented due to "the merry-go-round of political replacements of secretaries of state", and the "fairly recalcitrant and unwilling bureaucracy". He also cited "crazy failed and ideological austerity cuts" to the police, prison and probation services.
Jack Merritt and Saskia Jones were not naïve idealists. They had studied the problem closely and believed rehabilitation programs could make a difference. Their tragic deaths speak to the challenges involved. To give up and do nothing is not merely cynical, but self-defeating. Without adequate resourcing and reforms the problem everywhere will only become much worse.

Greg Barton *is Chair in Global Islamic Politics, Alfred Deakin Institute for Citizenship and Globalization,* Deakin University.



Source: http://rieas.gr/images/middleeast/AyaBurweila5.pdf

Stopping the Next London Bridge Attack: How to Reduce Risks Posed by Terror Parolees

By Anne Speckhard
Source: https://www.hstoday.us/subject-matter-areas/counterterrorism/stopping-the-next-london-bridge-attack-how-to-reduce-risks-posed-by-terror-parolees/

Dec 03 - This past week a deadly stabbing attack occurred in London carried out by 28-year-old Usman Khan, a released prisoner who had been convicted in 2012 on terrorism offenses. Khan had been imprisoned on a 16-year sentence for his part in an al-Qaeda-inspired plot to blow up the London Stock Exchange and other major London sites, including the U.S. Embassy. He was automatically released last year, without his case ever being reviewed by a parole board, after serving only seven of his 16 years.
Now, one year after his release, Khan, who was required to attend a program to help rehabilitate prisoners, went on a rampage. He stabbed several people, killing two, and wounding more, while also brandishing what turned out to be a fake suicide vest. Ironically, he carried out his attack during a rehabilitation program event. That he had the vest prepared ahead of time makes it clear it was not a spontaneous outburst, or sudden loss of control, but a premeditated attack.
It appears that having served UK prison time for a terrorism conviction and being released, even conditionally with an electronic tag, as Khan was, is no guarantee of public safety. In France, a similar attack occurred in Saint-Etienne du Rouvrayin, in 2016, when two ISIS adherents forced a Catholic priest, Father Hamel, to his knees during morning prayer and slit his throat in the gruesome ISIS beheading style.
One of the perpetrators, 19-year-old Adel Kermiche, had already been arrested twice for

trying to get into Syria, but had also been conditionally released from the prison sentence he received after his second attempt to go to ISIS. On his first try, Kermiche was stopped in transit in Germany, returned home and put on parole. But that didn't stop him. He tried again, two months later, and was sent home where he was imprisoned for 10 months. Kermiche was released and wearing an electronic tag when he killed the priest. Kermiche, similar to Khan, also had a fake explosive belt and other fake explosives with him.[1]

In the case of Kermiche, prosecutors had protested his release, but all the same he was released to his family home, needed to wear an electronic tag and had to check in daily with police. At the time of his attack, Kermiche was being followed by three French intelligence services including some agents that had infiltrated his Telegram chain where he had announced his plans to attack. French intelligence has issued five warning notes about Kermiche – yet no one acted in time to stop his lethal attack.[2]

Both of these cases, and the many upcoming scheduled releases in the UK and France, alongside the flood of ISIS returnees across Europe that may occur as Turkey and events in Syria pressure Europeans to take back their ISIS prisoners, raise important questions about what to do with terrorist convicts while in prison and how to protect the public upon their release back into society.

Khan's UK release occurred in an automatic fashion and "on license," meaning he had to conform to prearranged conditions to remain free, including taking part in the very program where he staged his attack. Automatic releases halfway through a prison term are one way of dealing with the overcrowding, understaffing, disorder, violence and drugs that UK prisons are currently struggling with, but it appears that an across-the-board automatic, mid-sentence release policy is not working in the public's best interest. UK Prime Minister Boris Johnson weighed in on the practice after Khan's attack, pointing out, "I've said for a long time now that I think the practice of automatic early release, where we cut a sentence in half and let really serious and violent offenders out early, simply isn't working."[3]

Johnson also stated, "It is very important that we get out of that habit and that we enforce the appropriate sentences for dangerous criminals, especially for terrorists, that I think the public will want to see."[4] Likewise, Junior Interior Minister Brandon Lewis told the BBC that this incident will likely push the British police to review conditions placed on released convicts.

In nearby France, Sebastian Pietrasanta, a former MP and author of a report on the subject, explained how the French state has done away with such measures. "In France, automatic remission of sentences for people tried for terrorism has been abolished," he said. "It is up to the courts to decide on remissions. But there is no more possibility of automaticity."[5]

Pietrasanta goes on to explain that those who are convicted on terrorism charges are assessed for radicalization upon their arrival at prison and if assessed as highly radicalized are isolated, while others take part in prison-wide programs and naturally disengage. Prior to their release, the French prison intelligence service looks at the prisoner's history, affiliations within prison and dangerousness, and prepares an exit plan in which the Directorate of Internal Intelligence usually begins to follow the individual. According to Pietrasanta, the goal is less about deradicalization than disengagement, "less to change ideas than to suppress the use of violence, and succeed in removing the idea of acting out. [The] idea is to recreate the collective bond. But this accompaniment also goes through the religious aspect with chaplains. All this fits into a multi-disciplinary logic."[6]

In regard to the risks associated with the release of terrorism convicts, and the policy of granting early prison releases, in particular, the counterextremist group Hope Not Hate pointed out in February that al-Muhajiroun, a group that they label as "Britain's most prolific and dangerous extremist group," was "stirring back into life" after two years of relative silence while key members were in prison. The CEO of Hope Not Hate stated: "The release of some of their more prominent activists, *albeit on strict controls* [emphasis added], appears to be galvanising some younger supporters into re-establishing street stalls and other public activities."[7]

Even without early releases, in June 2018 the Guardian warned of a surge in the number of convicted terrorists soon to be released from UK prisons noting that more than 40 percent of the sentences for terrorism offences handed down over a 10-year period would have been served by the end of 2018, pointing to more than 80 of the 193 terms issued for terrorism offences between 2007 and 2016 to run out by the end of the year. The Guardian also noted that the number of individuals released following terrorism charges could be much higher as prisoners are routinely eligible for release halfway through their sentence.[8]

In nearby France, similar issues are at stake where the reintegration of convicted terrorists has been clearly identified as a concern. In France, 22 of 196 convicted terrorists will be released by the end of the year and more than half of these will be released by 2020. By 2022, 75 percent of convicted terrorists will have served their sentences, as reported by French newspaper l'Opinion.[9] And neither of these estimates, from either country, concerns the possible sudden influx of ISIS prisoners who are being forcibly returned by Turkey or who may be repatriated as a result of the chaotic situation in Syria – only some who may be successfully prosecuted and imprisoned, with the rest going free.

Thus, whether or not terrorism convicts receive automatic early release, or are held for their entire sentence, the issues at stake concern whether the laws are strong enough for solid prosecutions with lengthy enough sentencing to deter terrorist minds, and once in prison whether there are effective ongoing assessments and working rehabilitation programs taking

place so that, when prisoners are released, the public can be assured that these prisoners won't simply return to their former dangerous activities and constitute a serious threat to society.

In regard to adequately addressing the UK's rehabilitation of terrorism convicts while in prison, Ian Acheson, an ex-UK prison governor, stated that the country's Prison and Probation Service "has been asleep." He added that "Islamist groups offer a very seductive message and if the prison doesn't have an alternative, because it can't offer a full regime and rehabilitation programmes, it's a clown show."

"There is no capacity for staff to challenge ideologies – we have got ungoverned spaces and that's where extremism thrives," Acheson added.[10]

That, however, has been at the center of many debates about whether or not challenging terrorism ideologies in prison rehabilitation programs is important at all, or if imprisonment alone is enough to disengage, if not deradicalize, terrorism convicts. While many argue that time in prison constitutes a separation from the group alongside plenty of time for reflection, thereby causing disengagement to a certain extent, that is not always the case, as prisons are fertile recruiting and training grounds for extremist prisoners as well. Experience in France, UK and elsewhere teaches the important lesson that when terrorism convicts are grouped together, they just as often recruit, incite and plot inside prisons, just as well as outside them. A major danger there is of recruiting "clean skins," that is those with petty criminal records and no previous terrorism history, and also inciting those about to be released to carry out lethal attacks.

In regard to the positive or negative effect of prison terms, Dr. Michael Kenney, a University of Pittsburgh professor who spent time embedded with the British al-Muhajiroun, stated that "rather than turning the most dedicated activists away from al-Muhajiroun, arrest, incarceration and administrative controls often strengthens their commitment to the cause." He also predicted that some recently released extremists will restart their activities when their license conditions expire.[11] Indeed, when I interviewed British Jermaine Grant in 2018, who was imprisoned on terrorism charges in Kenya, he noted that al-Qaeda, ISIS and other terrorists view prison time as expected, and that all of these groups prepare their cadres to view time in prison as a badge of honor.

While some argue that deradicalization is difficult to achieve, it's important to consider if ideological commitment is something that needs to be addressed in prison programs prior to release and if simply putting individuals in prison is enough and is also actually disengaging them from terrorism. Perhaps the best way to answer it is to look at what terrorist groups themselves see as important and also to look at who prisoners are affiliating with during their time in prison: Are they disengaged from their group, or deeply engaged inside the prisons with other terrorist cadres?

ISIS, which managed to recruit 40,000 foreign fighters from 130 different countries, did not care about the criminal backgrounds, ethnicities or Islamic creed of those who joined the group as long as they could mold them as they wished. In that regard, ISIS believed that ideological indoctrination was so important that once its Caliphate was declared all new male recruits were forced to attend mandatory shariah training. In these classes they were taught to see the world and Islam in the way that ISIS did. Likewise, they were taught that anyone who didn't follow the harsh ISIS interpretation of Islam should be excommunicated and killed. New members of ISIS attended a minimum of two weeks of ideological training and men were expected to teach their women and children the same at home. Likewise, ISIS carefully enforced its shariah code upon everyone who lived under its rule. Ideology was paramount to the group, and was used to justify its actions, and they didn't neglect it in any sector of life.

Many of the 217 ISIS defectors, returnees and prisoners that I have interviewed in the International Center for the Study of Violent Extremism's (ICSVE) *Breaking the ISIS Brand Counter Narrative Project* have said that the very emotional nature of ISIS shariah training and the charisma and Islamic knowledge of the ISIS trainers they studied under led them to temporarily suspend all judgment and totally commit themselves to the group, in some cases so deeply that some even volunteered for suicide missions. The power of ideology and charismatic preachers was therefore for ISIS very important in bonding new recruits to the group, to committing them to carrying out violence and to guiding their thoughts and behaviors going forward. Islamic rewards and punishments were used as levers along the way to instill this ideology. ISIS ideology, therefore, should not be underestimated in terms of treatment when an ISIS, or other terrorist cadre, lands in prison.

Simple disengagement, if it is even occurring inside prison, may not be enough. Ideological commitment often needs to be carefully addressed as well by highly skilled individuals – psychologists and prison scholars with understanding of the virulent ideologies that have been indoctrinated into these prisoners.

As mentioned previously, groups like al-Qaeda, ISIS, al Shabaab, etc., know how to motivate people as they bring them into the ideology of the group. For instance, those with serious post-traumatic stress disorder, depression and other mental disorders, not to mention serious life problems, or deep feelings of guilt, anxiety and shame over having "sinned," are often convinced of an easy out from their problems by being talked into taking part in suicide missions repackaged as Islamic "martyrdom" missions. In this manner, the group is able to assemble a highly lethal fighting

force that can strike terror into even much more militarily superior enemies. Using ideological indoctrination, the individual is convinced that he will escape all his pain for instant entry into Paradise, not to mention all the rewards conferred upon an Islamic martyr.

Over the years of interviewing over 600 terrorists, I have spoken to failed suicide bombers, as well as conducted thought experiments with regular college students, wherein those who considered carrying out a suicide attack (even in a thought experiment) could be moved into a state of euphoria that is likely an endorphin-mediated response to contemplating taking one's own life.[12] This euphoria, to the true believer, can then get interpreted as a sort of mystical confirmation that one is about to enter Paradise by going forward with the suicide attack.[13]

Similarly, terrorist groups reassure "sinners" that carrying out a "martyrdom" mission will guarantee them forgiveness for their sins and instant entry to Paradise. A person with a serious problem may not so easily relinquish this belief just because he lands in prison. Indeed, his time in prison, especially if he falls into the company of like-minded persons, may simply reinforce his commitment to the group and its ideology.

I can say with confidence that there is not a simple reason for joining and bonding to a terrorist group. A complex interplay comes into play between the group, its ideology, social support for terrorism and individual vulnerabilities and motivations. No one joins a terrorist group for no reason. It's rarely purely ideological, but ideology as well as the group interactions with the individual ultimately bonds the person to the group, helps them jump over normal barriers to violence and convinces them that carrying out terrorist violence is good for them. Likewise, once bonded to the group it's not an easy task to unbond them.

Good in-prison treatment of terrorism convicts needs to get at the underlying causes and address them in a way that is more rewarding to the individual than the terrorist group, its ideology and the social support it has offered up to that point.

That is not to say that a highly radicalized person won't deradicalize spontaneously in prison or otherwise. I have seen spontaneous deradicalization occurring among the 217 ISIS cadres I have interviewed in recent years. Many ISIS members became deeply disillusioned of ISIS and began to drop their ideology and commitment to the group even before they were detained or prosecuted. Others, given time to think things over in prison, also began to deradicalize without any treatment program offered, and at times prisoners talking among themselves have deradicalized one another.

However, there are many who will need significant time and separation from the group – separation that may or may not be happening inside prisons – as well as psychological and religious help to move away from violent extremist thinking that has been drummed into them, some from a very young age. For instance, a 13-year-old ISIS defector ICSVE researchers spoke to in Turkey told about being saved by his parents from carrying out a suicide attack for ISIS by them sending him away into Turkey. However, he said it took him over a year living away from ISIS before he was able to overcome their thinking.

Similarly, at ICSVE we have documented numerous cases in which ISIS returnees and defectors have flip-flopped and gone back to, or wished to return to, the group.[14]

When one looks at the evidence, it's clear that if we want to keep our societies safe expecting simple terrorist disengagement occurring via imprisonment is not enough. We have to get at the thinking and emotional resonance that has occurred in the terrorist convict to bond him both to violence and to the violent group in order to truly detach him from both the group and its thinking. Good prison rehabilitation should do both: deradicalize and disengage, and then also redirect the individual to better meet the underlying needs that drove him or her into a terrorist group in the first place. This redirection should occur in a manner that serves both the individual and society and it needs to occur within the time that the person will actually serve in prison so the individual is not released as a danger to society.

Without such measures put in place, we will continue to see terrorists continuing to seed themselves inside prisons and we will also seem them retaining, and even hardening, their terrorist beliefs inside prisons, so that those released from terrorism convictions will continue to be at risk to carry out attacks, just as we have just witnessed with Usman Khan's murder rampage occurring this last week in London.

***Anne Speckhard, Ph.D.**, is Director of the International Center for the Study of Violent Extremism (ICSVE) and serves as an Adjunct Associate Professor of Psychiatry at Georgetown University School of Medicine. She has interviewed over 600 terrorists, their family members and supporters in various parts of the world including in Western Europe, the Balkans, Central Asia, the Former Soviet Union and the Middle East. In the past two years, she and ICSVE staff have been collecting interviews (n=101) with ISIS defectors, returnees and prisoners, studying their trajectories into and out of terrorism, their experiences inside ISIS, as well as developing the Breaking the ISIS Brand Counter Narrative Project materials from these interviews. She has also been training key stakeholders in law enforcement, intelligence, educators, and other countering violent extremism professionals on the use of counter-narrative messaging materials produced by ICSVE both locally and internationally as well as studying the use of children as violent*

actors by groups such as ISIS and consulting on how to rehabilitate them. In 2007, she was responsible for designing the psychological and Islamic challenge aspects of the Detainee Rehabilitation Program in Iraq to be applied to 20,000 + detainees and 800 juveniles. She is a sought after counterterrorism experts and has consulted to NATO, OSCE, foreign governments and to the U.S. Senate & House, Departments of State, Defense, Justice, Homeland Security, Health & Human Services, CIA and FBI and CNN, BBC, NPR, Fox News, MSNBC, CTV, and in Time, The New York Times, The Washington Post, London Times and many other publications. She regularly speaks and publishes on the topics of the psychology of radicalization and terrorism and is the author of several books, including Talking to Terrorists, Bride of ISIS, Undercover Jihadi and ISIS Defectors: Inside Stories of the Terrorist Caliphate.

Citizen Involvement: Capitalizing on Terrorist Failures

By Joseph Trindal

Source: https://www.domesticpreparedness.com/preparedness/citizen-involvement-capitalizing-on-terrorist-failures/

Once again private citizens have prevented a deadly terrorist air disaster. On Christmas Day 2009, on an aircraft only 20 minutes from Detroit Metropolitan Airport, Nigerian Umar Farouk Abdulmutallab started his suicide/homicide attack sequence. As Northwest Airlines Flight 253 was on final approach over a heavily populated area, Abdulmutallab was engaged in his final approach to martyrdom. With a complement of 278 passengers and 11 crew members as well as countless people on the ground who would have been in the debris field, his attempt to blow up the aircraft would have been a disaster of unbelievable magnitude.

Many courageous passengers and crew acted swiftly and decisively to ensure that Abdulmutallab's efforts failed. "It sounded like a firecracker in a pillowcase," said Peter Smith, a traveler from the Netherlands. "First there was a pop, and then … [there] was smoke." Abdulmutallab's attempt to detonate the explosive compound in his underwear not only failed but also alerted those around him to the danger they were facing. Several passengers and crew members quickly subdued Abdulmutallab, extinguished the fire, and forcibly removed Abdulmutallab from the seat and from the explosives.

President Obama categorized the attempted Christmas attack as narrowly dodging a bullet. Globally, the aviation community is moving to further strengthen its screening techniques and technological capabilities. The United States itself also is, once again, re-examining its intelligence management and interagency information-sharing practices. American self-criticism may be misinterpreted as weakness, but it is not. It is necessity.

Justifiably Concerned Citizens

The situation was eerily similar to the failed attack on American Airlines Flight 63 in 2001 when Richard Reid, the so-called "shoe bomber," was unable to carry out his murderous objective, and – as happened to Abdulmutallab – was quickly subdued by other passengers and the crew. Both incidents demonstrated that citizens ready and willing to forcibly confront and subdue a would-be terrorist can be, and are, a viable line of defense (but one that should be used only *in extremis*). In both situations, the citizens who participated in stopping the attacks were, unofficially but necessarily, members of a global community. Netherlands citizen Jasper Schuringa, for example, was instrumental both in subduing Abdulmutallab and in separating him from the explosives – during a struggle in which Schuringa himself suffered burns to his right hand. In the microworld of an aircraft, all passengers and crew members, regardless of national origin, have a vested interest in keeping the aircraft aloft.

It can be taken for granted that extremist leaders and aspiring martyrs will continue their efforts to devise tactics to circumvent security efforts, including the intervention of other passengers. Terrorists often seek to blend in with their target community in an effort to be invisible to the local population until they are ready to strike. Mao Tse-tung's famous advice for insurgency operations applies to terrorists as well: "The guerrilla must live amongst the people as the fish lives in the water."

However, even the most ingenious terrorist would be hard pressed to overcome countermeasures that include an alert and informed citizenry. An effective counterterrorism strategy must therefore include the important role that could, in extreme circumstances, be played by an informed and empowered public. Citizens have been instrumental in denying terrorists safe environs on a number of occasions. Moreover, as terrorists strive to devise creative ways to defeat other security measures, the alert citizen denial of a safe operating environment for terrorists is the last, but in some instances the best, or only, line of defense against terrorism.

In addition to averting air disasters, citizen vigilance and the prompt reporting of suspicious activity have enabled law-enforcement agencies to act quickly enough to defeat other terrorist plots. For example, the infamous 2006 plot to kill innocent victims and destroy key buildings at Fort Dix in New Jersey was first brought to the attention of the FBI by Circuit City employee Brian Morgenstern, who became concerned over the content of a video live-fire training session he was transferring to DVD. Morgenstern's vigilance, coupled with the support of the Circuit City store

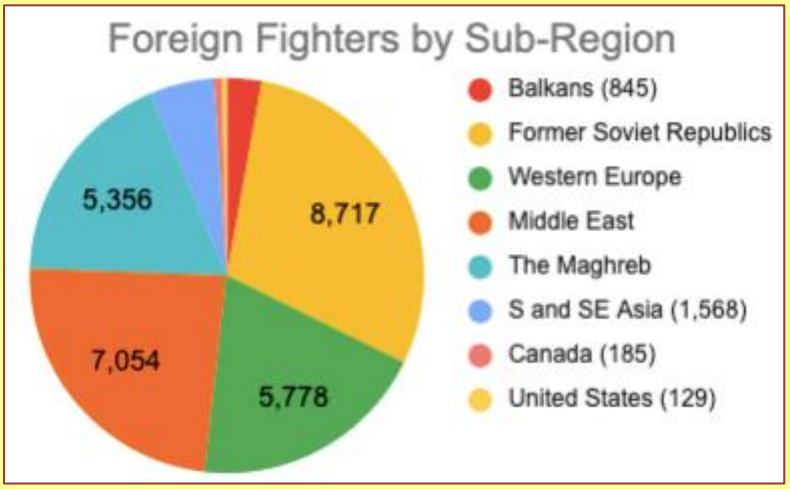
management, led the FBI to open an investigation that surely saved the lives of a number of service personnel.
Citizen awareness is a vital component of a truly comprehensive approach to homeland security. A strategy of informing and strengthening citizen involvement should include highlighting the effectiveness of a society intolerant of terrorism. As Americans go about their daily lives, the observation and reporting of suspicious activity should be broadly and openly encouraged. Such a strategy of further shifting, and effectively using, the social paradigm conveys an important message of both unity and resilience that itself would serves as a deterrent to terrorist planners.

Joseph Trindal *is a retired federal law-enforcement officer. During his almost 30- year career with the U.S. Marshals Service and the U.S. Department of Homeland Security, he developed and delivered numerous training programs in firearms, officer survival, terrorism preparedness, and personal protection. A Marine Corps veteran, Trindal continues teaching and coaching law-enforcement officers and security professionals in many facets of personal defensive preparedness.*

Returning home: Evaluating Statelessness among Former Jihadists

By Alessandra Restifo
Source: https://www.fpri.org/article/2019/12/returning-home-evaluating-statelessness-among-former-jihadists/

Dec 04 - When addressing the case of Hoda Muthana, an American-born former ISIS member, Secretary of State Mike Pompeo stated, "Ms. Hoda Muthana is not a U.S. citizen and will not be admitted into the United States. . . . She's a terrorist." The judge ultimately denied Muthana's citizenship because her father held diplomatic immunity at the time of her birth, meaning she was ineligible for birthright citizenship. However, Pompeo's statement summarizes the departure of U.S. repatriation policies from the due process and rehabilitation-based programs set by the Department of Justice (DOJ) and indicates new concerns in U.S. national security. Currently, the DOJ has processed seven cases of former ISIS returnees and estimates over 20 American fighters remain in Syria and Iraq. Analysis of changes in American foreign policy also indicates the threats that uninformed and hypocritical decisions regarding former jihadists and the Syria conflict as a whole have created a variety of potential threats to U.S. national security. By neglecting the importance of foreign relations in national security, American foreign policy decisions have damaged the reputation of the United States and reduced its presence in areas of international importance. Therefore, policy deciding the repatriation of former ISIS members and related issues must equally address U.S. military concerns and relations with international actors.



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

Alessandra Restifo*, a fall 2019 research intern in the Program on National Security at the Foreign Policy Research Institute, is a senior political science and global studies major at Temple University.*

Liberal Professors' Deadly Delusions about Curing Terrorists

Source: http://www.homelandsecuritynewswire.com/dr20191205-liberal-professors-deadly-delusions-about-curing-terrorists

Dec 05 - The British filmmaker Chris Morris has made a career of depicting the inanities of jihadis or the agencies that try to track and ensnare them. Simon Cottee writes in *Foreign Policy* that if he wanted to depict the idiocies of the people who share his political views – those who belong to the liberal-left, broadly conceived—he could do worse than to set it in

an academic institution run by "well-meaning progressives who believe that everyone, even convicted jihadis who once professed to love death more than life, can be reformed and brought back into the liberal fold."

Cottee's writes the question such depiction of well-meaning progressives in academia will never be made because of its politically incorrect plotline, but something resembling this idea occurred last Friday, when Usman Khan, a 28-year-old British national who was released from prison on parole in December 2018 after serving eight years for terrorism offenses, killed two people a machete near London Bridge. Earlier in the day, at the same site, he had attended an alumni celebration event hosted by the organizers of Cambridge University's Learning Together program, having been invited to share his experiences as a former prisoner.

Cottee writes:

> *My own university at Kent, where I lecture in criminology, runs a similar course to the Learning Together one, titled Inside-Out. It is decent and popular and well run, and I know from direct experience just how beneficial such an initiative can be for everyone involved…. And some will no doubt be highly unsuitable: notably, pedophiles, rapists, and recently convicted terrorists. Quite what Khan was doing anywhere near the Learning Together program is unclear, and the Institute of Criminology at Cambridge will need to account for this and much else to do with their program.*
>
> *The bigger question raised by Khan, who was killed by police as he fled the scene of his attack, is about redemption and whether it's either right or prudent to give convicted terrorists a second chance. I do not think I'm exaggerating when I say that the consensus among my liberal criminology colleagues both in Britain and the United Sates is that everyone should be given a second chance, especially Muslim males who may have had limited life chances to begin with. I have some degree of sympathy for this view, but it needs to be massively tempered with a keen sense of not just what is right but also what is prudent.*

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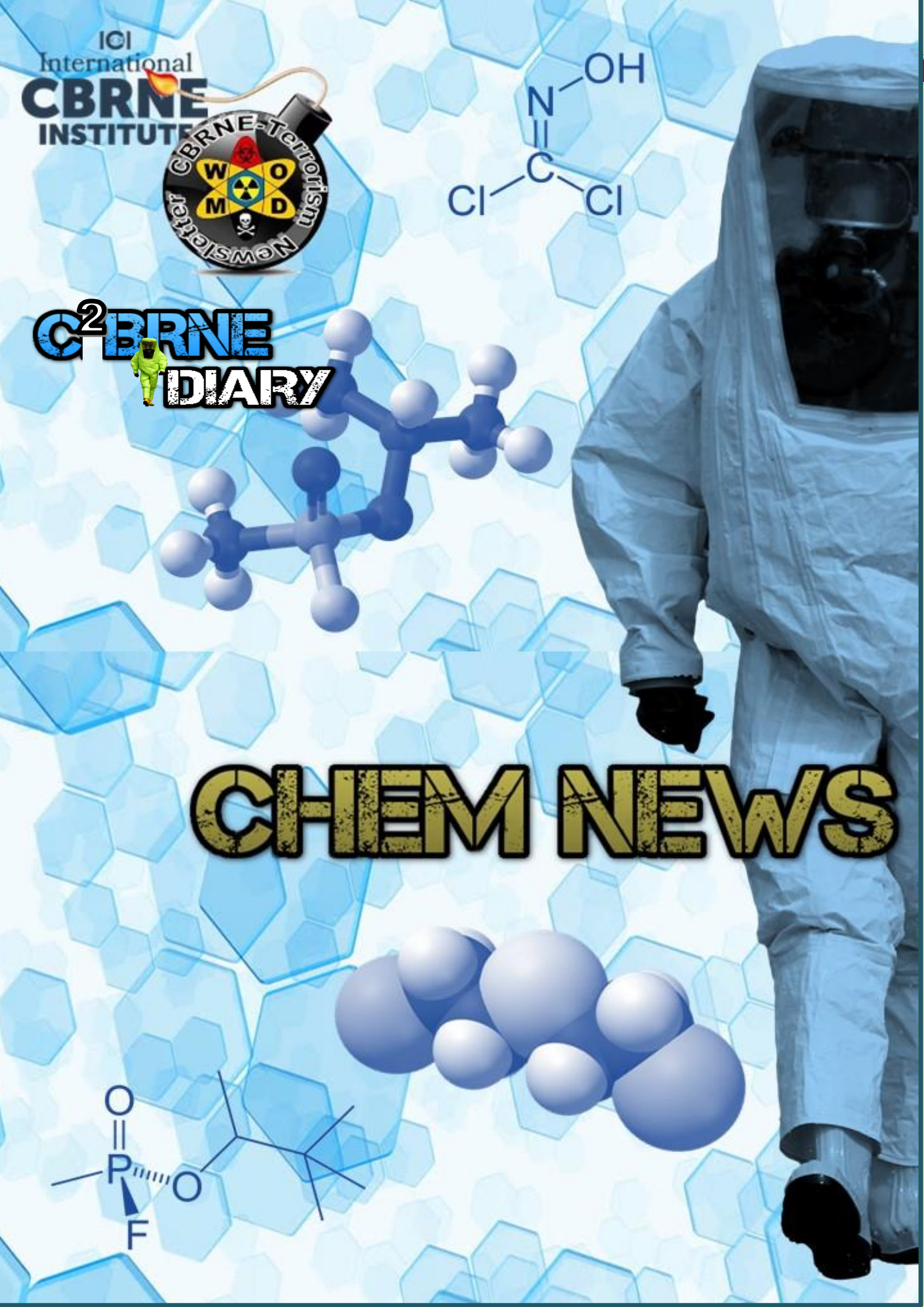


CHEM NEWS

Explosions and Unknown Hazards: Medical Advice from Inside a Hazmat Suit

By Michael T. Hilton, MD, MPH and Eric A. Pohl, BS, NRP
Source: https://www.medscape.com/viewarticle/921242

Nov 19 – Within 1 week, a destructive tornado hit Dallas, wildfires ravaged Southern California, and a second typhoon encroached on Japan. Increasingly common extreme weather events and other disasters can cause significant property damage and possible exposure to hazardous materials (hazmats). To contain the release of hazardous substances, a specially trained emergency response team is called into action.

What is it like to be on a hazmat team? Michael T. Hilton, MD, MPH, interviews Eric Pohl, BS, NRP, to learn more.

What was your role at the New York City Department of Environmental Protection (NYC DEP) Hazardous Material Response Team?

I investigated, assessed, and mitigated spills, releases, and discharges of petroleum and hazmats within the City of New York. In that role, we would respond to incidents and determine whether there was a particular health or environmental threat and what needed to happen to control that. We had to ensure it didn't get worse. That could involve a minor cleanup that we would do ourselves, or working with whoever released the material to perform a cleanup through voluntary effort or via enforcement action if needed. The priority was always to protect public safety.

We also responded to such things as building explosions, stolen tractor-trailers with unknown substances, Hurricane Sandy, and terrorism incidents (such as suspicious white powders). We assisted police in criminal investigations and assisted the New York City Fire Department and New York City Office of Emergency Management on responses.

With a population as large as New York City's, we were very busy. We handled 4000 calls for assistance a year. I always laughed at the fact that we were the only scientists and engineers in the city driving around with lights and sirens.

What real or potential hazmats did you manage when working with the DEP?

One that everyone is aware of, but is often overlooked, is carbon monoxide. I think this is especially true in New York City, which has lots of underground buried electrical cables that burn. It's a source of carbon monoxide that first responders outside of dense urban environments might not be aware of.

The other common one is the use and mixing of materials, such as cleaning products or pesticides in the home. I've responded to incidents where residents have set off a bug bomb in their house according to the manufacturer's directions, leading to acute pulmonary edema and respiratory distress. Someone exhibiting respiratory symptoms after a known use of a pesticide is concerning and often causes some panic for receiving facilities and emergency medical services (EMS) providers, who may be unsure about management.

Aside from these, we ran the gamut of hazmat responses and emergencies, from handling large and small oil spills to drums of chemicals left out on the sidewalk by bad actors. One of my unit's chief capabilities was the identification of unknown substances. I've been fortunate to have gained experience in responding to chemical, biological, radiologic, nuclear, and explosives (CBRNE) incidents over the years—if you can consider that fortunate.

Did you personally ever witness any health hazards on a scene?

The bug bomb thing was interesting. The first failure I noticed was that EMS and fire department crews did not have the resources needed for a contaminated patient. I think for EMS personnel, the concept of upgrading to a level of protection with a respirator or self-contained breathing apparatus for purposes of transporting a patient is somewhat foreign.

But how else do you transport a patient who is contaminated with a respiratory irritant? Unless you decontaminate the patient on scene first—which, in this case, the responding agencies weren't well equipped to handle.

The best thing to do is to remove clothes and do a "wet decon" of the patient if appropriate—which is to shower the patient and wipe them down. Clothes should be placed in sealed plastic bags or, even better, left on scene.

The second failure I noticed was at the receiving hospital. Many hospitals have plans for receiving contaminated patients but a reluctance to implement the plans. This hospital had a decontamination room and had plans in place for chemical gowns and respirators and everything. The whole plan was bypassed. Luckily, it ended up not being a

chemical that could cause cross-contamination of the ambulance, EMS providers, the hospital and hospital staff, and patients and visitors. But if it had been, the hospital wasn't really prepared to do that from a decontamination perspective. Third, the emergency physician who took charge of the case observed respiratory distress and deterioration with worsening pulmonary edema. He heard "pesticide," saw respiratory distress, and immediately assumed organophosphate. It's a good thought clinically; however, in this case, it was not applicable because the patient wasn't exposed to an organophosphate. We had a can of the material with us and brought it to the hospital to show the physician, and we discussed its contents and family of substance with the medical care team, but the physician proceeded to manage the case as an organophosphate exposure—which it wasn't.

Advice for Medical Personnel: Hazmat Scenes

What errors have you seen by first responders on hazmat scenes?

I've seen professional fire departments with hazmat teams underestimate the hazards of the scene they were making an entry to. In one case, I saw a fire department hazmat team attempt a hot zone entry in level B personal protective equipment (that is, a self-contained breathing apparatus and a chemical splash garment). Because they entered a corrosive vapor atmosphere, even though they taped all seams in their garments, they had to retreat and evacuate the hot zone because of chemical burns from the vapor cloud.

I think it is important, except in a true emergency, to have a good understanding of what material is being dealt with and double- and triple-check to make sure you are consulting with expert professionals and other resources to ensure responder safety. The Environmental Protection Agency has on-scene coordinators that can be technical consultants or can respond to scenes to help fire departments and other response agencies.

What should an EMT or paramedic do to prepare for a hazmat situation?

I think EMS personnel should take a hazmat awareness class as part of their training. It is very important. It's maybe a 4- to 8-hour class. It will help EMS providers to maintain a continual sense of awareness; recognize early that something is out of the ordinary; and that it's time to back away, establish a safe zone, and reassess and, if necessary, call in additional resources and experts.

Often, hazmat scenes aren't readily identifiable as such, at least at first. This is particularly challenging for the first responders. Patients often present with symptoms that mimic those of many other pathologies. The responders walking in might not realize that there's a potential exposure, and by the time they do, they have been affected. Once a provider or responder is exposed and might be experiencing adverse health effects, it greatly complicates the scene and impairs patient care.

What should emergency medical staff do when responding to known or potential hazmat situations?

For all scenes, again, maintain awareness, back off, set up a safe zone, and call in additional resources.

If it's a confirmed hazmat scene, know what material is in play. Contact incident command or the dispatcher, ask bystanders, or look for a Material Safety Data Sheet. Use the "Orange Book," the emergency response guidebook published by the US Department of Transportation. The initial steps to take are listed there. Always stage vehicles and personnel uphill and upwind. Try to ensure that responder safety is the number-one concern. Continue monitoring weather conditions and if they change, be flexible and reposition.

Larger organizations may train EMS providers to be hazmat technicians so that they can enter a hot zone and start providing care early. An example of this is the Haz-Tac program in New York City.

Advice for Medical Personnel: Decontamination

EMS providers must ensure that patients are properly decontaminated before receiving them. You don't want to transport contaminated patients and contaminate the ambulance, healthcare providers, and the emergency department.

Are patients typically decontaminated on the scene or at the hospital? How is decontamination performed?

It's driven by local protocols, so it's a bit different everywhere. The best thing to do is a two-step decontamination. On-scene decon will make patients safe for transport, and that should be followed by a more detailed decon at the hospital.

However, "decontamination" is a broad term. Decon really needs to occur with an understanding of what the material is. If a patient is contaminated with a solid caustic material, don't add water! Don't rinse it off. Water will react and cause exothermic reactions and burns. This would need to be a dry decon (that is, brushing off powder and removing clothes). A good hazmat team would do a dry decon with confirmation techniques to ensure that all of the chemical is removed. But not all hazmat teams do this. It's important to consult people who can bring expertise to the scene and the hospital. The local poison control center is often a good first step if a talented technical hazmat team isn't well versed in the chemical at hand.

I have heard the phrase "dilution is the solution to pollution," meaning that diluting a hazardous material with lots of water is how hazmat contamination is managed. Is this true?

For managing people, that actually is not bad, particularly if you have no other options and it's an emergency situation. Even with the example of the caustic powder that is water-reactive, deluging a person with copious amounts of water will most likely be in the patient's best interest, barring any other available options. I am talking large volumes of water. A shower is not enough; a deluge from a fire hose for several minutes is what you want.

The major exception to this is contamination from persistent organic materials, such as the chemical warfare agents. Nerve agents such as VX and organophosphates are oil-based. Even with a deluge of water, the oil may remain on skin. There are conflicting data with varying levels of evidence on how to decontaminate a nerve agent on the skin. If you insufficiently deluge a VX-exposed patient with water, you might assume the patient is sufficiently safe to transfer to an ambulance and hospital. But VX can remain on the skin. Even minute quantities of these agents cause a health hazard, so transferring the patient to a hospital may cause issues. The same is true for many organophosphate pesticides too, but they will elicit symptoms only in larger quantities than the chemical warfare agents.

Hazmat Training

You have since left the NYC DEP. What are you doing now?

I am a federal on-scene coordinator for the US Environmental Protection Agency. The perspective has changed, but the hazards remain the same as when I was with the NYC DEP. When I was a local responder, it was boots on the ground every day, jumping from one job to the next. With this new role, I am now more of a backstop. We offer support to other agencies. There is a usually a buffer before an incident reaches a threshold to involve the federal government.

Do you have any recommendations for additional training in hazmats?

The Federal Emergency Management Agency (FEMA) offers an online hazmat course. Texas A&M Engineering Extension Service provides hazmat courses as well.

For more hands-on training, there is a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) course, available to public sector employees. For really advanced training, especially in terorrism-related incidents, there is the FEMA Center for Domestic Preparedness.

***Michael T. Hilton**, MD, MPH, an assistant medical director of Sollis Health, is double board-certified in emergency medicine and emergency medical services. He has served as associate medical director of EMS and Disaster Preparedness at Mount Sinai and medical director of EMS systems in Pittsburgh.*

***Eric Pohl**, BS, NRP, is an on-scene coordinator for the US Environmental Protection Agency, Region 5 Emergency Response Branch, based in Cleveland, Ohio. Previously, he was a supervisory hazardous materials specialist for the Bureau of Police & Security of the New York City Department of Environmental Protection, where he was responsible for managing a breadth of emergencies, including toxic chemical releases and CBRNE/weapons of mass destruction incidents.*

Towards Gas Discrimination and Mapping in Emergency Response Scenarios Using a Mobile Robot with an Electronic Nose

By Han Fan, Victor Hernandez Bennetts, Erik Schaffernicht, and Achim J. Lilienthal

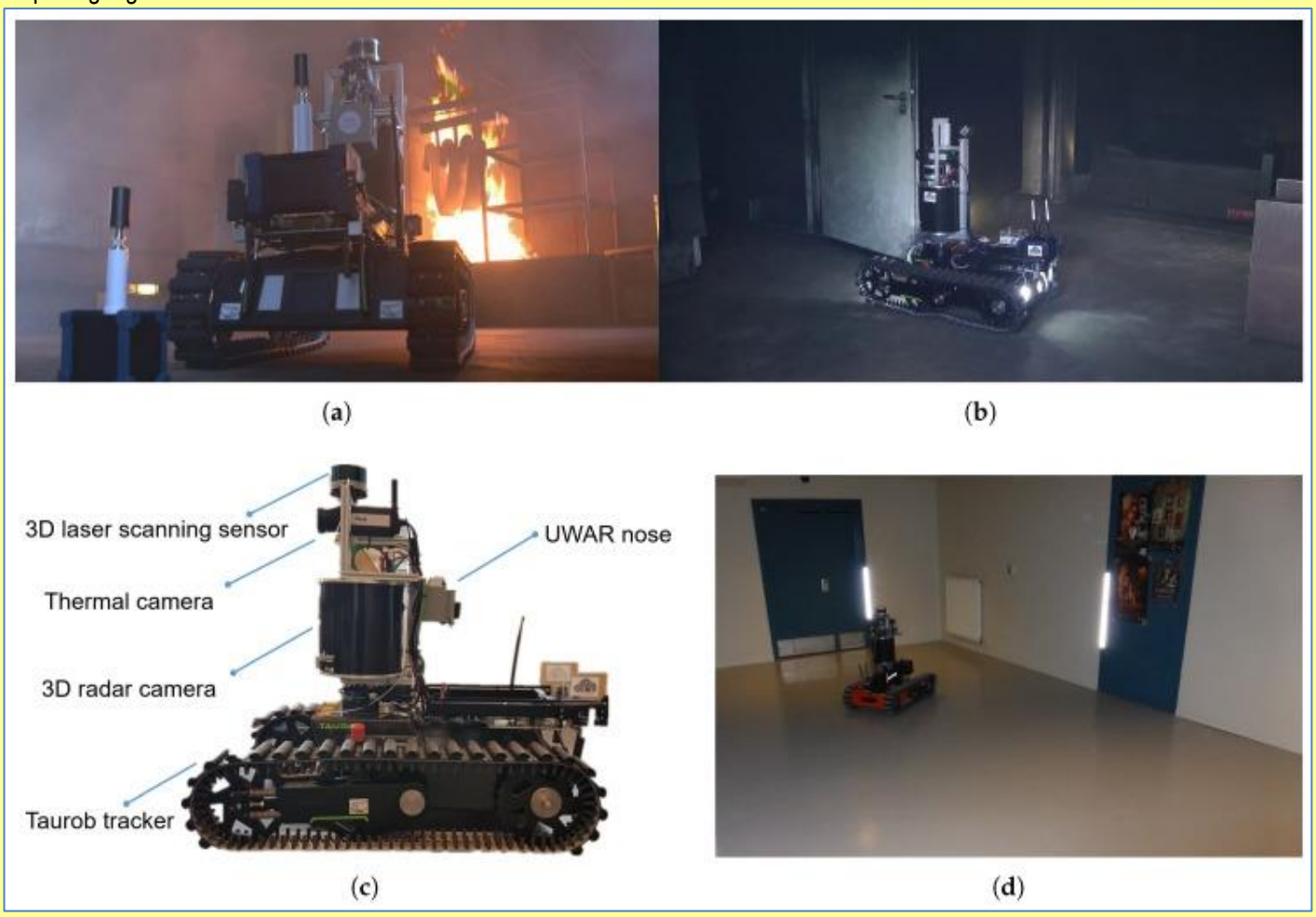
Sensors (Basel). 2019 Feb; 19(3): 685.

Source (full paper): https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6387125/

Abstract

Emergency personnel, such as firefighters, bomb technicians, and urban search and rescue specialists, can be exposed to a variety of extreme hazards during the response to natural and human-made disasters. In many of these scenarios, a risk factor is the presence of hazardous airborne chemicals. The recent and rapid advances in robotics and sensor technologies allow emergency responders to deal with such hazards from relatively safe distances. Mobile robots with gas-sensing capabilities allow to convey useful information such as the possible source positions of different chemicals in the emergency area. However, common gas sampling procedures for laboratory use are not applicable due to the complexity of the environment and the need for fast deployment and analysis. In addition, conventional gas identification approaches, based on supervised learning, cannot handle situations when the number and identities of the present chemicals are unknown. For the purpose of emergency response, all the information concluded from the gas detection events during the robot

exploration should be delivered in real time. To address these challenges, we developed an online gas-sensing system using an electronic nose. Our system can automatically perform unsupervised learning and update the discrimination model as the robot is exploring a given environment.



(**a**,**b**): Real-world working environments for the SmokeBot, which are imitated in a firefighter training facility; (**c**): SmokeBot sensor set-ups; (**d**): Experimental environment.

The online gas discrimination results are further integrated with geometrical information to derive a multi-compound gas spatial distribution map. The proposed system is deployed on a robot built to operate in harsh environments for supporting fire brigades, and is validated in several different real-world experiments of discriminating and mapping multiple chemical compounds in an indoor open environment. Our results show that the proposed system achieves high accuracy in gas discrimination in an online, unsupervised, and computationally efficient manner. The subsequently created gas distribution maps accurately indicate the presence of different chemicals in the environment, which is of practical significance for emergency response.

K9 Decontamination

Do you know how to do it properly?

Read more:

Hospital Decontamination System and Decontamination Methods for Assistance Dogs that Accompany Incoming Disaster Victims
https://www.urmc.rochester.edu/MediaLibraries/URMCMedia/flrtc/documents/Hospital-Decon-for-Service-K9s-Gordon.pdf

Canine DecontaminationGuidelines for Emergency, Gross, and Technical Decontamination of the Urban Search & Rescue Canine
https://www.csepppportal.net/csepp_portal_resources/canine_deccon_gordon_usandr.pdf
http://usarveterinarygroup.org/usarvet/wp-content/uploads/2017/05/K9-Decontamination-2017-Revision.pdf
Canine Emergency & Gross Decontamination Procedures
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An evaluation of current working canine decontamination procedures and methods for improvement
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Search and Rescue Dogs – Decontamination
https://www.youtube.com/watch?v=fW6aLynU6n8
EmergencyAnimalDecontaminationBestPractices
http://www.cfsph.iastate.edu/Emergency-Response/bpwg/NASAAEP-Decon-whitepaper.pdf
Canine decontamination equipment
https://www.yumpu.com/en/document/read/51547928/1-canine-decontamination-equipment-corp-canine-pools-

Al-Qaeda-linked chemist who tried to weaponize ANTHRAX released from Malaysian prison

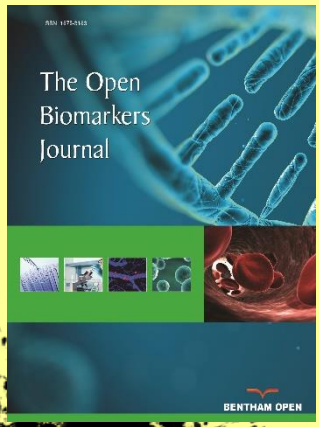
Source: https://www.rt.com/news/473957-yazid-sufaat-al-qaeda-chemist-released/

Nov 24 – Yazid Sufaat, a biochemist accused of having close ties to Al-Qaeda and plotting terrorist attacks, has been freed from prison after serving two years behind bars in Malaysia. Authorities say he will be monitored closely.
The 55-year-old Malaysian national is accused of using his degrees in biological science and chemistry from California State University to aid and abet Al-Qaeda and other terrorist groups.
He is implicated in a series of terrorism-related crimes. In the 1990s, he allegedly tried to create weapons of mass destruction by loading a lethal strain of anthrax onto munitions. In 2000, he attempted to bomb Singapore using four tons of ammonium nitrate.
It's also believed that Yazid had undergone military training in Afghanistan and met Al-Qaeda leader Osama Bin Laden. He may have even been present at a meeting where plans regarding the September 11, 2001 attacks were discussed.
Yazid is also said to have recruited terrorists for Islamic State (IS, formerly ISIS) and Al-Qaeda – actions which earned him the two-year jail term which he just completed. In total, he has spent 12 inconsecutive years behind bars.
Malaysian authorities say that the US-trained chemist will be required to wear an electronic monitoring device and remain within a specific district Kuala Lumpur. He will also need to report to police twice a week if he hopes to stay out of jail, according to media reports.

Acute Toxicity and Efficacy of Nanomaterial based Decontamination Formulation Developed for Personal Decontamination against Chemical Warfare Agents

The Open Biomarkers Journal (ISSN: 1875-3183 — Volume 9, 2019)

By Anshoo Gautam[1], Gangavarapu K. Prasad[2], Deeksha Singh[3], amd Rajagopalan Vijayaraghavan[4]
[1] Division of CBRN Defence, INMAS, Delhi, India
[2] Division of Protective Devices, DRDE, Gwalior, India
[3] E. S. I. Hospital, Kota, India
[4] Saveetha University, Chennai, India
Source: https://benthamopen.com/ABSTRACT/TOBIOMJ-9-40



Abstract

Background: This study addresses the efficacy of nanomaterials-based formulation developed for personal decontamination application against chemical warfare agents and used in Personal Decontamination Kit (PDK). It has the potential to decontaminate the skin of an individual, protective equipment, and small arms contaminated with chemical warfare agents. As this formulation has been developed for personal decontamination, risk of nanomaterial toxicity would always be there while sprinkling or applying to the affected area. It may get into the body through various routes specifically through the inhalation route.

Aim: The aim of this study was to evaluate *in vivo* decontamination efficiency of the formulation and acute inhalation, intratracheal, intranasal, oral, dermal, and intraperitoneal toxicity of the formulation.
Materials and Methods: 14 days survival was recorded for the evaluation of decontamination efficiency of this formulation. Various endpoints were considered while assessing the toxicity of Nanomaterial Decontamination Formulation which include Organ Body Weight Index (OBWI), serum biochemical parameters, and respiratory variables like tidal volume, respiratory rate, time of inspiration, time of expiration, *etc.* LD_{50} of the formulation were also determined for various routes. As skin is the primary organ to come in contact with the decontaminant, its primary skin irritation response has also been determined in this study.
Results and Conclusion: It was found that there is no gross acute toxicity observed at different doses. Though there were some changes in the initial respiratory pattern, they were all later recovered. The preliminary histological evaluation did not show any adverse effect on various organs after exposure with NDF.

Army Biologists Develop Rad Plan to Test Protective Suits

Source: http://www.militaryspot.com/news/army-biologists-develop-rad-plan-test-protective-suits

Nov 21 – Necessity is the mother of invention. When the U.S. Army Chemical, Biological, Radiological and Nuclear (CBRN) School's Joint Experimentation and Analysis Division (JEAD) needed to find a way to get more mileage out of the expensive protective suits worn by Army civil support teams in radiological environments, they looked for answers from what seemed like a peculiar source – a team of biologists in the Utah desert.
But according to Division Chief Brian Bennett of the U.S. Army Combat Capabilities Development Command's (CCDC) Chemical Biological Center's BioTesting Division, it's not as strange as it sounds.
"Our sole function here," he explained, "is to evaluate new technologies and techniques for Soldiers. Our area of expertise here is handling aerosol clouds, because that's how you launch a biological attack. Because radiological fallout consists of aerosolized particles, testing the radiological decontamination techniques fit well within the division's capabilities."

JEAD's Tom Murphy is counting on the BioTesting Division's expertise. "Right now these suits are one-and-done. Given that the suits are hot, and that the work conducted while wearing them is typically strenuous, civil support teams members work/rest cycle requires at least two suits per day per team member."
At $2,000 a pop, the costs add up fast.
So the BioTesting Division was asked by JEAD to devise a test to determine whether the protective suits could be decontaminated and reused, and if so, how many times.
In order to answer this question, the team developed a novel plan that was based on an approach they often use in testing biological aerosols, and tailored it instead to this radiological application. The plan involved simulating the radiological fallout through controlled release in their Aerosol Simulant Exposure Chamber of a fluorescent dust known as Glo Germ.
"Initially, we're looking at how well the decontamination procedures work," BioTesting Division Microbiologist Scott Jonas explained. "We'll provide that data back to the customer, who may use the data to make some changes to their procedures. Once they have a validated procedure, then we'll be looking at how that procedure impacts the integrity of the suit, and how many times the suit can be subjected to the procedure before it begins to degrade."
Soldiers from the Alabama National Guard's 690th CBRN Company aided in the execution of the plan by serving as test subjects. The three Soldier volunteers entered the chamber, each wearing a different type of protective suit. Simulant was dispersed as the test subjects walked around the chamber for 5 minutes.
"The key to this test is our ability to create a sustained, measurable cloud of particulates for the Soldiers to move around in," said Kallie Thevenot, a physical sciences technician with the BioTesting Division. "We do that with an initial forceful simulant dispersal and then we sustain the cloud with air currents generated by fans."
"We used party poppers to disperse threat particles into the air," said Patty Low, a BioTesting Division microbiologist. "Activating the [simulant filled] popper within the test chamber produced a cloud of dry simulant which we were able to sustain with air currents."
Evaluators examined the suits under a black light and removed samples from the suits to determine their level of contamination. They further examined and photographed the samples under a fluorescing microscope to provide a more accurate and permanent record of the results.
The researchers then put the Soldiers through decontamination procedures intended to remove the fallout from the protective suits. They inspected the suits again under a black light and resampled, for a second time examining and photographing the samples under a fluorescing microscope. The test was performed five times with dry decontamination procedures and five times with wet decontamination procedures.
Sgt. 1st Class William Anderson was one of the Soldiers participating in the test, and said he values the opportunity to be part of the tactics, techniques and procedures (TTP) development process. "It gives us an opportunity to provide input and make recommendations," he explained.
Andrew Reichert, a physical scientist with the Homeland Defense/Civil Support Office at the Maneuver Support Center of Excellence, said that TTPs that allow for reuse of the protective suits would give commanders more flexibility in mitigating risk while reducing the consumption of personal protective equipment.
"The BioTesting Division's adaptation of their existing technique is a great example of the contributions made to the Army by the Combat Capabilities Development Command," said Paul Tanenbaum, Ph.D., director of operational applications at the Center. "Our scientists and engineers create innovative, cross-disciplinary solutions, not only in materiel, but to support the TTPs and training, as well."

A History of Iran's Chemical Weapon-Related Efforts

Source: https://www.iranwatch.org/our-publications/weapon-program-background-report/history-irans-chemical-weapon-related-efforts

Nov 26 – This is a history of Iran's efforts to develop chemical weapons. The emphasis is on Iran's technical achievements rather than its motives, and the essay relies primarily on statements and reports produced by government agencies and international organizations. The essay describes the origins of Iran's chemical weapon (CW) program during the Iran-Iraq war, Iran's efforts to establish an indigenous CW production capability through foreign procurement, its CW-related transfers, and its adherence to the Chemical Weapons Convention (CWC).
In 1997, the U.S. Central Intelligence Agency (CIA) publicly reported that Iran had manufactured and stockpiled blister, blood, and choking agents, and had bombs and artillery shells needed to deliver these agents.[1]

Subsequent U.S. intelligence reports expanded on these findings, alleging the production and stockpiling of nerve agents and describing Iran's failure to declare its CW production facilities and past CW-related transfers.[2] In 2005, the United States judged Iran to be in violation of its CWC commitments.[3] This finding was softened in subsequent U.S. government reports and testimony, which cited an inability to certify Iran's compliance. Then, in 2018, the United States certified Iran in non-compliance with the CWC, a finding it reaffirmed in 2019.[4]

Information about Iran's foreign suppliers of CW precursors and expertise is derived largely from U.S. sanctions actions since the late 1990s. Entities in China, India, and Russia have been among Iran's primary suppliers.

Early Development during the Iran-Iraq War

In September 1980, Iraqi troops invaded Iran, triggering a war that would last until August 1988.[5] During the early years of the conflict, Iran refrained from using chemical weapons against Iraq, reportedly because Supreme Leader Ayatollah Ruhollah Khomeini objected to their use.[6] However, according to the U.S. Defense Intelligence Agency (DIA), Iran initiated a chemical weapon development program in 1983 "in response to Iraqi use of riot control and toxic chemical agents."[7] By 1998, the Iranian government had publicly acknowledged that it began a CW program during the war.[8] According to the DIA, the program began under the Islamic Revolutionary Guard Corps (IRGC), with the role of the Ministry of Defense increasing over time.[9]

In April 1984, the Iranian delegate to the United Nations, Rajai Khorassani, admitted at a London news conference that Iran was "capable of manufacturing chemical weapons [and would] consider using them."[10] In 1987, according to the U.S. Department of Defense, Iran was able to deploy limited quantities of mustard gas (a blister agent) and cyanide (a blood agent) against Iraqi troops.[11] The change in Iran's policy with regard to chemical warfare was publicly announced in December 1987, when Iranian Prime Minister Hussein Musavi reportedly told parliament that Iran was producing "sophisticated offensive chemical weapons."[12]

As Iran's chemical warfare capabilities grew, it became more difficult to determine which side was responsible for chemical attacks during the Iran-Iraq war. In March 1988, the Kurdish town of Halabja in northern Iraq was caught in chemical weapon crossfire between Iranian and Iraqi forces that left thousands of civilians dead. A 1990 U.S. Department of Defense reconstruction of the incident reportedly concluded that both Iran and Iraq used CW in Halabja. Iran allegedly attacked the town with cyanide gas bombs and artillery, and Iraqi forces allegedly used a mixture of mustard gas and nerve agents. In total, the Defense Department study reportedly estimated that Iranian forces used more than 50 chemical bombs and artillery shells during the offensive. [13]

Iran appears to have developed additional chemical warfare agents. In April 1987, Iran is believed to have used mustard-filled 130 mm mortars near Basrah, Iraq.[14] In April 1988, a U.N. medical specialist examined several dozen Iraqi soldiers and concluded that they could have been exposed to mustard gas.[15] Iraq turned over 141 chemical weapon mortar rounds to the United Nations, claiming that they were Iranian-origin. Analysis of samples from these rounds by specialized laboratories in Switzerland and Sweden revealed the presence of mustard gas, according to a July 1988 U.N report.[16] A 1991 inspection at Iraq's Muthana State Establishment by the United Nations Special Commission (UNSCOM) also found 165 81-mm mortars filled with sulfur mustard that Iraq claimed were Iranian-origin. [17]

U.N. and U.S. government reports also indicate that Iran may have used nerve and choking agents. The April 1988 U.N. medical specialist observed symptoms in Iraqi soldiers that indicated possible exposure to "an acetylcholine esterase-inhibiting chemical in small concentrations," which could suggest the use of a nerve agent.[18] In addition, a 1990 DIA study reported that a "U.N. team that examined Iraqi casualties from Iranian chemical attacks found that some of them displayed the effects of exposure to a choking agent believed to have been phosgene."[19]

Finally,during the 2003 invasion of Iraq, U.S. forces discovered Iraqi intelligence reports indicating that Iran had used chemical weapons during the Iran-Iraq War.[20] Despite these findings, Iran has failed to acknowledge that it used chemical weapons.

Post-War Developments and Intelligence Assessments

Although Iran claims that it terminated its chemical weapon program after the Iran-Iraq war,[21] the United States believes that Tehran continued and perhaps accelerated its effort to develop, stockpile, and weaponize chemical agents after the 1988 cease-fire.[22] In February 1997, Director of Central Intelligence George Tenet named Iran as one of approximately twenty countries that either had or were developing chemical and biological weapons. Tenet characterized Iran's chemical weapon program at the time as "increasingly active."[23] In March 2001, General Tommy Franks, head of U.S. Central Command, testified before the U.S. House Armed Services Committee that Iran was "the holder of the largest chemical weapons stockpile" in his area of responsibility.[24] U.S. intelligence assessments at the time put Iran's stockpile of chemical agents at anywhere from several hundred to

several thousand metric tons.[25]

In a series of reports to Congress beginning in 1997, the CIA asserted that Iran had made and was stockpiling blister, blood, and choking agents and was seeking equipment and expertise – mostly from China – to "create a more advanced and self-sufficient CW infrastructure."[26] In September 2000, the CIA assessed that Iran's chemical weapon program still relied upon external suppliers for technology, equipment and precursor chemicals, but that Tehran was "rapidly approaching self-sufficiency and could become a supplier of

CW-related materials to other nations."[27] In 2001, the CIA reported that Iran's CW-related foreign procurement was also aimed at "having an indigenous nerve agent production capability"[28] and the following year reported that Iran "probably also has made some nerve agents."[29] By the second half of 2003, the CIA reported that Iran was seeking "production technology, training and expertise" that could help it "achieve an indigenous capability to produce nerve agents."[30]

U.S. concern about Iran's CW capability appears to have shifted in the mid-2000s. At this point, U.S. intelligence reports characterized the nature and size of Iran's capability as historic and modest in scope rather than active and expansive.

In December 2006, the U.S. Director of National Intelligence judged that Iran "maintains a Chemical Warfare (CW) research and development program" and "a small, covert CW stockpile."[31] In 2007, the U.S. Director of National Intelligence assessed that Iran "maintains the capability to produce CW agent in times of need and conducts research that may have offensive applications."[32]

U.S. and foreign government reports indicate that CW-related research and development was carried out at Iranian universities in order to avoid detection. According to a 2005 report from Germany's Customs Office of Criminal Investigations (ZKA), Iran used small, well-guarded university laboratories for CW-related research and that Iran probably possesses sulfur mustard, tabun, and prussic acid (hydrogen cyanide), and may possess the nerve agents sarin and VX.[33] In April 2019, the U.S. State Department reaffirmed this assessment, reporting that Iran's military-controlled Imam Hossein University (IHU) and Malek Ashtar University (MUT) have been researching "chemical agents intended to incapacitate" since 2005. According to this report, IHU's Chemistry Department also sought "kilogram quantities" of medetomidine from Chinese suppliers in 2014, which the Department has researched as an incapacitant.[34]

U.S. concerns that Iran had an active, undeclared CW program were publicly revived in 2015. In a State Department report that year, the United States questioned whether Iran "has fully declared those chemicals it holds for riot-control purposes."[35] In 2019, U.S. intelligence determined that Iran had failed to declare its stockpile of dibenzoxazepine (CR) gas as a riot control agent, citing delivery devices such as a personal defense spray advertised by the Iranian Ministry of Defense. Iran's Shahid Meisami Group (SMG) has marketed riot control agents at defense exhibitions, including an "Ashkan" irritant hand grenade that can produce CR smoke and a "Fog Maker System" that can disseminate chemicals over a large area. The report also noted "serious concerns" that Iran is currently developing offensive pharmaceutical-based agents (PBAs).[36]

Iran and the Chemical Weapons Convention

Iran became a State Party to the Chemical Weapons Convention (CWC) on December 3, 1997.[37] As a member, Iran is prohibited from developing, producing or stockpiling chemical weapons. Since ratifying the CWC, Iran has been active within the Organisation for the Prohibition of Chemical Weapons (OPCW), the international agency responsible for promoting and administering the CWC. In December 2000, the OPCW Director-General publicly stated that the OPCW had "no reason whatsoever

to question Iran's full compliance with the CWC," and that verification measures in Iran were "strictly in accordance with the Convention."[38]

During its participation in the OPCW, Iran has frequently asserted its commitment to the CWC. For example, in April 2003, the Iranian delegate to the OPCW acknowledged that Iran had developed "chemical capabilities" during the last phase of the Iran-Iraq war but claimed that Iran never used these weapons and dismantled them after the cease-fire. In addition, the delegate stated that Iran destroyed its chemical weapon facilities under the supervision of OPCW inspectors and received certification of destruction. He cited these actions as "clear proof of [Iran's] full commitment and compliance" to the CWC. [39] In October 2003, Iran reiterated that it was "fully committed to the implementation of the Convention and total elimination of all weapons of mass destruction" and had "submitted all required declarations."[40]

Despite these assertions, some states have questioned Iran's compliance, as well as its motives for participating in the CWC. Israel has alleged that Iran is using its membership in the OPCW to mask efforts to acquire chemical weapon materials and technology. In June 2002, the director of Israel's Mossad intelligence service was quoted as saying that Iran's adherence to the CWC was only "a cover for the construction of a dual-purpose civilian infrastructure which could be converted very speedily into production capabilities of large quantities of VX [gas]."[41]

The United States has also scrutinized Iran's commitment to its CWC obligations. A 2003 State Department report judged that Iran had not submitted "a complete and accurate declaration" of its chemical weapons program and was, in fact, "acting to retain and modernize key elements" of the program."[42] In 2005, the State Department judged Iran "in violation of its CWC obligations" because of its efforts to "retain and modernize key elements of its CW infrastructure," including an offensive CW R&D capability and dispersed mobilization facilities.[43]

Subsequent State Department reports were less conclusive. From 2010 to 2018, the United States was unable to certify Iran's compliance with the CWC because of "irregularities in the Iranian declaration and insufficient clarification from Iran." In particular, the United States was concerned that Iran retained an undeclared CW stockpile and was unable to certify that Iran had accurately declared its chemical weapon production infrastructure and its CW-related transfers.[44] U.S. concerns about the transfer of CW munitions to Libya in the late 1980s were first reported in 2012,[45] while concerns about the accuracy of Iran's declaration related to riot-control agents emerged in 2015.[46]

By 2018, the United States determined that Iran was in "noncompliance with its obligations under the Chemical Weapons Convention."[47] The State Department report published in April 2019 described the justification for this finding, including Iran's transfer of chemical weapons to Libya during the 1978-1987 Libya-Chad War, Iran's failure to declare its complete stockpile of riot control agents (RCAs), and its failure to fully declare CW production facilities.[48]

Proliferation

Over the last decade, U.S. government reports have offered increased clarity on Iran's alleged transfers of chemical weapons to Libya during the 1980s and technical support for Syria's chemical weapons program during the 2000s.

Libya

Iran may have provided Libya with chemical weapons during the Iran-Iraq War. In 1987, media reports alleged that Iran had transferred chemical weapons to Libya in exchange for Soviet-made mines and that Libya had attempted to use these weapons in its war with Chad.[49] A 1995 U.S. Department of Defense report appeared to confirm these allegations, stating that "Iran supplied the [chemical] agents in exchange for naval mines."[50] Following the 2011 civil war in Libya, the Libyan transition government informed the OPCW that its fighters had discovered 517 130mm artillery shells and 8 aerial bombs containing 1.3 metric tons of sulfur mustard gas in cases with Persian markings. The United States assessed that these previously undisclosed chemical weapons originated from Iran during the 1980s.[51]

Syria

Iran has allegedly supported Syria's chemical weapons program. In 2006, U.S. diplomats reportedly indicated that Iran planned to assist Syria in the construction of chemical weapons facilities for the production of "tens to hundreds of tons of precursors for VX, sarin, and mustard [gas]." Engineers from Iran's Defense Industries Organization (DIO) allegedly planned to visit Syria and construction was scheduled to take place from 2005 to 2006.[52] German intelligence has also reported Iranian cooperation with Syria's Scientific Studies and Research Centre (SSRC), a Syrian government agency responsible for developing chemical weapons and ballistic missiles.[53]

Foreign Suppliers

Foreign assistance has been vital to Iran's chemical weapon effort. Firms in China, India, and Russia have been Iran's primary suppliers of chemical equipment and precursor chemicals. Companies in Germany, Israel, and the United States have also been involved.

U.S. government reports and intelligence

assessments emphasized the value and volume of foreign assistance beginning in the 1990s. Examples of CW-related assistance are also available in U.S. sanctions actions, often taken by the State Department pursuant to the Iran Nonproliferation Act (now the Iran, North Korea, Syria Nonproliferation Action, or INKSNA). However, sanctions under INKSNA are comparatively mild for firms without a presence in the United States. Penalties apply for only two years and include a ban the U.S. government from procuring from, contracting with, providing assistance to, or issuing export licenses involving controlled items for the entity.

China

According to the CIA, Chinese entities have been among the most active suppliers of CW-related equipment and technology.[54] Iran has obtained precursor chemicals, glass-lined vessels, and special air filtration equipment – all of which can be used in the production of chemical agents – from Chinese firms. Iran has also purchased Chinese technology that would enable it to manufacture such chemical weapon production equipment on its own.[55]

In 1995, the State Department sanctioned three Hong Kong-based companies for supplying Iran with precursors for mustard gas and sarin.[56] Several months later an Austrian and German firm were also sanctioned for CW-related transfers to Iran.[57] In May 1997, the State Department sanctioned one Hong Kong company, two Chinese companies and five Chinese individuals for "knowingly and materially contributing to Iran's chemical weapons program." These entities and persons were "involved in the export of dual-use chemical precursors and/or chemical production equipment and technology." [58] One of the Chinese companies, Jiangsu Yongli Chemicals and Technology Import and Export Corporation, reportedly helped Iran build a plant for manufacturing dual-use chemical weapon equipment. Jiangsu Yongli was sanctioned again in June 2001, reportedly for enabling the Iranians to get the facility "up and running."[59]

One of the Chinese individuals sanctioned in May 1997, Chen Qingchang (also known as Q.C. Chen), has been a target of U.S. sanctions since then.[60] In a March 2005 address, U.S. Assistant Secretary of State for Arms Control Stephen Rademaker expressed concern that "the Chinese authorities have been unable to halt the proliferation activities of Q.C. Chen who has repeatedly provided material support to the Iranian chemical weapons program."[61]

In 1998, a branch of SinoChem Corp. reportedly supplied Iran with 500 tons of phosphorus pentasulphide, a precursor for nerve agents.[62] In 2002, the State Department sanctioned China Machinery and Equipment Import Export Corporation for "chemical weapons proliferation activities" involving Iran.[63] Zibo Chemical Equipment Plant, a firm in China capable of manufacturing large-size glass-lined chemical equipment, has been repeatedly sanctioned for proliferation activities with Iran, most recently in 2011.[64] There have been fewer instances of U.S. sanctions targeting Chinese entities for CW-related transfers to Iran since that time.

In rare cases, Chinese authorities have cooperated with the United States to prevent the proliferation of CW-related materials to Iran. In June 2006, customs officials stopped a shipment of 2,000 kg of potassium bifluoride, which can be used to manufacture nerve agents, to Iran. Chinese authorities reportedly received a tip from the U.S. Embassy in Beijing to intercept the shipment. [65]

India

Indian firms have also helped Iran build its chemical weapon infrastructure. In March 1989, the State Trading Corporation, an Indian government trading company, reportedly sold Iran 60 tons of thionyl chloride, a precursor chemical that can be used to produce mustard gas. The State Trading Company may have purchased the chemicals from Transpek, a private Indian chemical company. [66] According to a classified German intelligence report cited by the *Washington Times* in 1995, at least three Indian companies aided Iran in the construction of a secret CW complex. The report projected that Iran was only months away from completing the plant, which the Indian companies claimed was a pesticide factory.[67]

The U.S. intelligence community last identified India as one of Iran's primary suppliers of CW-related material during the second half of 1996.[68]. Nevertheless, the United States has occasionally sanctioned Indian companies for CW-related proliferation to Iran. In December 2005, Sabero Organic Chemicals Gujarat and Sandhya Organic Chemicals were sanctioned for the export of phosphorus oxychloride and trimethyl phosphite to Iran, both of which can be used in the manufacture of chemical weapons.[69] In August 2006, the United States sanctioned Balaji Amines and Prachi Poly Products for supplying precursor chemicals to Iran.[70]

Russia

Russian entities have also been active suppliers to Iran of CW-related equipment and technology. In June 1999, the CIA reported that Iran had sought "production technology, expertise, and chemicals that could be used as precursor agents in its chemical warfare (CW) program from entities in Russia and China."[71] In October 2000, a senior CIA official reported that "numerous Russian entities have been providing Iran with dual-use industrial chemicals, equipment, and chemical production technology that could

be diverted to Tehran's offensive CW program." The official specifically mentioned that in 1999 "Russian entities provided production technology, training, and expertise that Iran could use to create a more advanced and self-sufficient CW infrastructure."[72]
The U.S. intelligence community last identified Russia as a primary supplier of CW-related materials to Iran in 2001.[73]

Other Countries

Firms in other countries have also assisted Iran with the acquisition of precursor chemicals and CW-related equipment and expertise. For example, during 1987 and 1988, an Iranian diplomat reportedly arranged for a **West German** company to purchase 210 tons of thiodiglycol – a mustard gas precursor – from a supplier in the United States and then ship it to Iran in three installments, routing the shipments through Greece and Singapore to conceal their true destination. Reportedly, two shipments totaling 90 tons successfully made it to Iran, while the third 120-ton shipment was intercepted by U.S. customs agents.[74] Alcolac International, the U.S. firm, pleaded guilty to selling the thiodiglycol "with knowledge or reason to know" that the chemical was not intended for its designated destination, Singapore.[75]
Iran has made other attempts to procure **U.S.-origin** materials with CW applications. In 1997, U.S. authorities thwarted a conspiracy led by Iranian national Abdol Hamid Rashidian and American national Henry Joseph Trojack to ship impregnated alumina from the United States to Iran via the United Arab Emirates.[76] This material may be used in the production of nerve agents. In 1998, a court in Israel convicted Nahum Manbar, an Israeli citizen, of selling 150 tons of chemical weapon materials to Iran between 1990 and 1995.[77] Manbar reportedly also provided Iran with know-how and a list of equipment necessary to build factories to produce mustard gas and the nerve agents tabun, sarin, and soman.[78] He had been sanctioned in 1994 by the United States for CW proliferation activities and remains subject to U.S. sanctions.[79]
In 2003, the **South African** government prosecuted the company African Amines for exporting 120 tons of the tabun nerve agent precursor dimethylamine to Iran.[80]

▶▶ Footnotes are available at source's URL.

New report: Chemical Detection Technology Market research opportunities and forecast assessment, 2016 – 2026

Source: https://www.zebvo.com/2019/12/10/new-report-chemical-detection-technology-market-research-opportunities-and-forecast-assessment-2016-2026/

Dec 10 – Chemical detection technology is used to detect chemical agents (CA), toxic industrial chemicals (TIC), and toxic industrial materials (TIM). Chemical detection technologies play a vital important role in the monitoring of chemical plants and industries. Incidents from the past like Bhopal gas tragedy have triggered the alarm in the chemical industry to use top quality and reliable chemical detection technology. Furthermore, a rise in threat from terrorist organizations across the world is forcing countries to implant chemical detection technology at critical infrastructure facilities such as airports, nuclear power plants, and water distribution facilities, etc.
Many of the commercially available CA and TIC detectors utilize technologies that are adapted from classical analytical chemistry techniques. These technologies are ion mobility spectroscopy (IMS), raman spectroscopy, infra-red spectroscopy, colorimetric analysis, flame photometry, surface acoustic wave, photo ionization and flame ionization.

Global Chemical Detection Technology Market Dynamics

Global chemical detection technology market is driven by defense sector of various countries in the world. IMS technology is widely used in the military and civilian agencies for detection of illicit drugs, explosives and TICs. Increase in number of people travelling worldwide and security concerns at the airports are driving growth of the global chemical detection technology market. Worldwide forensic labs are using infra-red spectroscopy for forensic analysis such as in identifying polymer degradation. Infra-red spectroscopy can be used to detect the alcohol content in the blood.
A recent trend of chemical detection equipment becoming portable is expected to fuel the global chemical detection market growth. Additionally, there is an increasing reliability on chemical detection equipment by end-users owing to the reduced number of false alarms. Raman spectroscopy is very efficient and non-destructive technology to investigate the authenticity of arts (paintings), which is expected to drive the global chemical detection technology market. Growth in health care and medical

sector is also poised to positively influence the global market for chemical detection technology.
Cost of the chemical detection equipment is very high along with high operating cost, hindering the growth of the global chemical detection technology market to some extent.

Global Chemical Detection Technology Market Segmentation:
Global chemical detection technology market can be segmented on the basis of end-use sector such as defense sector, civil sector, and commercial sector. Global chemical detection technology market for defense sector can be further sub-segmented on the basis of application such as anti-terrorism, first responder market, firefighting control, real time monitoring of toxic and hazardous industrial chemicals in the environment, chemical disaster management and detecting air-borne chemical threats. Global chemical detection technology market can also be segmented on the basis type into portable and non-portable equipment. Global chemical detection technology market can be segmented on the basis of geography in to North America, Latin America, Western and Eastern Europe, Asia-Pacific region (APEJ), Japan, and Middle East & Africa (MEA).

Global Chemical Detection Technology Market: Regional outlook
Geographically, global chemical detection technology market can be divided by major regions which include North America, Latin America, Western Europe, Eastern Europe, Asia Pacific region, Japan, Middle East and Africa. North America is the biggest market for chemical detection technology. The U.S. is the leader in research and development of chemical detection technology. Countries affected by the terrorism such as India, France, the U.K. are next big market for the chemical detection technology.

Global Chemical Detection Technology Market: Key players
Following are the major key player identified in the value chain of global chemical detection technology market:

- E. International
- S2 Threat Detection Technologies
- Romtech
- ChemImage Corp.
- Bruker Detection Corporation

To receive extensive list of important regions, ask for TOC here @ https://www.persistencemarketresearch.com/toc/12322

The research report presents a comprehensive assessment of the market and contains thoughtful insights, facts, historical data, and statistically supported and industry-validated market data. It also contains projections using a suitable set of assumptions and methodologies. The research report provides analysis and information according to market segments such as geographies, types, and end-use sector.

CBRNe Country Profile - COLOMBIA

By Katerina Zejdlova (Analyst, IB Consultancy)
Source: http://nct-magazine.com/nct-magazine-december-2019/cbrne-country-profile-colombia/

The South American republic of Colombia boasts a picturesque and a versatile landscape. However, the rich topsoil of its fertile rural landscape conceals a shocking reality – the second highest number of anti-personnel mines in the world. It is roughly estimated that more than 11,500 mines were laid here in the past quarter century, with Colombia only surpassed by Afghanistan ravaged by protracted wars.
Colombia's mine contamination is largely a result of decades of a conflict with non-state armed groups, notably the **Revolutionary Armed Forces of Colombia (FARC)** or the National Liberation Army (ELN). The country saw heavy, systematic use of landmines since at least the 1990s. Even though Colombia's civil war started in the mid-1960s and grew in intensity, it remained considered a "low-intensity asymmetric war." This characteristic constitutes the ideal condition for the use of concealed or dormant munitions, allowing to kill and injure effortlessly in abstentia. Landmines, however, do not discriminate between combatant and non-combatant, soldier and farmer or militant and child, resulting in substantial numbers of civilian casualties.
The FARC planted these landmines to halt the advance of armed forces as well as to protect their strategic positions, smuggling routes and illicit crops in rural areas. Because FARC and

other groups did not properly map their mined areas, there are understandably widespread fears of these hazards in rural communities due to the lack of specific details of landmine locations. Vast swathes of land therefore remain unused for fear of these vicious weapons, with this fact posing an immeasurable economic hardship as well as causing distress in the local communities.

(**Editor's comment:** not a very good photo for this article)

The human cost of landmines

The human cost of landmines has been enormous. For decades, these mines have killed or maimed around 11,000 people that we know of and have contributed to the displacement of over six million Colombians. In some communities the overwhelming presence of landmines physically blocks people's access to basic services such as healthcare, food markets, fresh water sources and schools. As recently as 2018, the number of casualties from landmine explosions increased once again, prompting renewed public fears in rural communities.

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

Paper-Based Sensor Detects Potent Nerve Toxins

Source: http://www.homelandsecuritynewswire.com/dr20191210-paperbased-sensor-detects-potent-nerve-toxins

Dec 10 – A new, paper-based sensor developed by University of Alberta chemists can detect two potent nerve toxins that have reportedly been used in chemical warfare.

The sensor uses silicon-based quantum dots to detect paraoxon and parathion, two powerful toxins that turn the paper sensors yellow or green depending on the amount of toxin present.

The study also shows that a commercial smartphone application can be used to accurately estimate the amount of the toxins in a sample, which could offer a simpler, faster way to detect them than current methods that require costly instruments and highly trained technicians.

"**Paraoxon and parathion are nerve agents that have been used as pesticides**," explained University of Alberta chemist Jonathan Veinot, who was a co-author on the study with Ph.D. student Christopher Robidillo.

"Accurate detection is important because these substances are potent—they can kill within minutes depending on exposure and treatment."

Since parathion was developed in 1947, most countries around the world—including Canada and the United States—have stopped using it as a pesticide, said Robidillo, citing research showing it has also been linked with cancer and birth defects.

Alberta says that paraoxon, a similar compound that is created when parathion is broken down by enzymes in the body, is considered 50 times more toxic. **It is thought to have been used in chemical warfare during the 1970s in what is now Zimbabwe, and later by the apartheid regime in South Africa as part of its chemical weapons program.**
To build the sensors, the research team combined a green fluorescent protein with silicon-based quantum dots that emit red light. When exposed to paraoxon or parathion, the mixture no longer emits red light, causing the sensor to turn various shades of yellow or green under fluorescent light.
"The sensors can be used to test environmental samples and detect the presence of the nerve agents," added Robidillo. "Using a smartphone application, it is possible to estimate the amount of nerve agent present; this is more reliable than simple visual evaluation."
Veinot said the results suggest that similar sensors be tailored to test for other toxins as well.
"It's a platform we're building on that could eventually be used to detect multiple substances at once."

Syria accuses neighboring countries of sending chemical weapons

Source: https://www.plenglish.com/index.php?o=rn&id=49655&SEO=syria-accuses-neighboring-countries-of-sending-chemical-weapons

Nov 05 – Syrian Vice Minister of Foreign Affairs Faisal Mekdad on Thursday accused the countries of the region of supplying chemical substances to terrorist groups operating in the national territory.

'During the combing operations of the Army in the areas freed from terrorism, we found barrels with substances used in chemical attacks, coming from regional countries such as Turkey and Saudi Arabia', said the Sama TV channel citing the vice chancellor in an interview with the Lebanese channel Al-Mayadeen.
As Mekdad revealed, the first chemical attack in Syria was recorded on March 19, 2013 in the town of Khan Al-Assal, south of the city of Aleppo, when terrorists fired a rocket with chemical material that caused the immediate death of some 25 soldiers.
He explained that **the Organization for the Prohibition of Chemical Weapons (OPCW) refused for five months to send a team to investigate this chemical incident** and when he arrived in Damascus, that team surprised the Syrian authorities with refusing to address Khan Al-Assal and request to go to the place of another attack under a false flag in the capital district of Jobar. 'USA and some western countries still intend to use the pretext of chemical weapons as a Trojan horse to carry out bombings against Syria as they did on April 14 last year when France, the United Kingdom and the United States bombed the scientific research center in Damascus,' denounced the Syrian official.
He confirmed that Syria has already delivered all its chemical reserves in 2014 and is free of 100 percent of any type of weapons of mass destruction.
If a chemical weapons research is to be done, the OPCW should turn to Israel, which is the only country in the region that refuses to adhere to the Convention on the Prohibition of Mass Destruction, he concluded.

The toxic mystery behind Kim Jong-Nam's assassination

Source: https://stockdailydish.com/the-toxic-mystery-behind-kim-jong-nams-assassination/

Dec 14 – More than a month after Kim Jong-Nam was murdered in Kuala Lumpur, experts are struggling to make sense of Malaysia's findings that the lethal **nerve agent VX was used to kill him without apparent harm to anyone else**.
Malaysian police have released virtually no forensic evidence connected to the high-profile assassination of the estranged half-brother of North Korea's leader Kim Jong-Un.
Scientists are confounded by how VX — a toxin so deadly it is classed as a weapon of mass destruction by the UN — was deployed in an international airport without causing serious injury to the assailants, first responder medics or other travellers.
"We are building speculation upon speculation" to explain what happened, said Jean-Pascal Zanders, an expert on disarmament who focuses on chemical and biological weapons.
Airport CCTV footage on February 13 shows two women approaching the 45-year-old victim and apparently rubbing his face with a cloth. **He died minutes later, according to police, who found traces of VX on his face.**

Indonesian Siti Aisyah, 25, and Doan Thi Huong, 28, from Vietnam, have since been charged with his murder and have told diplomats they were duped into believing they were participating in a TV prank show.

Police have rejected those claims but have not released any evidence to explain how the women were able to handle one of the world's deadliest toxins without suffering severe harm.

Here are some key questions and answers about the attack:

What is VX?

VX is an organophosphate compound that strikes the nervous system, over-stimulating glands and muscles till they tire and stop working.

People exposed to high doses of the toxin experience seizures, heart failure and a shutdown of the respiratory system. Since it evaporates slowly, it can potentially contaminate areas for long periods of time.

A global treaty signed by more than 160 countries that went into force in 1997 prohibits the production, stockpiling and use of VX.

North Korea, which is not among the signatories to the treaty, has been blamed by Seoul for Kim's assassination, with the South saying the regime's leader wanted to eliminate a potential rival.

Why are experts confounded?

Experts have expressed skepticism about Malaysia's findings, with one UK-based scientist telling AFP that "there are aspects of this that do not 'add up '"

Simon Cotton, a specialist in molecular chemistry at the University of Birmingham, added: "I cannot see how the accused women would have administered a fatal dose of VX directly to the victim without sustaining corresponding life-threatening injuries themselves."

"There is also no report of any trace of VX – or of any cloths or containers carrying traces of it – at the 'crime scene '"

So VX wasn't deployed?

Not so fast. Some experts have put forward a hypothesis that the killing was carried out using **a binary version of VX known as VX2.**

In that case, the assassins would have separately applied two chemicals to his face, using a precursor which is not severely toxic on its own but lethal once combined with sulphur. The theory would also explain why two women were used for the attack.

"The simplest explanation is that it was binary," said Matthew Meselson, a professor at Harvard University and member of the national advisory board at the US-based Center for Arms Control and Non-Proliferation.

As the two chemicals combined on Kim's face to create VX, the assailants would have been unharmed while the delayed reaction would have allowed him to continue walking as shown in the CCTV footage.
It is also easier to transport VX across borders when it is broken down into two seemingly innocuous components.

Why use VX instead of other toxins?
Experts believe Pyongyang made a considered decision to use VX instead of the more commonly deployed Sarin.
"Sarin kills indiscriminately — there's a heavy risk of collateral damage. To use it in a foreign country would have been an act of war," said Vipin Narang, an expert on nuclear strategy at the Massachusetts Institute of Technology.
Unlike Sarin, which evaporates quickly whether deployed as a gas or liquid, VX vaporises slowly, giving authorities time to cordon off affected areas before large numbers of people are exposed to it.

Is there any way Kim could have survived?
Although just one drop of VX can kill a man when inhaled, the nerve agent takes longer to penetrate the skin, meaning that Kim could have survived had someone injected him with its antidote atropine within minutes.
Even simpler, he could have washed his face to remove the toxin — which is soluble in cold water — as the two assailants did, washing their hands soon after the attack.
"If he had… washed his face or rubbed it off with tissues, it could have reduced his exposure," Harvard professor Meselson said.
"He might have ended up sick, not dead".

Why are experts still doubtful?
The binary theory relies entirely on circumstantial evidence and it doesn't explain how the medics who treated Kim shortly after the attack escaped contamination, disarmament expert Zanders pointed out.
"People are assuming it is VX and then finding reasons for why certain anomalies exist," he said.

Forensic Architecture Joins Journalists to Depict Syria's Use of Chemical Weapons

By Hakim Bishara
Source: https://hyperallergic.com/519945/forensic-architecture-joins-journalists-to-depict-syrias-use-of-chemical-weapons/

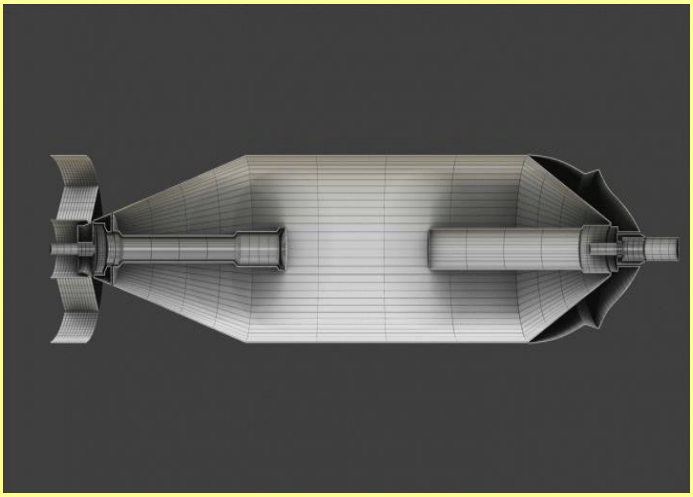
The scene of the chemical attack in Khan Sheikhoun. A crater in the center of the image was suspected to be that of a chemical bomb. (all images courtesy of Forensic Architecture)

Dec 04 - A chemical airstrike on the town of Khan Shaykhun in Idlib, Syria on April 4, 2017, killed over 80 people and injured hundreds. The attack, which dropped a bomb filled with the deadly nerve agent Sarin onto civilians, went down in history as the deadliest chemical

assault in the Syrian civil war since the Ghouta chemical attack in 2013. Harrowing images of dead children and writhing, asphyxiated victims prompted an immediate international outcry. The United Nations, the Organisation for the Prohibition of Chemical Weapons (OPCW), and the United States government accused the Bashar Al Assad regime in Syria of carrying out the charge, citing intelligence sources that monitored the movement of Syrian aircrafts on the day of the attack. The United States responded with a targeted airstrike on a Syrian airbase. But Syria, backed by Russia, has consistently denied responsibility for the strike, and world opinion remains split on the true culprit in the grisly attack.

Against this background, a recent study jointly conducted by the investigative journalism website Bellingcat and the London-based research group Forensic Architecture (FA) claims to have found concrete proof for Syria's direct hand in the attack. The incriminating evidence, they say, was inadvertently provided by Syria's ally, the Russian government.

Following the chemical attack and the Trump administration's response to it, Russia challenged the US to prove Assad's regime's role in the attacks. In November 2017, the Russian Foreign Ministry held a briefing in which it claimed that the assault could not have been conducted by Syrian forces. Russian officials claimed that the explosion, which left a large crater behind, was caused by a bomb that detonated at ground level and not by a Syrian airstrike. To make their case, the Russian officials presented drawings of chemical weapons previously held by the Syrian air force, claiming that there was no evidence they were used in Khan Shaykhun. These drawings, Bellingcat and FA say, ended up being the missing piece of evidence they needed to point a clear finger at the Syrian regime.

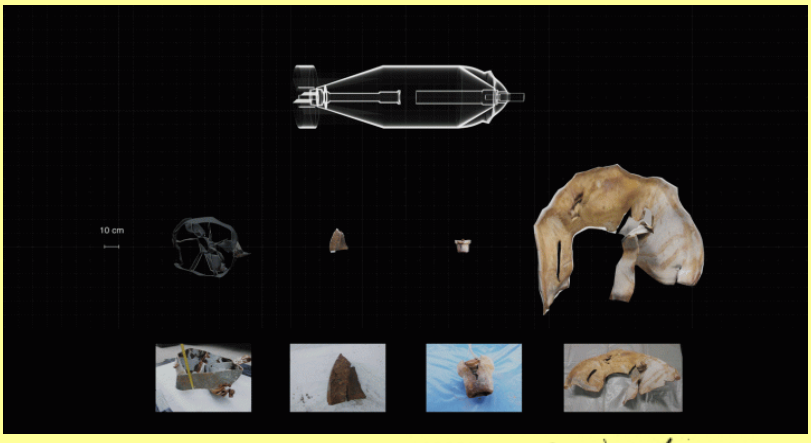


Forensic Architecture's model of the M4000 chemical bomb used by Assad's regime in Khan Shaykhun and Al Lataminah

Bellingcat's investigation relied on bomb fragments found at the bombing site in Khan Shaykhun, and others found in an earlier Sarin attack on the nearby town of Al Lataminah on March 30. The fragments were matched with the drawings presented by the Russian officials. The investigative website later collaborated with FA, which had previously conducted an analysis of the bombing site in Khan Shaykhun, and asked to use its advanced 3D rendering technologies to determine if the collected bomb debris may have originated from the type of weapons depicted in the drawings.

FA's renderings confirmed that the pieces found at both sites are parts of M4000 chemical bombs, which the Syrian regime had admitted to using in the past. A certain bomb filler cap found at both sites tipped the scale in the investigation. The filler cap, previously examined by the OPCW, was "uniquely consistent with Syrian chemical aerial bombs," according to the organization's investigation. Bellingcat and FA's work provided visual proof of that assertion based on renderings of the chemical bomb and their debris. "Such precise identification would not have been possible without the intervention of the Russian Foreign Ministry," says a video made by FA.

Eliot Higgins, Bellingcat's founder, has been avidly reporting on the chemical attacks in Syria since 2012. "The Khan Shaykhun attack was a very high-profile attack, but other attacks got no news coverage," he said in a phone conversation with Hyperallergic. "There were at least two other attacks in the same week in Al Lataminah — one where they found Sarin, and the other a Chlorine attack."



Four debris fragments collected from Al Lataminah were turned into three-dimensional models and recomposed inside a model of the M4000 bomb

A report released by the Global Public Policy Institute (GPPI) in February of this year recorded 300 chemical weapons attacks over the course of the Syrian civil war. It's a significantly higher number than what has commonly been known, the report says. According

to GPPI's report, about 98% of these attacks can be attributed to the Assad regime, while the rest may have been carried out by the Islamic State group.

Skeptics insist that the attack on Khan Shaykhun as a "false-flag operation" that was designed to frame the Assad regime. "What these people don't understand that this in the context of many more chemical attacks that aren't reported on," Higgins argued. "From the perspective of the Syrian government, most of the time they get away with attacks not even being reported," he added. "On the occasion when they get caught out, there are minimal consequences. They're using [chemical weapons] as part of their fighting strategy in a random pattern."

In August 2012 President Barack Obama famously threatened that his administration's "red line" with the Assad regime would be the use of chemical weapons. Obama never acted on his threat. Instead, the president reached an agreement with Russia and Syria in 2013 in which the Assad regime vowed to destroy its stockpile of chemical weapons within a year. But according to GPPI's report, roughly 90% of all confirmed attacks occurred after that promise. On September 26, Secretary of State Mike Pompeo deemed Syria responsible for another chlorine attack in May.

"About 95% of [these attacks] are chlorine attacks because they are low-casualty," Higgins added. "They largely get ignored until some video gets to Fox News and Donald Trump gets upset and sends some missiles over."

Hakim Bishara *is a staff writer for Hyperallergic and co-director of the artist-run gallery Soloway in Brooklyn, New York.*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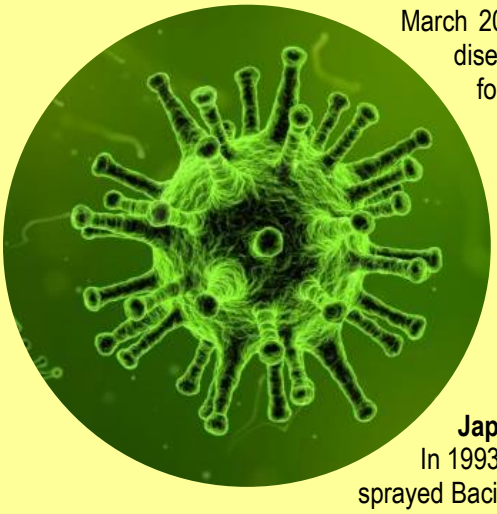
The 2020 Olympic Games in Japan and bioterrorism

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



March 2019 – In a mini-review published in "ADC Letters for infectious disease control", Eto A. and Kanatani Y. explain how Japan is preparing for a possible bioterrorist attack. The strategy to make Japan "the safest country in the world" is based on a **"Sakigake" pilot project** to promote the development of innovative drugs and other medical devices. The strengthening of medical countermeasures to fight the natural outbreak of epidemics also implies increased surveillance of bioterrorism and therefore the use of therapeutic or prophylactic agents against the germs of bioterrorism, which are more rarely encountered, and it is also an opportunity for us to make a clear distinction between a natural epidemic and an epidemic caused by a bioterrorist act.

Japan and bioterrorism

In 1993, eight years before the anthrax envelopes attacks in the United States, the Aum sect had sprayed Bacillus anthracis spores from the roof of a building in Kameido near Tokyo. Only the terrible smell had caught the attention of the residents. There were no victims and it was only in the early 2000s that environmental samples revealed the presence of the pathogenic strain. Twenty years have passed: large-scale bioterrorist attacks are rare and peacetime must therefore be used to develop medical countermeasures specifically for bioterrorism.

What is bioterrorism?

It is the intentional spread of biological agents (viruses, bacteria, fungi and toxins).
The characteristics of epidemics following bioterrorism are as follows:
+ contamination caused by a single exposure to biological agents can be detected in different places because of the latency period between the dispersion of the agent and the infection itself;
+ the disease declared can be different according to the individual's health status and in particular their immune status vis-à-vis the agent;
+ the number of patients can increase according to secondary infections;
+ the distinction between natural infection and infection due to bioterrorism can sometimes be very difficult to demonstrate;
+ there are sometimes prophylactic drugs and/or vaccines;
+ the risk of the appearance of germs with increased virulence (infectivity, antibiotic resistance…) by using new molecular biology tools is not zero (Crispr/Cas9).
All these points must be taken into account when strengthening medical countermeasures specific to bioterrorism.

Overview of medical countermeasures against bioterrorism

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

Responses

The usual monitoring of the occurrence of natural epidemics should be extended to the detection of bioterrorism. Detection is fundamental: the abnormal increase in suspicious cases is a warning sign: infections are very well monitored by practitioners who report the information to a specialized agency. When an outbreak is suspected, an epidemiological investigation is quickly initiated in order to identify the germ involved as quickly as possible. New

identification methods such as mass spectroscopy (TOF-MS) are also being tested. This rapid identification will allow prophylactic and/or curative measures to be implemented under the best possible conditions.

The challenges of counter-bioterrorism

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

Conclusions

As the 2020 Olympic Games are being prepared, bioterrorism is becoming more and more prominent. The social repercussions and disorders caused by such an event would be very significant. The use of medical countermeasures for infectious diseases would be able to mitigate their harmful consequences. Better public health monitoring and rapid and reliable diagnosis of the germs involved, including their resistance to antibiotics, must be developed in microbiology laboratories. The challenges of developing vaccines and drugs (antibacterials, antivirals…) for these rare events are very important.

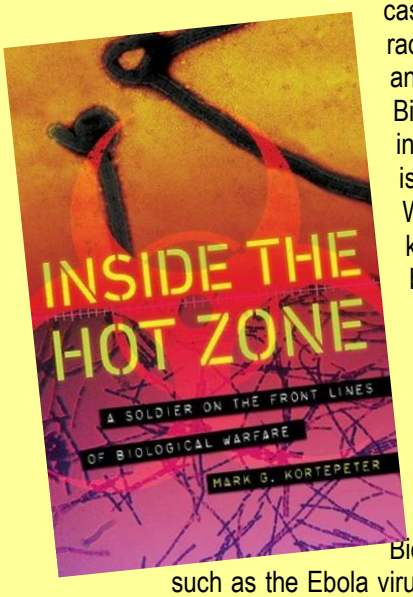
Reference

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

BOOK REVIEW: 'Inside the Hot Zone'

Source: https://www.washingtontimes.com/news/2019/nov/26/book-review-inside-the-hot-zone/

Nov 26 – The possible recourse by hostile states and terrorists to deploy weapons of mass destruction (WMD) in their warfare is considered the most catastrophic national security threat facing the United States and other countries around the world. In the worst-case scenarios, the deployment of WMD weapons in attacks, which consist of biological, chemical, radiological and nuclear devices, can cause tens of thousands of casualties and immense physical and economic damage.



Biological weapons, in particular, are horrifying because of their potential to quickly spread by infecting persons and communities so silently that detecting the presence of their early symptoms is problematic, making it difficult to contain infection.

While there are dozens of publications on the nature and impact of biological weapons, little is known about the medical scientists who bravely sacrifice their personal safety in examining these biological weapons-capable strains. In highly secure laboratories, they quickly respond to epidemic outbreaks when they occur anywhere around the world, and also attempt to discover and develop vaccine countermeasures.

In this insider account by Mark G. Kortepeter, a retired U.S. Army colonel and still-practicing physician, discusses his experiences from 1998 to 2009 as one of the country's leading biodefense experts. At that time, he served as deputy commander of the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) in Fort Detrick, Maryland, one of the most dangerous workplaces in the country.

Biologically-based infectious diseases are catastrophically lethal, the author writes, with outbreaks such as the Ebola virus, anthrax, or Zika virus — outbreaks caused by Mother Nature — even shaping the course of history and bringing down empires.

Attesting to the severity of the threat, the Ebola outbreaks in West Africa in 2014-16 and in the Congo, led to Ebola scares in the United States, as well. Dr. Kortepeter recounts these outbreaks in dramatic fashion, including his role in helping to protect U.S. forces in Iraq from bioweapons in March 2003, as well as his colleagues' roles in bringing their expertise to Liberia in mid-2014 to perform Ebola lab diagnostics for infected patients.

Among the thousands of possible microbes that could be employed as a bio-weapon, Dr. Kortepeter, who is also a professor at the University of Nebraska Medical Center, cites the Centers for Disease Control and Prevention's (CDC) listing of the six highest threats as

"Category A" agents, which he calls the "Chessmen of Doom." These include the Pawn (botulism), the Rook (tularemia), the Knight (Ebola), the Bishop (plague), the King (smallpox) and the Queen (anthrax).

Peptides in your skin could be key to fighting superbugs

Source: https://newatlas.com/medical/antimicrobial-peptides-skin-superbugs/

Dec 10 – One of the most alarmingly plausible (and often overlooked) doomsday scenarios is the rise of the superbug, bacteria that are resistant to antibiotics. But now, scientists have found a new potential treatment – and it was hiding in our skin the whole time.

Our bodies already do a pretty good job of fighting off dangerous bacteria. The immune system keeps a watchful eye out for invading pathogens, but it can't win every time. So, researchers at the Institute for Stem Cell Science and Regenerative Medicine (InStem) and Unilever have found a way to boost that immune activity.

The immune system fires up its defenses even before bacteria get inside the body. Skin cells produce molecules called **antimicrobial peptides (AMPs)**, which, as their name suggests, kill off microbes before they can cause illness. They work against bacteria, viruses, yeast and fungi, and best of all, these peptides are complex and target several different parts of the invaders, so it's harder for them to develop resistance.

The researchers on the new study investigated what regulates this process, and found a way to ramp it up. Normally, AMPs are produced when microbes come in contact with skin cells, and the team found that this occurs because of lower levels of **a protein called caspase-8**. The molecules also seem to play a role in speeding up wound healing. When they used molecular techniques to artificially lower caspase-8 levels, the researchers found that more AMPs were released from the skin cells. Taking control of this mechanism could lead to new drugs that prevent infections from taking hold, which is particularly useful for people with weakened immune systems.

This new potential weapon in our antibiotic arsenal may sound promising, but it's not without its own possible pitfalls. If bacteria are known for one thing, it's their ability to overcome obstacles we place in their path – after all, that's how we got ourselves into this superbug mess. Other scientists have warned that playing around with AMPs could just make them develop resistance to our natural immune defenses even faster. And that could be far worse than drug resistance.

But in order to prevent a possible future where 10 million people are killed by superbugs every year, it's important to explore all options. AMPs might end up being one tool of many at our disposal, and thankfully it's not the only one in development. Others include lights, gels, materials, other predatory microbes, and of course, new antibiotics.

Plague Was Around for Millennia Before Epidemics Took Hold – and the Way People Lived Might Be What Protected Them

Source: http://www.homelandsecuritynewswire.com/dr20191212-plague-was-around-for-millennia-before-epidemics-took-hold-and-the-way-people-lived-might-be-what-protected-them

Dec 12 – One of civilization's most prolific killers shadowed humans for thousands of years without their knowledge.

Sonja Eliason and Bridget Alex write in *The Conversation* that the bacteria *Yersinia pestis*, which causes the plague, is thought to be responsible for up to 200 million deaths across human history — more than twice the casualties of World War II.

The write:

> Scientists long assumed that the deadly disease began infecting humans just before the earliest epidemic, the Justinianic Plague.
>
> But recent paleogenetics research reveals that plague has been with us for millennia longer: Ancient DNA (aDNA) from the bacteria was recovered from human skeletons as old as 4,900 years. This means people were contracting and dying from plague at least 3,000 years before there's any archaeological or historical evidence for an epidemic.
>
> Why didn't these earlier infections lead to devastating outbreaks like the Black Death? It seems the answer is part biological — genetic mutations to the bacteria

itself — and part cultural — changes to human lifestyles that encouraged the spread of the disease.

They add:

> The harsh reality is that it's exceedingly difficult, if not impossible, to control a pathogen, its possible mutations or its next outbreak. But understanding how human behaviors affect the spread and virulence of a disease can inform preparations for the future.
>
> As a society, we can take organized measures to reduce the spread of infection, whether by limiting over-congestion, controlling food waste, or restricting access to contaminated areas. Human behaviors are just as critical to our disease susceptibility as are the characteristics of the pathogen itself.

Emergex Completes First Step in the Development of a Vaccine Candidate Against Intracellular Bacterium and Bioterrorist Agent *Francisella Tularensis*

Source: https://www.businesswire.com/news/home/20191212005042/en/Emergex-Completes-Step-Development-Vaccine-Candidate-Intracellular

Dec 12 – Emergex Vaccines Holding Limited ('Emergex'), a biotechnology company developing set-point vaccines to prevent serious infectious diseases Emergex Vaccines Holding Limited ('Emergex'), a biotechnology company developing population-based synthetic disease prophylaxis set-point vaccines in the field of infectious diseases, today announced it has successfully completed the first step in the development of a candidate vaccine for the Gram-negative intracellular coccobacillus, *Francisella tularensis*. Specifically, Emergex has successfully generated a 1st generation human specific MHC-Class I CD8 peptide ligandome library for *F. tularensis* for the most commonly occurring human alleles. The library contains encrypted peptide data to instruct the immune system to alter the initial set-point of response on first exposure and potentially reduce disease severity but still allow natural immunity to provide long term protection. Emergex vaccines, that are self-adjuvant, also potentially limit or eliminate allergic, autoimmune or antibody-mediated side effects of traditional vaccines.

This is the first time that Emergex's technology has been successfully applied in the creation of a bacterial vaccine candidate, a significant milestone, which will enable the growth of its pipeline and development of other intracellular bacterial vaccines in the future.

Emergex's technology has already been successfully used in the development of the Company's current vaccine candidates which includes viral vaccines for Dengue Fever and potentially other flaviviruses, pandemic and seasonal Influenza (flu) and filoviruses such as Ebola virus.

F. tularensis is a highly virulent bacterial pathogen and considered a potential bioterrorist agent and is categorized as a Tier 1 priority by the US government alongside *Bacillus anthracis* (Anthrax)[1]. Due to its low infectious dose and ease of spread, the bacterium is particularly well-suited to aerosol biowarfare attacks. Infection with *F. tularensis* is the cause of tularemia, which can be lethal without immediate treatment. As such, the impact of an outbreak could be devastating. Three cases have been reported in the United Kingdom in the last decade[2].

No approved vaccine for *F. tularensis* currently exists, though an experimental live attenuated vaccine is currently employed for emergency prophylactic use only, e.g. for managing potential exposures to personnel working in high-risk laboratories using the bacterium.

Professor Thomas Rademacher, CEO and co-founder of Emergex, commented, "This is the first proof of principle that our technology can be applied to intra-cellular bacteria, expanding our capabilities beyond our current pipeline of viral pathogens. The potential this holds for our development portfolio is significant and now provides us the option to explore other high priority bacteria pathogens – such as antibiotic-resistant 'super' gonorrhea which is an intracellular bacterial pathogen of rising concern."

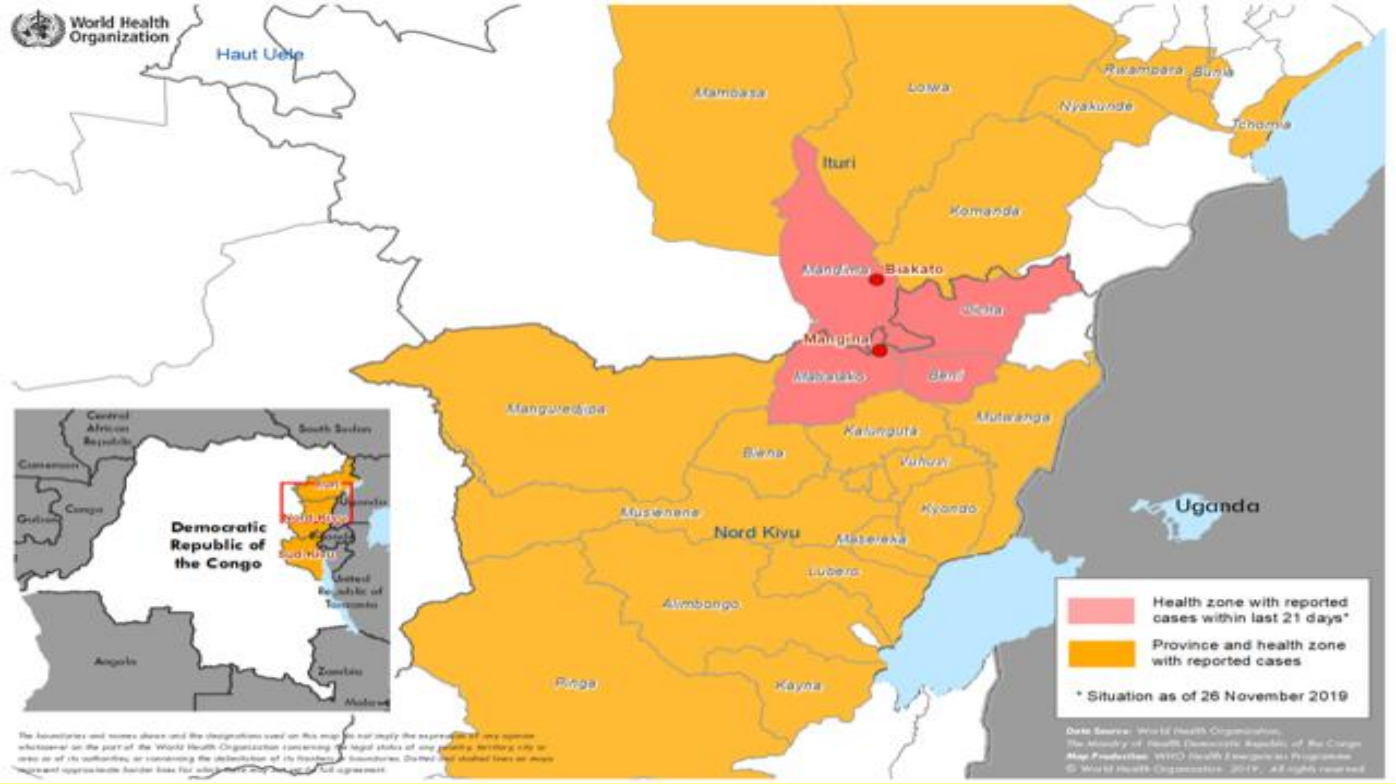
Attacks on Ebola Responders in the Democratic Republic of the Congo Kill Four

Source: https://www.hstoday.us/subject-matter-areas/emergency-preparedness/attacks-on-ebola-responders-in-the-democratic-republic-of-the-congo-kill-four/

Nov 30 - Two attacks in eastern Democratic Republic of the Congo (DRC) have killed 4 workers responding to the Ebola outbreak and injured 5 others.

The attacks occurred overnight on a shared living camp in Biakato Mines and an Ebola response coordination office in Mangina.

"We are heartbroken that people have died in the line of duty as they worked to save others," said Dr Tedros Adhanom Ghebreyesus, World Health Organization Director-General. "The world has lost brave professionals."



The dead include a member of a vaccination team, two drivers and a police officer. No WHO staff are among those killed; one staff member was injured.

"My heart goes out to the family and friends of the first responders killed in these attacks," said Dr Matshidiso Moeti, WHO Regional Director for Africa. "We are doing everything possible to bring the injured and front-line workers in the impacted areas to safety. These constant attacks must stop. We will continue to work with the DRC Government, partners and MONUSCO to ensure the security of our staff and other health workers."

In the last week, there were 7 cases of Ebola, down from a peak of over 120 per week in April 2019.

"Ebola was retreating. These attacks will give it force again, and more people will die as a consequence," said Dr Tedros. "It will be tragic to see more unnecessary suffering in communities that have already suffered so much. We call on everyone who has a role to play to end this cycle of violence."

Lessons Learned from Clinical Anthrax Drills: Evaluation of Knowledge and Preparedness for a Bioterrorist Threat in Israeli Emergency Departments

Annals of Emergency Medicine, 2006; 48:194-199.

By Avishay Goldberg, Y. Bar-dayan, Y. Bar-dayan, et al.

Israeli Defense Forces Home Front Command, Ramat-Gan; Israeli Defense Forces Medical Corps

Source:https://www.academia.edu/14739296/Lessons_Learned_From_Clinical_Anthrax_Drills_Evaluation_of_Knowledge_and_Preparedness_for_a_Bioterrorist_Threat_in_Israeli_Emergency_Departments?email_work_card=title

Study objective

Emergency department (ED) physicians and nurses are considered critical sentinelsof a bioterrorist attack. We designed a special hospital drill to test EDs' response to inhalationalanthrax and assess the level of preparedness for anthrax bioterrorism. We hypothesized that theoccurrence of such a drill in an ED would improve the knowledge of its physicians, even those whohad not actually participated in the drill.

Methods
We conducted 23 drills at all Israeli general hospitals' EDs. An actor entered the walk-intriage area, simulating a febrile patient with lower respiratory complaints. A chest radiograph withmediastinal widening, as can be seen in early anthrax disease, was planted in the hospital's imagingresults system. Patients were instructed to give additional epidemiologic clues, such as having a fewfriends with a similar syndrome. Either before or after the drills, we distributed multiple choice testsabout diagnosis and management of anthrax to the 115 senior emergency physicians at thesehospitals.
Results
In 91% of EDs, a decision to admit the patient was made. Sixty-one percent includedanthrax in the differential diagnosis and activated the appropriate protocols. Only 43% contacted allrelevant officials. Average score on the anthrax tests was 58 (of 100). Physicians who were testedbefore the drill (in their institution) achieved a mean score of 54.5, whereas those who were testedafter their ED had been exercised achieved a mean score of 59.3.
Conclusion
A national framework of drills on bioterrorism can help estimate and potentially augmentnational preparedness for bioterrorist threats. It is not, on its own, an effective educational tool. More emphasis should be given to formal accredited continuing medical education programs onbioterrorism, especially for emergency physicians and ED nurses, who will be in the front line of abioterrorist attack.

EDITOR'S COMMENT: You **MUST** read the analytic design of the drill that could serve as a prototype platform for conducting similar drills in your hospitals!

Global Measles Deaths Rise to 140,000; Young Kids Hit Hard

Source: http://www.homelandsecuritynewswire.com/dr20191206-global-measles-deaths-rise-to-140-000-young-kids-hit-hard

Dec 06 – **Last year 140,000 people worldwide died from complications of measles infections, compared to 110,000 measles deaths in 2017.** Most of measles-related deaths are in children under the age of 5. Growing measles outbreaks worldwide in 2018 and 2019 paint a picture of vaccination stagnation, the WHO and CDC said. Because measles is so contagious, 95 percent of the population must be immunized to prevent outbreaks. In 2018, the WHO said 86 percent of children globally received the first dose of measles vaccine through their country's routine vaccination services, and fewer than 70 percent received the second recommended dose.
Last year 140,000 people worldwide died from complications of measles infections, according to the latest data compiled by the World Health Organization (WHO) and the U.S. Centers for Disease Control and Prevention (CDC).
In 2017, the WHO tracked 110,000 measles deaths. Most of measles-related deaths are in children under the age of 5.
"The fact that any child dies from a vaccine-preventable disease like measles is frankly an outrage and a collective failure to protect the world's most vulnerable children," said Tedros Adhanom Ghebreysus, director-general of the WHO in a press release on the report. "To save lives, we must ensure everyone can benefit from vaccines—which means investing in immunization and quality health care as a right for all."
According to the CDC, 2018's numbers represent a 167 percent global increase in cases compared with 2016, and estimated global measles mortality has increased since 2017.
Five countries—the Democratic Republic of the Congo (DRC), Liberia, Madagascar, Somalia and Ukraine—accounted for almost half of all measles cases in 2018. Four European countries, Albania, Czech Republic, Greece, and the United Kingdom, lost measles elimination status in 2018 and 2019, after each country saw re-established transmission of the virus. And this year, the United States recorded the most measles cases in 25 years.
"The causes of the measles resurgence during 2017–2018 are multifactorial and vary by country. Large sustained outbreaks in a few countries with weak immunization systems accounted for most reported measles cases during this time," researchers from the CDC said today in *Morbidity and Mortality Weekly Report (MMWR)*. In countries like the UK and the United States, international travel has been linked to several recent outbreaks.

Measles Vaccination Efforts Stagnated
CIDRAP reports that growing measles outbreaks worldwide in 2018 and 2019 paint a picture of vaccination stagnation, the WHO and CDC said. Because measles is so contagious, 95 percent of the population must be immunized to prevent outbreaks. In 2018, the WHO said

86 percent of children globally received the first dose of measles vaccine through their country's routine vaccination services, and fewer than 70 percent received the second recommended dose.
Those numbers, though better than data from 2000, have been relatively consistent since 2010. In 2018, 61 percent of countries saw more than 90 percent of their population with at least one dose of measles vaccine, an increase from 86 countries in 2000, but a decrease from 126 countries in 2012 and 2013, the CDC said.
Since 2000, annual reported measles incidence decreased 66 percent, and annual estimated measles deaths decreased 73 percent, but measles incidence increased once again in 2016, 2017, and 2018.
CDC researchers estimate that 19.2 million infants worldwide did not receive the first dose of measles vaccine in 2018.
"The six countries with the most unvaccinated infants were Nigeria (2.4 million), India (2.3 million), Pakistan (1.4 million), Ethiopia (1.3 million), Indonesia (1.2 million), and the Philippines (0.7 million)," the authors said.
The data mean that goals of controlling measles by 2015, as defined by the World Health Assembly in 2010 as having more than 90 percent of the population vaccinated, have not been met. And the trend of more measles cases reported in the last 2 years suggests few countries may be able to meet the objective of eliminating measles from five of the WHO's six global regions in 2020.

Measles Deadlier than Ebola in DRC this year
In related news, the WHO announced today that 2.2 million children in North Kivu, DRC, the epicenter of an ongoing Ebola outbreak, will be vaccinated against measles in a 5-day campaign.
"While the Ebola outbreak in the DRC has won the world's attention and progress is being made in saving lives, we must not forget the other urgent health needs the country faces," said Matshidiso Moeti, MD, WHO's regional director for Africa. "This new vaccination campaign aims to protect children in North Kivu, as well as other parts of the country from a disease that is easily preventable with a vaccine."
Since the beginning of the year, the DRC has recorded more than 250,000 suspected cases and over 5,000 measles deaths mostly among children under 5 years. More people in the DRC have died from measles than Ebola this year.
The WHO said measles in the DRC is exacerbated by a highly mobile population, and a volatile region that prevents access to routine health care.

Smallpox Was Declared Eradicated 40 Years Ago This Month, but Worries Remain

Source: http://www.homelandsecuritynewswire.com/dr20191220-smallpox-was-declared-eradicated-40-years-ago-this-month-but-worries-remain

Dec 20 – Forty years ago – more precisely, on 9 December 1979 – the World Health Organization (WHO) declared that smallpox had been confirmed as eradicated. A few months later, the World Health Assembly (WHA) officially declared that "the world and all its peoples have won freedom from smallpox."

Yet, *Newsweek* reports, four decades later, two nations — the United States and the Russian Federation — keep stockpiles of the variola virus which causes smallpox.
Smallpox is an infectious and disfiguring viral disease which has been the scourge of different societies for thousands of years.Ssmallpox is estimated to have killed as many as 300 million people in the twentieth century alone.Smallpox "eradication is, arguably, one of the greatest achievements of our species and the greatest achievement of modern medicine," *Pandora Report* writes.
The existing smallpox specimens are kept under tight security at the U.S. Centers for Disease Control and Prevention (CDC) laboratory in Atlanta, and at Russia's State Research Centre of Virology and Biotechnology (Vector) in Novosibirsk, in Siberia. The two countries say that their decision to keep small stores of the virus is needed in order to complete of five important research goals: (1) More research in preparation for the disease reemerging; (2) Vaccine improvement;
(3) Development of new treatments; (4) Development of antivirals; and (5) Improvements in diagnostics methods.
WHO guidance notes that the stocks will be maintained until these goals are met, but there is disagreement among scientists about how far we have advanced toward meeting each of

the five goals. Last year, for example, the U.S. Food and Drug Administration (FDA) approved a new drug for smallpox treatment; but WHO's Advisory Committee on Variola Virus Research concluded that another antiviral treatment is needed.

Newsweek notes that **scientists and security experts raise questions about maintaining these stockpiles.** Amesh A. Adalja, a senior scholar at Johns Hopkins Center for Health Security, told *Newsweek* that there is always a possibility of the virus being released by accident or on purpose. As people are no longer vaccinated against smallpox, this could potentially spark a large and lethal epidemic or pandemic.

Adalja argues that the time has come to get rid of smallpox once and for all. "The virus should be destroyed," he said. "As time passes, the initial reason for keeping viable virus has less support."

"In 2019, we now have achieved most of those milestones so it has become increasingly unnecessary to keep viable virus, especially since its genetic sequence is known and the virus could be recreated if needed," he told Newsweek.

"Keeping the viable stocks and working with them could lead to laboratory accidents with resultant infection and spread. The stocks could also be misused or fall into the wrong hands and be used nefariously," Adalja said.

David Relman, professor of microbiology and immunology at Stanford University, told *Newsweek* that the stocks should be maintained in order to test the efficacy of new vaccines and drugs – especially in light of another danger: Relman said he is "much more worried about the re-synthesis of smallpox from chemicals in the library and re-booting the virus with methods that have now been published." If science-capable terrorists or a mad scientist do re-synthesize the smallpox virus, having available stocks of the virus will allow a quicker response to the new threat.

Grant McFadden, director of the Biodesign Center for Immunotherapy, Vaccines, and Virotherapy at Arizona State University, captures the ambivalence many scientists have when asked to opine about whether the stockpiles should be retained or destroyed: "A great deal has been achieved on the original research goals, but the argument that more remains to be done is hard to refute…It is important to have these debates about whether mankind should deliberately eliminate feared pathogens, or study them."