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CBRNE-Terrorism Newsletter

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WE have to be lucky all the time. THEY have to be lucky only once!



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Το US Department of Homeland Security και ο Environmental Protection Agency (EPA)...

ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΚΕΝΤΡΟ ΑΣΦΑΛΕΙΑΣ ΕΛΛΗΝΙΚΗΣ ΑΡΧΗΣ ΠΡΟΣΤΑΣΙΑΣ

Η επιδημιολογική ομάδα Ανοσοπροστασίας και Επικοινωνίας (EPI)...

ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΚΕΝΤΡΟ ΑΣΦΑΛΕΙΑΣ ΕΛΛΗΝΙΚΗΣ ΑΡΧΗΣ ΠΡΟΣΤΑΣΙΑΣ

Μιας επιδημίας εγγύς της να μεταδοθεί στην Ελλάδα...

ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΚΕΝΤΡΟ ΑΣΦΑΛΕΙΑΣ ΕΛΛΗΝΙΚΗΣ ΑΡΧΗΣ ΠΡΟΣΤΑΣΙΑΣ

Το US Nuclear Institute of Energy and Materials (NIEM)...



10 years



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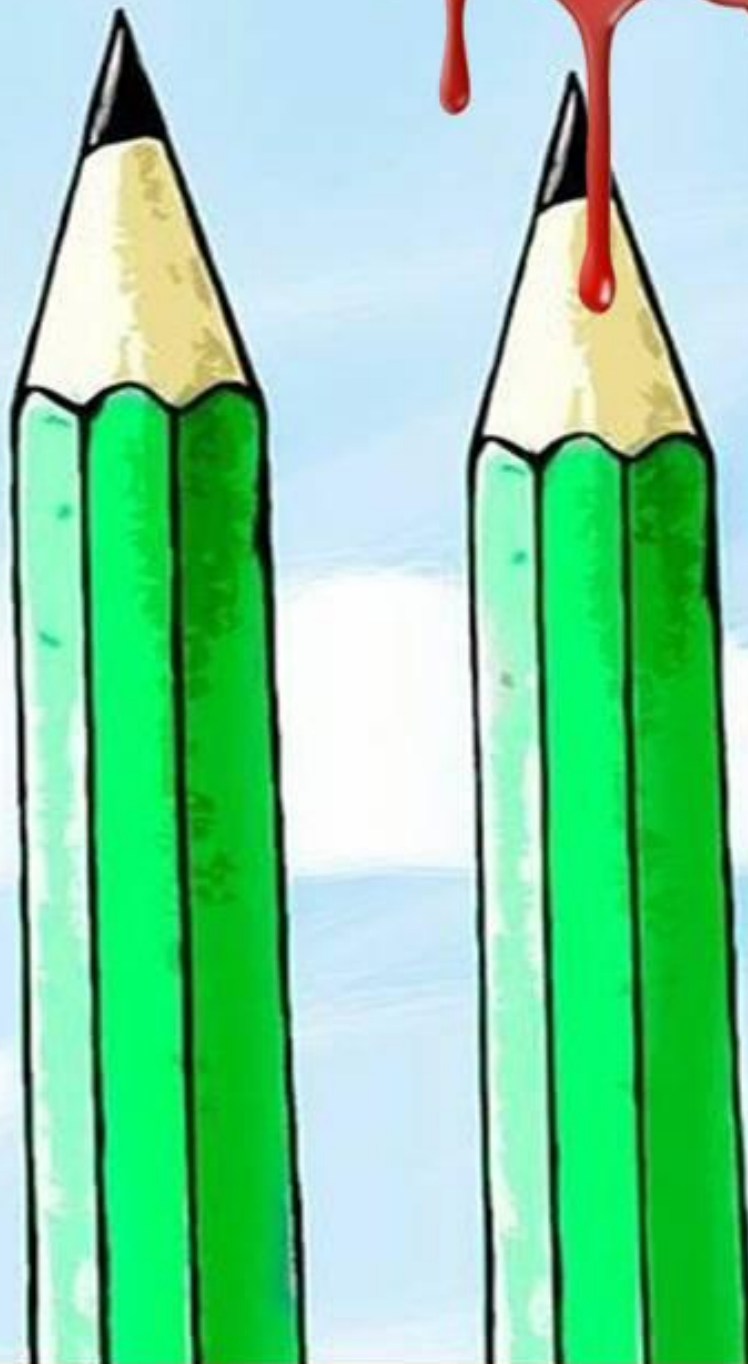


10 years

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E-Journal for CBRNE & CT First Responders

Charlie Helbo



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Editorial

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

Editor-in-Chief
CBRNE-Terrorism Newsletter

Dear Colleagues,

There is no doubt that the massacre at satirical magazine Charlie Hebdo was the highlight of the first month of 2015. Some already call it the "9-11 of France" – although the way the incident progressed was kind of a replica of Mumbai attacks (26-29 Nov 2008). Along with the people murdered, the biggest issue evolved was the reaction of the citizens in major capitals of Europe and internationally together with opposing reactions in the Muslim world.

Let us explore the background of this "anticipated" attack. Charlie Hebdo was a low circulation satirical magazine (but not anymore), making fun of various religions, politicians, daily problems etc. And despite the fact that many of its cartoons were insulting of the religious beliefs of Western world, there was no violent reaction despite some "sofa" criticism – mainly because this is the way we react in the name of democracy or because globalization turned people to soulless creatures having nothing to fight for. Occasionally we scream or march in demonstrations to discover that governments will eventually do what they have planned to do no matter what. Modern democracy has been mutated and we are now starting to realize it. For us religion is a natural add-on to our identity and we do not have to show it out in the open. We might go to a church every Sunday; we might go to church only during Easter and/or Christmas' holly days. We do not strictly enforce the "ten commands" and we try to live our lives or survive (those of us that are not fortunate enough to be born in countries that have rules and follow them) in very hostile peaceful environments. This attitude does not make us bad Christians though!

On the other hand, Islam is not only a religion but also a way of life. Those who have visited Muslim countries I am sure understand this very clearly. Religion is present on daily basis and the way all aspects of life are going on are based on religious commands and directives. From food and drinks to personal relationships and appearance there is a related *surah* or *ayat* in the Quran on what is allowed and what is forbidden. Visitors or expats are obliged to follow the rules or suffer the penalties. And visitors either because of fear or respect to the hosting country do that. In the Muslim world the figure of Muhammad is taboo and people are very sensitive (to the extremes) to any kind of criticism or satire. This does not make them bad Muslims though!

Freedom of expression is also different between these worlds and this is another problem. There are almost no limits on Western mass media and Internet; but there is legislation for those crossing non existing limits. In the Muslim world there are concrete limits and punishments are occasionally brutal (recent case in S Arabia with a blogger to be whipped for months).

Based on the above what came vividly into surface in the aftermath of the French incident and many more similar events published almost on daily basis in the Western media is the fact that the majority of Muslim populations living in Western countries want to implement their way of life over that of the hosting country. They do not incorporate/socialize with local people; they refuse to learn the language; they stick to sharia instead of local laws and they follow the dressing code of their countries – just to name a few of friction issues leading to isolation supporting anti-social behaviors. Of course it would be totally stupid to put all people in one basket. Muslim, Christian, Jews extremists do not represent Muslims, Christians and Jews and our reaction should be focused on them. Easy to say but very difficult to apply pure logic to daily life! So far societies have been extremely "diplomatic" and "flexible" and this results to suppression of



what they really feel about the family or persons next door. Muslims might want to conquer the planet; French or Belgians or Greek might want to be left alone and live their lives only among their own. And this is where the multicultural experiment failed dearly. It was proven that multiculturalism does not work in most of the cases. Once we realize that, most of the problems would be addressed on a more logical and practical way.

You might have already noticed that I made no reference to politics and geostrategic games that really cause all these problems. It is because we do not really know what they are aiming for and secondly because I am focusing on the people and their reactions. Millions protested in France; all the famous people thought it was their "duty" to "Je suis Charlie"; world leaders participated in the front row of demonstrators (but not the US President); others participated but in their homelands accused the magazine for supporting hatred and racism while accusing another leader for killing innocent civilians (Turkish PM). This global turmoil generates also some questions about the human nature itself. No demonstrations worldwide for the decapitated bodies found in Mexico; for the women and children upducted by Boko Haram or Islamic State (or "Daesh" in order to be politically correct...); for homosexuals thrown to death from high buildings or opponents crucified or decapitated (unless they are Westerners); for hundrends of Syrian refuges packed in huge camps lacking basic facilities or for atrocities against civilians in Ukraine. No demonstrations worldwide for lack of water, food or sewage in many African countries; for children starving to death or for better housing and decent food. I am not sure if the world "hypocrisy" is strong enough to describe current peoples' behavior but I strongly believe it is time to start being honest with each other and start talking about things that we like and those we do not like.



"Dedicated to the people of the nose of the pencil murdered by the people of the eraser"

Greek cartoonist Andreas Petroulakis

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What will come up next? Most probably many attacks will follow – either original or copycats. In many countries the military is now visible in the roads (e.g. France, Belgium, Cyprus) while other are thinking about it. Many terrorist plots are already revealed and in certain

countries anti-Muslim behavior has been recorded (e.g. France, Sweden). Add to the above the imminent threat of those who travelled to Syria and Iraq in support of Islamic State and eventually will come back home and you end up in with an explosive mixture waiting for a match to detonate. And if the Charlie Hebdo blood shedding was a wake-up call for "sleeping Europe" what if a CRE incident happens in urban environment? There are already reports of scenarios with dirty bombs, dirty suitcases or backpacks. Not to mention abandoned deadly chemical warfare agents currently in the hands of the most brutal terrorist pack this planet has ever laid eyes on. Was 9/11, 7/7, 26/11, 11-M the worst they can do? Are we going to experience more horrific beyond imagination massive disasters? Are we prepared enough for the really "worst case scenario"?

In West Africa, Ebola continues to march although there are visible signs that it slowed its pace. Vaccine research speeds up and most probably withing 2015 a vaccine (or an antiviral drug) in sufficient quantities will be available for public use. The urge to solve big problems under pressure should be a topic for a very interesting scientific thesis where the researcher would have to analyse why we never do things unless they become threats.



In the middle of all this mess, in Greece we are preparing for national elections (Jan 25th). Perhaps this is why our reaction to Charlie Hebdo was kind of slack – our PM participated in the impressive Paris demonstration; our cartoonists shared their genius work and some people gathered outside the French Institute in Athens in a symbolic protest.

Because "elections" is a "huge" event! Not for the people; just for the politicians who are trying to survive and maintain their chairs or get the chairs of others. Since Jan 2015 issue has been uploaded on the very same day of elections I am not aware if we are going to have a "right" or "left" (for the first time ever) government. I am not sure and I cannot guess what the Jan 26th will bring to Greece and Greeks. My problem right now is to decide about my role in our democracy. A role lasting 10 seconds and is repeated from time to time in order to reassure me that I live in a democratic country and renew my ability to be proud of Greece "who gave democracy to the barbaric world". If one could ever weaponize our "anger" and "desperation" in a single cell then WMDs would look like children's toys! It is amazing to see a bunch of people who have never worked a single day into their lives to require our votes along with a blank check to rule our lives and future. Our apathy is equally amazing and this provides the grounds for weeds to conquer the world. It seems that we do deserve the governors we have and we, the people, are solely responsible for the things to follow. This makes us bad Greeks!

In the last days of December 2014 we also experienced a naval tragedy with the massive fire on board the ferry *Norman Atlantic* somewhere between Ionian Sea and Adriatic Sea. Lives were lost in an angry sea environment and two neighboring countries (Italy [in charge]; Greece [supporting]) were not able to synchronize during the huge rescue operation that followed. The exact number of dead is still unknown and the stories from those rescued are simply scary. Let us only hope that "problems identified" will eventually become "lessons learned". There was no cataclysm when Noah constructed the Ark! Remember?

Also keep in mind that 2015 is the last year before the Rio 2016 Olympic Games! Only eleven months have been left to finish projects (and 6 months to check them in 2016) related to just another "Security Olympiad" and despite my efforts to fish related articles on the Internet not so many are available. I do know that secrecy is part of the process but it is good to know that certain issues have been taken care of. What continues to worry me is the CBRNE preparedness for the health sector – especially that of major hospitals. I sincerely hope that many things have already changed since September 2013 when I visited this great nation and addressed certain issues in front of major stakeholders.

Despite the above, January is a very exciting month for the Editor since he will start delivering classes at the University of Rome "Tor Vergata" for their "International CBRNE Master Courses". It would be nice to transfer knowledge and expertise to young colleagues interested in new emerging threats and measures to counter them.

Because (as I repeat myself again and again) the unexpected always happens and we live into dubious times.



My wish for the months to follow is for logic to prevail and all of us to do our best to preserve our world from stupidity, violence and useless sacrifices that poison our own existence and being.

The Editor-in-Chief



The reality is changing – US Army builds a UAS only airport in Texas

Source: <http://i-hls.com/2014/12/reality-changing-us-army-builds-uas-airport-texas/>



An airport designed for **only two kinds of UAS** is set to be built in the US State of Texas. At \$33 million cost, the project demonstrates America's unprecedented drive toward the use of **unmanned aerial systems**.

A 150-acre UAS launch and recovery complex, which will be "fenced and secured," is to be built only for two drones – 'Gray Eagle' and 'Shadow' – at Fort Bliss, the *Defense Systems* website reported. The contract was awarded by the Fort Worth Corps of Engineers to Oklahoma-based company SGS LLC.

According to *RT*, the airport will include a **50,000-square-foot hangar** with maintenance shops, administrative and storage spaces, as well as over a mile of runways, aprons and taxiways, according to the company's announcement.

The US giant UAS, the Gray Eagle, will be provided with a 5,000-foot runway, while the smaller Shadow will have a 1,000-foot takeoff strip. The facilities will also include a 5-ton bridge crane, oil and hazardous waste storage buildings, organizational vehicle parking and overhead protection.

According to the Army, all operations will take place in restricted airspace.

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FAA would allow four private companies to operate drones in U.S. airspace

Source: <http://i-hls.com/2014/12/faa-allow-four-private-companies-operate-drones-u-s-airspace/>

The Federal Aviation Administration (FAA) announced that it would allow four private companies – Trimble Navigation, VDOS Global, Clayco Inc., and Woolpert Inc. – to operate drones in U.S. airspace.

The drones will be used to survey land, inspect remote oil rigs, perform agricultural and environmental research, monitor construction projects, and collect geographical data. In their requests to be exempt from the ban on private and commercial drone usage, the



companies agreed only to fly drones weighing less than fifty-five pounds and to keep them in sight at all times.

The FAA has banned most drone flights as they pose a risk to the safety of manned aircrafts, and in some cases to privacy. Airline Pilots Association International, a pilot union, has warned the FAA that commercial use of drones in densely populated regions could be a risk to air travel.

Privacy advocates are worried that private citizens could be targets of illegal surveillance.

According to *HomeLand Security News wire*, many individuals and companies continue to fly drones until they receive an order from law enforcement or regulators to cease drone operations.



FBI releases 2013 hate crime statistics

Source: <http://i-hls.com/2014/12/fbi-releases-2013-hate-crime-statistics/>

The FBI released Hate Crime Statistics 2013, the Uniform Crime Reporting (UCR) Program's first publication to present data collected under the Matthew Shepard and James Byrd, Jr. Hate Crime Prevention Act of 2009. Accordingly, the bias categories of gender (male and female) and gender identity (transgender and gender nonconforming) have been added to the other bias categories of race, religion, disability, sexual orientation, and ethnicity.

According to *Government Security News*, other new aspects of the report include the presentation of age categories to indicate whether hate crimes were committed by or directed toward juveniles.

Hate Crime Statistics 2013 includes data about the offenses, victims, offenders, and locations of the bias-motivated incidents reported by law enforcement agencies throughout the nation.

Highlights of Hate Crime Statistics 2013

- Law enforcement agencies reported 5,928 criminal incidents involving 6,933 offenses as being motivated by a bias toward a particular race, gender, gender identity, religion, disability, sexual orientation, or ethnicity in 2013.
- There were 5,922 single-bias incidents involving 7,230 victims, compared with 7,164 victims of hate crimes nationwide in 2012. A percent distribution of victims by bias type showed that 48.5% of victims were targeted because of the offenders' racial bias, 20.8% were victimized because of the offenders' sexual-orientation bias, 17.4% were targeted because of the offenders' religious bias, and 11.1% were victimized due to ethnicity bias. Victims targeted because of the offenders' bias against disabilities accounted for 1.4% of victims of single-bias incidents; gender identity, 0.5%; and gender, 0.3%. There were six multiple-bias hate crime incidents involving 12 victims.
- Of the 4,430 hate crime offenses classified as crimes against persons in 2013, intimidation accounted for 43.5%, simple assault accounted for 38.8%, and aggravated assault for 16.6%. Five murders and 21 rapes were reported as hate crimes.

The PLA's Special Forces: secrets revealed

Source: <http://www.wantchinatimes.com/news-subclass-cnt.aspx?id=20141219000062&cid=1101>

China's state media has recently confirmed that the People's Liberation Army, the largest military force in the world, has 10 major special operations forces, each with its own unique characteristics and code names.

The 10 special force teams hail from each of the PLA's seven military regions and commando teams from the PLA Navy, Air

Force and Chinese People's Armed Police Forces:

"Siberian Tiger" is the name of the special forces from the PLA's Shenyang Military Region, capable of completing



missions on the ground and in the air and water, as well as surviving in the wilderness alone or in small groups. The unit is said to place special focus on survival skills, often breaking protocols by increasing this training in this area by an additional two-thirds, forcing soldiers to spend three to four months in difficult environments such as forests, mountains, deserts and grasslands with no man-made shelter or food. Soldiers in the squad are trained across multiple transport vehicles for roads, railroads, waterways and in the air, and have reportedly completed completed parachute landings more than 5,000 times and logged scuba diving trainings at more than 1,000 hours.

"Arrow," formerly known as "Divine Sword," is the special forces of the Beijing Military Region. This elite unit tasked with protecting the capital contains 3,000 soldiers, each of whom is adept at a wide range of tasks ranging from battlefield reconnaissance to anti-terrorism. Every soldier from this unit must be able to run five kilometers bearing heavy equipment in under 25 minutes, complete a 400-meter obstacle course in under one minute and 45 seconds, throw several hundred grenades over at least 50 meters each time, and perform 100 push-ups in a minute.

The special forces of the Lanzhou Military Region is the **"Night Tiger,"** which has a long and illustrious history with its origins dating back to World War II. It is also home of China's first counter-terrorism unit, established in 2000. Established in 1992, the **"Flying Dragon"** is the special forces of the Nanjing Military Region, focusing on non-traditional safety

training methods. In 1997, this unit carried out a famous simulated attack on a hidden airfield involving drones, helicopters and paratroopers.

"South Blade" is belongs to the Guangzhou Military Region. Founded in 1988, it is the earliest of the PLA's official special operations forces. Basic training for this unit include cross-country running, climbing, swimming and shooting, though soldiers must also be familiar with operating 15 advanced technologies including GPS navigation, night vision, and photo reconnaissance.

The **"Eagle"** is the special operations force of the Jinan Military Region and is a new unit adept at land, air and sea battle and reconnaissance. Soldiers are said to focus on upper body strength training to enhance cardiovascular endurance, including being able to run at least 3,300 meters in under 12 minutes. They also reportedly engage in hand-to-hand combat training as well as the traditional Chinese health and martial arts practice of qigong.

The mysterious **"Falcon"** is part of the Chengdu Military Region. This unit is said to specialize in thrilling and dangerous missions involving involving car chases, scaling cliffs, and hostage rescue situations.

The PLA Navy's commando team is the "Jiaolong," which means **"Sea Dragon."** Equipped with black uniforms, this unit's first publicly known mission was to accompany three Chinese warships in protecting and escorting commercial ships against Somali pirates in December 2008, in cooperation with other nations as part of a UN mandate. Since then, the unit has participated in anti-piracy missions in the Gulf of Eden for over 300 days.

The **"Leishen" or "Thor"** commando team belongs to the PLA Air Force. Officially established in September 2011, this unit reportedly carries out training with four types of aircraft, eight types of parachutes and 15 parachuting methods to prepare soldiers for a wide range of battle and reconnaissance scenarios.





The Chinese People's Armed Police Forces have two commando teams, the "Snow Leopard" and the "Falcon." Since its establishment in December 2002, Snow Leopard has completed more than 90 missions and has participated in major military exercises and performances over 10 times. In

the last two years, Snow Leopard soldiers have taken home the top prize at the annual International Warrior Competition, beating out special forces squads from 17 other countries including the US, Russia and France. The Falcon commando squad has a history dating back to 1982 and has been involved in a wide range of important activities, such as providing protection detail for visiting heads of state as well as safeguarding key events such as the 2008 Beijing Olympics.



Sony will release 'The Interview' at limited number of theaters on Christmas

Source: <http://money.cnn.com/2014/12/23/media/screening-the-interview/index.html>

Despite threats from hackers, Sony Pictures is making the controversial Seth Rogen comedy available at a limited number of theaters starting on Christmas.

The movie studio's CEO, Michael Lynton, said Tuesday afternoon that "while we hope this is only the first step of the film's release, we are proud to make it available to the public and to have stood up to those who attempted to suppress free speech."

By Tuesday evening, slightly more than 200 independently-owned theaters had agreed to show the film.

More might still get on board: one Sony source said the studio is "still counting" the total number, and that it could end up "around 300." None of the big theater chains, like AMC or Regal, have said they'll support the Christmas release yet.

Those chains could choose to show "The Interview" in the coming weeks, but some of them are objecting to Sony's plans to make the movie available through a video-on-demand or streaming video service.





Lynton hinted at that possibility in his statement, saying, "We are continuing our efforts to secure more platforms and more theaters so that this movie reaches the largest possible audience."

The independent theater release plan comes almost a week after Sony originally canceled the Christmas release of "The Interview" in up to 3,000 theaters. Backlash to the decision was fierce, including from President Obama, who



No companies have publicly agreed to help Sony stream the movie online, and discussions were still ongoing on Tuesday night. A streaming deal may be announced on Wednesday, another person close to Sony said.

said the movie studio had made a mistake. On Tuesday, a White House spokesman said "the president applauds Sony's decision to authorize screenings of the film."



"As the president made clear, we're a country that believes in free speech and the right of artistic expression," the spokesman added. In light of concerns about security at theaters, an FBI official said "we are fully engaged with Sony on the decision" to release the movie. The owner of one independent theater said he had no concerns about security. "If we thought that this was a danger to our audience, we wouldn't show the film," Paul Brown, owner of the Terrace Theater in Charleston, South Carolina, told CNN's Brooke Baldwin. Brown said he saw financial upside for his theater thanks to all the public interest.

same anonymous hackers that had apparently hacked into Sony. There was an immediate backlash to the cancellation of the film. The same day President Obama, said Sony had "made a mistake," the studio started looking for new ways to distribute the film in some fashion. With each passing day, more people -- including writers, independent theater owners and members of Congress -- spoke out. A petition titled "We the undersigned support Sony" started to pick up steam on Monday on the web site Change.org. It was published by Art House Convergence, an association of independent theaters across the country.



Star of the movie celebrates 'victory'

A few minutes after the studio chief's statement, Rogen tweeted: "The people have spoken! Freedom has prevailed! Sony didn't give up! The Interview will be shown at theaters willing to play it on Xmas day!" On Instagram, co-star James Franco called it a "victory" and said "the people and the president have spoken." "The Interview" is about an assassination plot against the North Korean dictator Kim Jong-Un. It is widely believed that Sony Pictures suffered a cyberattack last month partly due to North Korea's fury over the movie. Sony, for its part, says it had little choice but to cancel the release last week after major theater chains like AMC and Regal backed out of plans to put it on their screens, citing threats from the

'The best Christmas gift...'

Some of those same theaters are now on board for the limited release on Christmas. One of the members of the association, Alamo Drafthouse CEO Tim League, said in a statement that "this is the best Christmas gift anyone could give us." He added, "We, both distributors and exhibitors, have collectively stood firm to our principles and for the right to freedom of expression. Two days til Christmas, and I am proud to be an American." Michael Furlinger, the president of the Plaza Theater in Atlanta, said he received an email at about 11 p.m. Monday saying a Christmas release was in the works.



He initially thought it was a prank -- or even possibly another hack. But a followup phone call confirmed its legitimacy.

Asked by CNN's Suzanne Malveaux if people are skittish about seeing the movie, Furlinger said "half of 1 percent are skittish and the rest seem very enthusiastic."

"I think it's almost that they want to do their civic duty to come see this picture, because it's about never having censorship when it comes to films, books," he said.

Before Sony's announcement on Tuesday, that same sentiment had been widespread on social media among people who wanted to see

the movie in order to make a statement. A growing number of organizations and politicians had offered to hold free screenings. On Monday, Congressman Brad Sherman, a Democrat from California, told Sony he wants to hold a screening on Capitol Hill.

According to a new CNN/ORC poll, conducted December 18 through 21 and released on Tuesday, 36% of Americans think Sony made the right decision by canceling the movie last week, while 62% thought it was an overreaction. Men were about 20 percentage points more likely than women to call it an overreaction.

Top 10 Mobile Trends for Law Enforcement

Source: <http://www.emergencymgmt.com/safety/Top-10-Mobile-Trends-Law-Enforcement.html>

Mobile communication is the lifeblood of law enforcement, from the public safety radio system to connected laptops in vehicles and a new generation of Internet-connected mobile devices. From drones to flexible adaptive computing solutions, *these are the top 10 trends you need to be prepared for:*



1. Hyper-networked Cars & People

The rise of networked public safety devices and applications is leading to new demands in how public safety personnel connect to the Internet. These new devices and applications have begun to force a shift from traditional means of connectivity, such as wireless pass-through, to the centralized networking solutions such as the 'car-as-a-platform' or officer hotspots that enables multiple device connectivity. A

single access point simplifies the

connectivity issues commonly experienced through multiple paths and provides a safer and more seamless user experience for the in-field officers.



2. Adaptive Mobile Computing

As technology continues to enhance many aspects of a police officer's day-to-day responsibilities and there is a growing trend of agencies moving from portable solutions to truly adaptive mobile solutions such as the R12 from Motion Computing (Pictured Above). Adaptive mobile solutions consolidate the amount of devices an officer must carry into a single device that can be easily used in their car, office & home. This added flexibility

enables public safety agencies the ability to offer officers a greater degree of choice in how they use their computing devices, which equates to more efficiency, accuracy and safety.



3. Wearable Situational Awareness



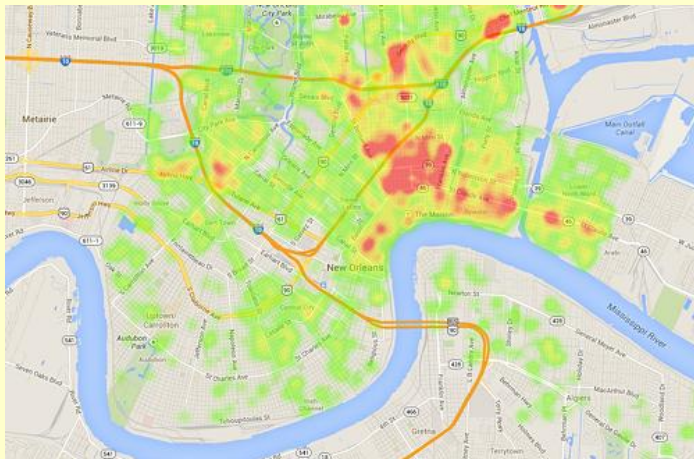
Wearable devices have already taken root with early adopting consumers, but Apple’s recent entry into the wearables market will drive wearables into much larger market segments. In addition, you will begin to see new demands and enterprise use-cases through the rise of consumer adoption. Wearables in public safety will begin to evolve from recording devices to wearable heads-up display (HUD) that provide an extra layer of situational awareness for officers.



4. Everything-as-a-Sensor

All mobile devices leverage some form of environmental sensors internally, such as an accelerometer, thermometer & ambient light sensors, to improve user experience and overall device performance. There is a new shift to third-party applications and software programs using these environmental sensors for other purposes, such as identifying potholes through your accelerometer as you drive. This trend means that we are all becoming

walking sensors to a great more complex network through our tablets, phones & other connected devices.



5. Predictive & Contextual Policing

The rise of Big Data has created a new demand to understand and interpret massive amounts of data. There has been a shift from historical data interpretation to more predictive methods that leverage machine learning and artificial intelligence technologies. This has led to a concept of predictive policing,



which is the pre-positioning of public safety resources in city hotspots based on their probability of crime reoccurred. Moving forward, the combining of real-time social media events and historical data will provide the optimal foundation for predictive analysis of crimes, criminal networks and much more.

6. Unbundled Law Enforcement Apps and Software

Unbundling started as a consumer trend, most recognized in applications such as Facebook & Facebook Messenger, to take a suite of applications and unbundle them into separate distinct units. For example, if you separated the different applications of Microsoft Office and allowed users just to purchase Microsoft Outlook, this would be an example of enterprise unbundling. This trend has worked its way into public safety application vendors as an increasing number of law enforcement agencies are looking for ways to reduce cost and increase efficiency. In addition, unbundling provides agencies a significant benefit of only paying for the solutions they need.



7. Augmented User Experiences (UX)



When virtual reality technologies first hit the market in the late 1980s, they were \$78,000 high-end video gaming systems, but today for \$350 you can purchase a development kit to one of the most advanced systems commercially available. Virtual reality technologies provide new ways law enforcement to experience and interact with life like situations for routine training, hostage negotiations and any other situation that can be ported to a simulator. The emerging uses for virtual reality technologies are endless, and you will soon begin to see them embedded



in bomb diffusing robots, drones & other robotic elements to enable officers to have full visual and situational awareness of what the robot is experiencing.

8. Evolving User Interfaces (UI)

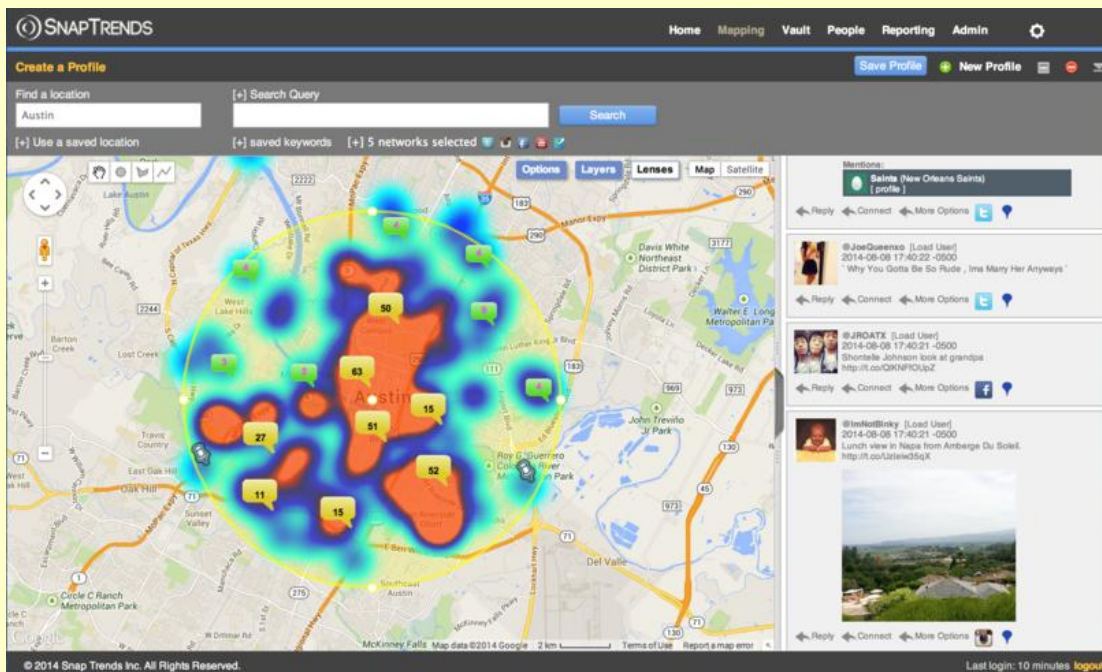
The way we access and interact with information has evolved significantly since the advent of the personal computer. We have gone from keyboard, to mouse, to trackpad, to simple voice inputs, to augmented systems (Leap Motion, Kinect), to the latest upcoming trends: predictive user experiences and eye-tracking technologies.



From keyboard, to mouse, to trackpad, to simple voice inputs, to augmented systems (Leap Motion, Kinect), to the latest upcoming trends: predictive user experiences and eye-tracking technologies. Predictive user experiences leverage artificial intelligence components to predict what information you may be interested in asking before you ask. Eye-tracking technologies track your eye movements as a form of user input. These two technologies have major implications when paired together. Imagine being prompted with a computer-aided dispatch to

check welfare based on not where you currently are, but where you decided to eat lunch with another officer (it knows this since it has access to your messages). As you read the dispatch, the computer automatically scrolls through the messages and closes when it determines you have read the message completely through the use of eye-tracking. These emerging interaction technologies will provide smarter and more efficient ways to interact with data in the future.

9. Real-time Social Listening & Sentiment Awareness



Social listening technologies analyze and interpret public social media conversations that are taking place online. Most of these interactions can be tied to a specific geographic location depending on the user's privacy settings. Sentiment analysis is often applied on



top of these analytics to determine the emotion behind individual reactions online. These technologies are very common in large companies who wish to better understand their customers (and their complaints), but many law enforcement agencies have begun to analyze social data to have a greater understanding of their communities. Social listening technologies can provide a real-time pulse of what is taking place in a community and become an invaluable resource for citizen engagement and disaster management applications.

10. Rise of IoT Devices



Formerly discrete communications systems and devices are coming together with the rise of Internet-of-Things (IoT) devices and peripherals. IoT has become the market descriptor of the rise of networked devices that are connected to the Internet. Drones, police cars, tablets, cell phones, printers and now even refrigerators are outfitted with Wi-Fi chipsets that enable them to connect to a larger network. The interconnectivity of these devices will enable smarter streets, buildings and cities because these devices will be able to 'talk' to each other by sharing a common backbone.

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The surprising duo behind the Hamas missile map

Source: <http://www.israel21c.org/headlines/the-surprising-duo-behind-the-hamas-missile-map/>

A new computer tool showing the trajectory of Hamas rockets fired at Israel from Gaza is not only getting traction on social media, but constitutes an example of Jewish-Arab public diplomacy coexistence in action.

The brainchild of 18-year-old Samuel Lespes Cardillo and 22-year-old Farid el-Nasire, the program – “Israel Under Attack” – is a map of incoming red alerts, showing both their target in Israel and their point of origin.

Cardillo is a Jew from Belgium who immigrated to Israel six months ago. El-Nasire is a pro-Israel Muslim from the Netherlands, whose family is originally from Morocco. The two met on Facebook, in a group called Innovation Israel, a mere week before launching the tool on the morning of July 20.

Realizing through chats that they shared a similar idea for faster and more precise Red Alerts, they collaborated via Skype and phone between Hoom and Herzliya, spending what Cardillo described to ISRAEL21c as “many white nights” to get the tool ready and up and running as quickly as possible for the safety of the Israeli public.

Unlike the Red Alert audio app for smartphones, which shows the area a rocket or missile is headed and warns the residents of that area to take cover in a shelter or safe room, **Israel Under Attack enables users to visualize the process, from launch to interception or hit. It also indicates, with a digital clock, how many hours, minutes and seconds it has been “since Israel was targeted by Hamas rockets.” When there is an actual alert, it makes a deep and startling twanging sound.**

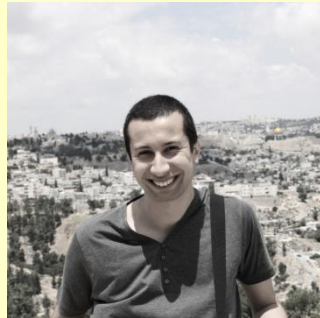


It's not rocket science

It all began a few days ago, when el-Nasire asked the Facebook group where he could get the Red Alert information; simultaneously, Cardillo posed the same question. Another member of the group responded by posting a link to the Home Front Command (Pikud HaOref) site.



Teenager Samuel Cardillo



Farid el-Nasire

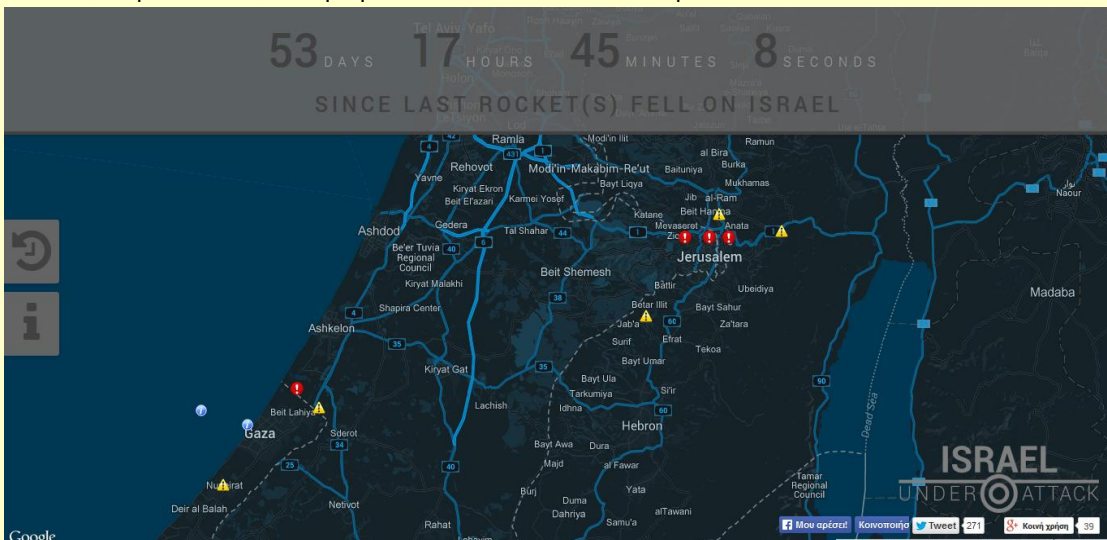
“That’s when we started building our site,” el-Nasire, a computer programmer at the Amsterdam Web Agency, told ISRAEL21c via Skype from Holland. “And we did it by receiving the area codes of the places where sirens go off, and then calculating the latitudinal and longitudinal coordinates, and how

much time it takes a rocket to arrive at its destination.”

El-Nasire said that it was “actually quite simple; just a matter of math.” He then quipped: “It’s not rocket science ... so to speak.”

Cardillo, who works for plugNup (a Belgian-Israeli high-tech startup) told ISRAEL21c that in spite of the relative accuracy of the trajectories on the map, “We do not show the exact location of rocket-landings, for security reasons.”

After all, he pointed out, “The purpose of the endeavor is to help Israel.”



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<http://israelunderattack.tk/>

El-Nasire agreed, admitting that it was unusual for someone of his background, both Muslim and European, to be embarking on a campaign to help the Jewish state’s public diplomacy efforts by showing the world that it is Israel under attack by Hamas and not the other way around.

“If you had told me when I was 10 years old that I would end up with Jewish and Israeli friends, visit Israel and undertake this project, I wouldn’t have believed you; I would have laughed at you; or I would have gotten really angry,” he said. “Because before I got to know Jews and Israelis, I only knew about them what I saw on TV; and it wasn’t pretty. It is easy to hate people, when all you see is the demonization.”

His perception changed when he began to meet Israeli tourists in Holland.

“I came to realize that if you don’t throw rocks at them, Israelis are pretty nice people,” he laughed. “But even if I hadn’t gotten to know them, all I would have had to do is watch how Hamas behaves – launching rockets and breaching ceasefires – and then I would have understood.”



Someone else who understood the significance of Israel Under Attack as soon as he was approached was Mason Crollie, a British non-Jew, from whom Cardillo and el-Nasire wanted to purchase a server for their program. But Crollie was so thrilled with their innovation and its aim of helping Israel during wartime that he offered his services free of charge.

Meanwhile, the authors of Israel Under Attack are continuing to work together through sleepless nights to develop an app out of their map.

Russia to build a DNA database resembling 'Noah's Ark'

Source: <http://www.dailysabah.com/science/2014/12/26/russia-to-build-a-dna-database-resembling-noahs-ark>

Russian scientists have been conducting a research project which aims to gather DNA data of every living creature, including extinct creatures.

Russia's Moscow State University has been granted the largest-ever scientific fund, 1 billion rubles (US\$194 million), for the DNA project which will store the collected DNA in the world's first DNA bank, according to Russia Today (RT).

"I call the project 'Noah's Ark.' It will involve the creation of a depository – a databank for the storing of every living thing on Earth, including not only living, but disappearing and extinct organisms. This is the challenge we have set for ourselves," MSU rector Viktor Sadivnichy told journalists, RT reported.

"It will enable us to cryogenically freeze and store various cellular materials, which can then reproduce. It will also contain information systems. Not everything needs to be kept in a petri dish," Sadivnichy added.

The project to collect 'Noah's ark' is due to be completed by 2018. It will be 430 sq km in size, and is being built in one of the university's central campuses.

EDITOR'S COMMENT: Any connection with the structures below? Do they know something we do not know?



Svalbard Global Seed – Norway



Millennium Seed Bank – UK

► Read also:

- <http://www.travelchannel.com/tv-shows/america-declassified/episodes/denver-airport-bunker-nsa-data-center-white-sands-mysteries>
- <http://blog.world-mysteries.com/modern-world/the-denver-airport-controversy/>

A pessimist's guide to the world in 2015

Source: <http://www.bloomberg.com/graphics/2015-flash-points/>

Dec 17, 2014 – Skirmishes in the South China Sea lead to full-scale naval confrontation. Israel bombs Iran, setting off an escalation of violence across the Middle East. Nigeria crumbles as oil prices fall and radicals gain strength. Bloomberg News asked foreign policy analysts, military experts, economists and investors to identify the possible worst-



case scenarios, based on current global conflicts, which concern them most heading into 2015.

This is what they came up to:

Syria: Violence from Syria spills over into Lebanon, Jordan, Turkey and beyond after Islamic State and the Assad regime defeat the last vestiges of the moderate opposition.

Israel: A third Palestinian uprising against Israel breaks out after the March elections. It turns into a violent struggle involving increasingly fundamentalist Palestinian and Israeli fringes. Militants from neighboring countries flock to the fray.

West Bank/Gaza: Hamas, seeking to gain more political clout, opens a new front with Israel from the West Bank or renews attacks from its Gaza Strip stronghold.

Iran: Iran, failing to reach agreement with world powers on limiting its nuclear program, pushes through with development of a nuclear weapon. Israel moves to stop Iran's efforts, setting off a regional war.

S. Arabia: King Abdullah, 90, dies. The current crown prince, Salman, is 79. A succession takes place at a sensitive moment as the Saudi Air Force keeps bombing Islamic State, which thousands of young Saudis have joined.

Baltics: Vladimir Putin undermines NATO members by stirring up trouble with Russian minorities in Estonia and Latvia, and with Russia's Kaliningrad exclave between Poland and Lithuania. Recent airspace encounters show Russia's willingness to test NATO's capabilities.

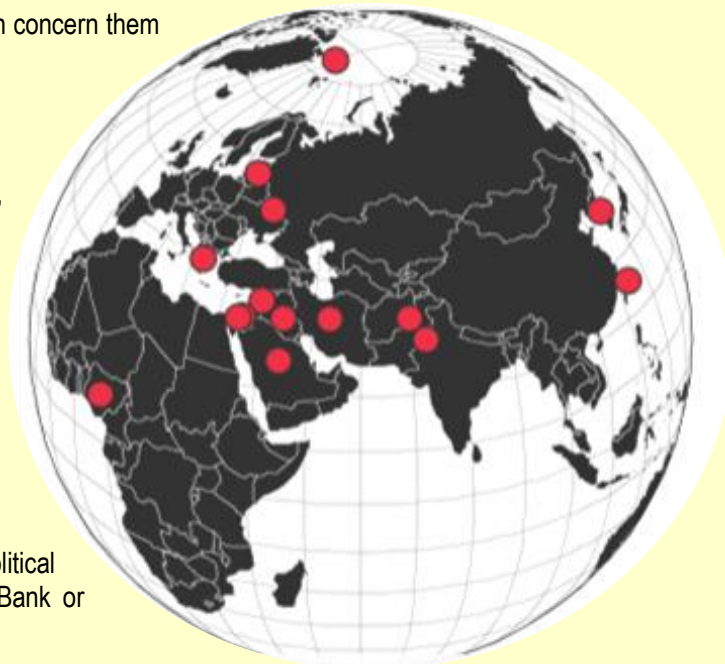
Russia/Ukraine: Putin-backed rebels, supported by Russian forces, drive further west in Ukraine to create a land corridor to join up with Crimea. That triggers deeper economic sanctions from the U.S. and the European Union and forces them to accelerate military support to the government.

South/East China Sea: Confrontations break out between Chinese navy vessels and fishermen in South China Sea; Chinese and Japanese fighter jets engage in a dogfight over the disputed Senkaku/Diaoyu Islands. The escalation brings in allies, inflaming nationalistic tensions.

Nigeria: Militants from the Boko Haram Islamist group increase their attacks, gaining control of more territory for their self-styled caliphate in northeastern Nigeria. President Goodluck Jonathan's military fails to stem the rise of the insurgency in Africa's most populous nation.

Afghanistan/Pakistan: Taliban militants in the mountainous Pashtun-dominated regions of Afghanistan and Pakistan link up with Islamic State. They make progress in their quest to take power in Kabul and Islamabad as the U.S. reduces its troop presence.

India/Pakistan: A terrorist attack occurs on the scale of Mumbai in 2008, when luxury hotels and a train station were attacked by a Pakistan-based militant group. Prime Minister Narendra Modi's Hindu nationalist BJP (Bharatiya Janata Party) is pressured into a harsh response, triggering a crisis between the nuclear-armed neighbors.

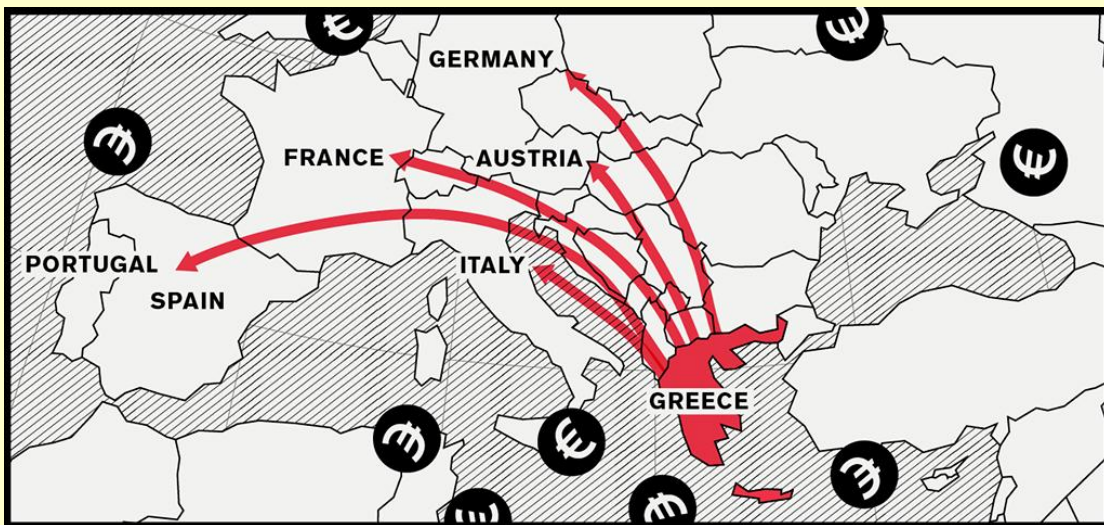


North Korea: A North Korean submarine sinks a South Korean ship claiming it was spying. Citing the sinking of South Korean ship Cheonan in 2010, South Korea retaliates by sinking a North Korean vessel.

Arctic: Growing tensions among Russia, the U.S., Norway, Denmark and Canada over who owns the right to natural resources in the Arctic leads to direct standoffs between vessels. Disputes arise over territories such as Svalbard as climate change melts more Arctic ice and increases the commercial potential of the region.

Iraq: Islamic State militants ignite a full-blown sectarian war, pitting the Shiite Muslim majority against the Sunni minority. This disrupts the country's oil production and draws U.S. and regional powers into the conflict.

Greece: Greece's government falls, bringing to power anti-euro opposition leader Alexis Tsipras and weakening Greece's status among euro countries, some of which face extremist movements of their



own. Hamstrung European policy makers fail to respond. Contagion spreads through the region's bond markets, reigniting the euro-zone crisis.

EDITOR'S COMMENT: It seems that 2015 would be a very quiet year for the Americas, Australia and leading nations of Europe! Well we have to fight for our lives and perhaps prove that Bloomberg's crystal ball was a malfunctioning one! Because sometimes if you dig one's hole you fall into it yourself...

Also: when using maps (even in graphic mode) it would be wise to include ALL Greek islands as well or omit Sicily, Sardinia or Corsica for example...

The Israeli-developed "electrical" cloth that will detect wounded soldiers

Source: <http://i-hls.com/2014/12/israeli-developed-electrical-cloth-will-detect-wounded-soldiers/>

This unique invention is being used for many applications: an electrical wire that is woven into normal fabric. This wire is made of carbon-coated threads woven into a flexible fabric that radiates heat. Thus, the fabric heats up.

ThermoSiv's fabric is made of strong nylon/polyester yarn threads that are coated

with its proprietary carbon-based compound. The semi-conductive carbon threads are woven with additional metallic conductive threads to make an all-in-one robust and at the same time extremely thin and flexible heating fabric.



The strong and flexible threads can be woven using existing industrial textile facilities, enabling it for high volume production at low cost and fast delivery.

The fabric radiates Far Infra-Red heat (FIR) between 8-14 microns. These are the same invisible spectrum of rays that are the healthy therapeutic rays that the sun radiates

After several years of development, and joint R&D projects companies, such as Du Pont, Peugeot, HoMedics and others, the company is now entering its commercialization stage. Approximately 1.6M\$ has been invested in the development of the various applications and products thus far. The

not timely receive medical treatment. The new application will help detect, identify, locate and report wounds to soldiers, in real time.



special fabric is marketed under the name ThermoSiv.

Brig. General (Ret.) David Agmon, has developed the unique system and it is being used in many countries for different applications. A very popular one is to make light clothes radiating heat, allowing ease of movement.

The recent application creates great interest, since a major cause of death after battlefield injury is hemorrhage: soldiers died in potentially survivable cases, because they did

In other words, if only wounded soldiers were located on time, the bleeding wounds were diagnosed on time and the soldier timely received proper treatment, the number of casualties could be significantly reduced. Zohar Dvir told *i-HLS*. Dvir, an engineer that has realized the potential of the special cloth has developed a wounded soldier detection and location based on the ThermoSiv. The solution, which is called WounDetect, is integrated in clothing will monitor and report wounds to a medical team. The system includes means for calling for rescue while precisely reporting the identity of the wounded soldier, the part of his body which was hit, number of hits, soldier's location, etc.

The detection is based on measuring the electrical parameters of the cloth and physiological parameters of wounded soldiers body and using changes in that parameters as indices of wounds incurred by the soldier.



US, NATO Mark End of Afghanistan Mission

Source: <http://www.voanews.com/content/us-nato-end-of-war-in-afghanistan/2576316.html>



US General John Campbell, left, rolls the flag of the NATO-led International Security Assistance Force (ISAF) during a ceremony marking the end of ISAF's combat mission in Afghanistan at ISAF headquarters in Kabul, Dec. 28, 2014.

Dec 28, 2014 – The NATO-led military alliance in Afghanistan formally ended its 13-year-long combat mission, leaving a relatively under-trained Afghan national security force to fight the deadly Taliban insurgency largely on its own.

A special ceremony was organized at the Kabul headquarters of the coalition Sunday to mark the conclusion of operations by the U.S.-led International Security Assistance Force, or ISAF.

The commander of the International Security Assistance Force, U.S. Army General John Campbell, said the U.S. and NATO are not abandoning Kabul.

"Our new resolute mission means we will continue to invest in Afghanistan's future, our commitment to Afghanistan endures," Campbell said.

NATO's Resolute Support mission will consist of about 13,000 mostly American personnel that will continue advising, assisting and training Afghan national security forces in their fight against the Taliban.

White House statement

In a statement from the White House, U.S. President Barack Obama said, "Today's

ceremony in Kabul marks a milestone for our country. For more than 13 years, ever since nearly 3,000 innocent lives were taken from us on 9/11, our nation has been at war in Afghanistan.

"Now, thanks to the extraordinary sacrifices of our men and women in uniform, our combat mission in Afghanistan is ending, and the longest war in American history is coming to a responsible conclusion," Obama said.

However, "Afghanistan remains a dangerous place, and the Afghan people and their security forces continue to make tremendous sacrifices in defense of their country," he said.

Campbell said the road ahead remains challenging.

"There is no turning back to the dark days of the past. Insurgents are losing, they are desperate. ... It is time for the enemy to heed President [Ashraf] Ghani's call, lay down their arms, come to the peace table and help to rebuild the Afghan nation," he said.

Whether the Afghan forces can contain the insurgency remains an open question, with militants regularly launching deadly attacks against Kabul's security forces.



NATO reaction

In a statement, NATO Secretary General Jens Stoltenberg said the coalition's war against the

agreements with the United States and NATO and allowing an enduring foreign military presence in the country.



Gratitude to NATO troops
 Afghan National Security Adviser Hanif Atmar, while addressing the ceremony, expressed his gratitude for the efforts and sacrifices coalition forces have made to secure Afghanistan. "Nearly 3,500 NATO personnel have been killed in action and over 30,000 NATO personnel have been wounded in action. The Afghan people pray for your fallen, wounded and their loved ones," Atmar said.

insurgents "made our own nations safer, by denying safe haven to international terrorists. We have made Afghanistan stronger, by building up from scratch strong security forces." Kabul resident Mohammad Salim voiced his confidence in the Afghan troops, saying, "We are satisfied by the capability of our Afghan security forces. They are now strong enough to assume security responsibility from NATO. We are proud of them."

This year has been the deadliest for Afghan security forces in their decade long battle against the Taliban and insurgents have made gains in parts of the country to extend their influence.

However, Qasim Sanjani, also of Kabul, said continued international assistance is essential. "International security forces must give guarantees to the leadership of the Afghan government that they will stay behind our security forces in terms of training and supporting them for the long term. They must make sure that our army is fully equipped after they leave the country," Sanjani said.

Atmar said Afghan forces have successfully led security operations for the past nearly two years in most of Afghanistan but underscored the need for continued international help ensure their long-term sustainability.

New Afghan President Ghani has pledged to seek a political solution to the insurgency and has called on the Taliban and its allies to engage in peace talks with his national unity government.

"We are not yet able to do everything alone. We have made tremendous progress, but we recognize that your continued support will be key in ensuring that our collective gains will be enduring," he said.

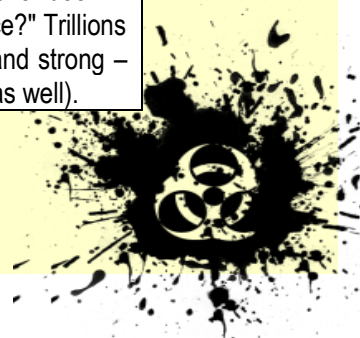
Instead, the militants have intensified attacks, citing Ghani's move to conclude security

At its peak, there were about 140,000 troops from 50 countries taking part in the ISAF operation in Afghanistan.

It was launched under U.S. leadership to invade Afghanistan 13 years ago to remove the Taliban from power for sheltering the al-Qaida network that plotted the September 11, 2001, attacks on the United States.

Washington has since spent more than \$100 billion on Afghan reconstruction in addition to its estimated \$1 trillion war effort.

EDITOR'S COMMENT: Most probably the day after would be as if the coalition was never been in this country. And the main question comes back: "Why have they been there in the first place?" Trillions were spent; thousands of people in all sides were killed or injured; Taliban are still there and strong – so what was the gain from this expedition? History and near future will show... (read below as well).

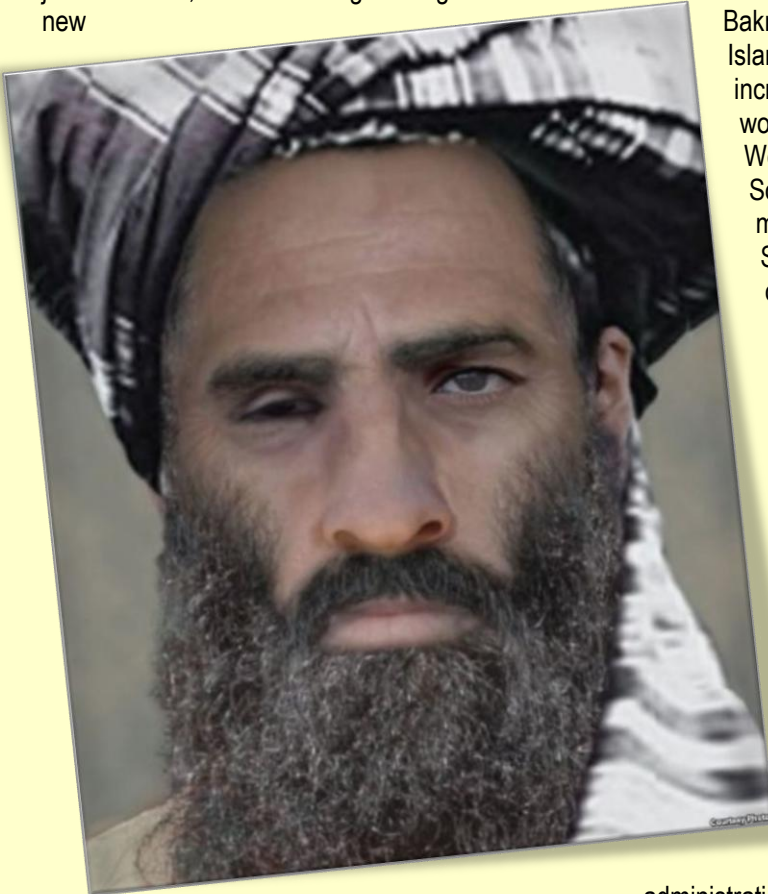


Around an Invisible Leader, Taliban Power Shifts

Source: http://mobile.nytimes.com/2014/12/29/world/around-an-invisible-leader-taliban-power-shifts.html?_r=0&referrer=

Dec 28, 2014 – **If the Taliban’s reclusive leader, Mullah Muhammad Omar, were ever to assert himself more publicly, this would have been the year to do it.**

In a season of immense upheaval in the jihadist world, the Taliban gained ground in new



Afghan offensives, endured a bloody internal power struggle and had to contend with the rise of the Islamic State militant group as an ideological rival. Through it all, Mullah Omar has remained silent.

Further, though he has stayed completely out of the public eye since he fled American airstrikes in late 2001, his reclusiveness became even more pronounced in the past year: Now, all but two of the Taliban’s leaders who had direct access to Mullah Omar have been cut off, according to senior Taliban figures and Afghan and Western officials, all of whom say a significant power shift is underway.

“I have not seen Mullah Omar in a very long time,” Maulvi Najibullah, a senior Taliban military commander, said in a telephone interview from Peshawar, in northern Pakistan.

The invisibility of Mullah Omar has been accentuated by the visible role of Abu Bakr al-Baghdadi, the leader of the Islamic State, reinforcing the Taliban’s increasingly secondary role in the world of Islamist militants, Afghan and Western officials said.

So, is the influence of the elusive mullah waning?

Senior insurgents who have raised objections to Mullah Omar’s reclusiveness have been marginalized — or worse, insurgents and officials said. One Taliban leader, Mullah Abdul Raqib Takhari, is believed to have been killed in February after angrily telling compatriots that he would start making his own decisions if he was not granted an audience with Mullah Omar, Afghan and European officials said.

The apparent fissures in the Taliban command structure are seen as an opportunity by some, particularly within the new Afghan administration of President Ashra_f Ghani. Afghan officials say the upheaval presents a chance to revive stalled peace efforts, perhaps by peeling off disenchanting insurgent leaders instead of seeking a grand bargain with the entire group, which has proved a futile effort to date.

Eager to exploit any potential Taliban weakness, the National Directorate of Security, the Afghan intelligence agency, suggested at a news conference in October that Mullah Omar might be dead.

In a separate interview, Rahmatullah Nabil, the acting Afghan intelligence chief, said he could not be sure “whether Omar



is alive or dead. That's difficult to say at this stage."

But the Taliban quickly dismissed any talk of their leader's being dead. And other Afghan officials, along with some European and American counterparts, said the suggestions that Mullah Omar had died were a propaganda ploy intended to weaken Taliban morale, not a reflection of the true thinking within the Afghan government.

"There's a consensus among all three branches of the Afghan security forces that Mullah Omar is alive," said one European official, who spoke on the condition of anonymity to discuss private intelligence briefings. "Not only do they think he's alive, they say they have a good understanding of where exactly he is in Karachi," the Pakistani metropolis where some say Mullah Omar is hiding.

Mullah Omar has always functioned more as the spiritual and ideological leader of the movement than as an operational commander. His inner circle, made up of village mullahs who have known one another for decades, has provided the active leadership of the Taliban's many local factions.

But now one man, Mullah Akhtar Muhammad Mansour, has risen to the No. 2 role and become the main link to Mullah Omar, allowing him to place his loyalists up and down the ranks, Mr. Nabil said.

Mr. Nabil said that, in one example, a prominent commander operating south of Kabul was killed by fellow Taliban fighters in May or June because he was close to a rival of Mullah Mansour.

Mr. Nabil, in his assessment, saw Pakistan's security establishment driving the changes, an appraisal shared by some Western officials. Some said it was a bid for greater control over the insurgency; others saw it as the evolution of a long-running Pakistani effort to avoid the embarrassment of having Mullah Omar discovered being sheltered in their country.

"There is a lot of doubt whether he is alive or not," Mr. Nabil said. But "we are more confident that he is in Karachi."

The Afghan government is not the only player trying to exploit any leadership confusion within the Taliban. Afghan and Western officials said the Islamic State, fresh off its battlefield successes in Syria and Iraq, was increasingly

trying to spread its influence beyond the Arab world and to the hundreds of millions of Muslims in Central and South Asia.

Perhaps sensing that a rivalry was brewing, the Afghan Taliban, supposedly with Mullah Omar's blessing, are believed to have sent two emissaries to the Islamic State over the summer to see how the militants could work together, Afghan and Western officials said.

The Taliban emissaries went with a simple message: Osama bin Laden respected Mullah Omar, and so should Mr. Baghdadi, said Mr. Nabil, the Afghan spy chief.

The Islamic State had a different view: Mr. Baghdadi declared himself caliph — the leader of all Muslims. To the group, that means he outranks Mullah Omar, who had declared himself merely an emir in the 1990s when the Taliban conquered Afghanistan.

The Islamic State has already enjoyed some success in South Asia, winning public pledges of cooperation from a few factions of the Pakistan Taliban, a fractious umbrella group that grew out of the Afghan movement. A few minor Afghan Taliban commanders in remote corners have also expressed their support.

There are signs, though, that the Islamic State is trying to cultivate more mainstream Taliban commanders. A European official said that in the past two months a growing number of Arab militants had begun traversing the remote valleys of eastern Afghanistan in search of new supporters, working the same areas that provide shelter to the remnants of Al Qaeda and other foreign militant groups with global ambitions.

Though the Islamic State appears to have enjoyed only limited success so far — Afghans tend toward extreme suspicion of foreigners — many among the Taliban's leadership are believed to be dismayed by the Islamic State's growing international profile.

Of all the leaders of the world's major insurgencies, Mullah Omar is one of the least documented. His birth date is at best a guess, between 1959 and 1962.

Accounts vary about whether he was born in Uruzgan or Kandahar Province in southern Afghanistan. Only two purported photographs are said to depict him — one that the State Department says is really him,



and another that some authorities say is not. A former American military commander, who spoke on the condition of anonymity for operational reasons, said he had never viewed Mullah Omar as a direct military adversary in the same mold as Ho Chi Minh in Vietnam because “we never had any credible intelligence about his whereabouts or about whether he was truly in command.” Even as officials have decided to err on the side of believing Mullah Omar is still alive, it is unlikely that anyone but those closest to him would even know if he had died.

“I do not know whether he is alive or dead,” said Maulavi Najibullah, the Taliban military commander in Peshawar. Zabihullah Mujahid, the Taliban spokesman, credited Mullah Omar’s reclusiveness with his survival, claiming that Bin Laden was found because he had couriers coming and going with videos and letters. “We are attempting to eliminate any possible opportunity that could end up helping our enemies find our leader,” Mr. Mujahid said.

Aberdeen based aerostat in position to protect Washington from cruise missile attack

Source: http://defense-update.com/20141227_jlens_over_maryland.html#.VKEWmP8MAPB

Dec 27, 2014 – The U.S. Army lofted today the first JLENS – Joint Land Attack Elevated netted Sensor aerostat system at the Aberdeen Proving Ground in Maryland. This large aerostat blimp is equipped with a radar system optimized to detect low-level targets, such as cruise missiles and drones.

It will cover a wide airspace from Virginia, Maryland, and Pennsylvania up to New York and New Jersey.

Similar aerostat-based radars are already operational in India and Israel; Singapore is also planning to deploy such system next year. Deployment in the Continental US (CONUS) followed due to the US military concern about the risk of rough states or terrorist groups potential to attacks the US capital using cruise missiles launched from cargo ships moving deep in the Atlantic Ocean. Such missiles often fly too low to be detected by conventional radar. Airborne radars such as AWACS or Hawkeye aircraft can detect such threats but they are not airborne 24/7, due to the high operating cost of such airborne assets. The 74 meter helium filled aerostat (243 foot) carries air-surveillance radar that provides precise location data of airborne targets, such as cruise missiles, aircraft, unmanned aerial vehicles, and large-caliber rockets, as well as maritime surface moving targets. The JLENS system, also referred to as ‘orbit’ consists of two unmanned aerostats with radar systems.



The test is part of a three-year operational evaluation conducted by the North-American

Aberdeen Proving Ground was chosen as the exercise location because it provides coverage



Aerospace Defense (NORAD) Command beginning in 2015. The second aerostat of the Aberdeen orbit is scheduled to go aloft in early 2015. Another JLENS system is in strategic reserve, ready to be deployed anywhere in the world at the request of combatant commanders, should they require comprehensive cruise missile defense capability.

From its position 10,000 ft above Aberdeen Proving Ground in Maryland, JLENS radar will be able to detect targets over distances 340 miles away.

The radar equipped JLENS aerostat will fly at an altitude up to 10,000 feet above sea level, giving it a much longer detection range than ground-based radars, providing radar coverage up to 340 miles – an area which includes the National Capital Region (NCR). Input from JLENS will also feed to the 263rd Army Air and Missile Defense Command, to increase decision time in defending the airspace over the NCR. The aerostats will fly 24 hours a day, except in times of severe weather or required maintenance. The system’s ground elements include a mobile mooring station, radar and communications payloads, a processing station, and associated ground support equipment.

over the NCR, has sufficient ground area for the two JLENS aerostat sites, and controls its FAA approved restricted airspace, which supports the exercise without interfering with the mid-Atlantic coast air traffic corridors.

Developed by Raytheon, JLENS completed developmental testing in December, 2013 after demonstrating its ability to integrate with defensive systems and help Patriot, AMRAAM, NASAMS and Standard Missile 6 intercept cruise missile targets.

“JLENS is strategically emplaced to help defend Washington D.C. and a Texas-sized portion of the East Coast from cruise missiles, drones and hostile aircraft,” said Dave Gulla, vice president of Raytheon Integrated Defense Systems’ Global Integrated Sensors business. “JLENS can detect potential threats at extremely long ranges, giving North American Aerospace Defense Command more time to make decisions and more space to react appropriately. Once the system becomes operational it will be operated by soldiers of the U.S. Army’s A Battery, 3rd Air Defense Artillery.

The data collected during the operational exercise will be used to assess JLENS capabilities and its integration into the existing



homeland defense architecture. This will enable senior defense officials to support a determination whether to transition JLENS

capabilities to an enduring mission at the conclusion of the three-year operational exercise.

Is anybody surprised? Norway deports Muslims crime rate drops 31%

Source: <http://www.politiclears.com/blog/is-anybody-surprised-norway-deports-muslims-crime-rate-drops-31/>

"The world's largest gang of thugs, murderers, and rapists is masquerading as a religion of peace," says Adrian Stavig, a resident of Oslo. Beginning this past January, **the new Norwegian Prime Minister, Erna Solberg began a program which targets and deports Muslims who have ties to radical groups. While many in America would say this is racist, it's worked in dramatic fashion. Violent crimes are down more than 31% in Norway.**

What a shocker.

Perhaps the rest of Europe and the United States could learn a lesson or two about radical Islam here. Deport the radicals, keep the moderates, and everybody wins.

From Oslo local news:

A record number of people were deported by Norwegian authorities in October, said government sources.

The National Police Immigration Service Norway (Politiets Utlendingsenhet – PU) deported 824 people in October, which is a new record.

The previous record was set in September, the month prior, when 763 people were deported, reported Dagsavisen.

PU believe some of the reasons for the rise in figures are more resources, more staff and a change of "portfolio priorities". It has also become easier for Norwegian authorities to deport people back to Afghanistan and Nigeria. Kristin Kvigne, head of PU, said to Dagsavisen: "This month helps us reach our goal for this year."



Norway's government has ruled that 7,100 people will be deported in 2014. At the end of October, PU had deported 5,876 people so far this year.

A percentage of those deported in 2014 were asylum seekers who had their application for continued asylum rejected. They were then deported along with their families. The majority of deportees, however, had committed crimes, or had returned illegally to Norway after being deported.

Kvigne said it was important to view the high number of deportations made by PU in the context of falling crime rates across the country.

Not everybody in Norway is happy with the increased deportations. One academic slammed the new policies:

"Norwegian women must take responsibility for the fact that Muslim men find their manner of dress provocative. And since these men believe women are responsible for rape, the women must adapt to the multicultural society around them." – Dr. Unni Wikan, Professor of Social Anthropology at the University of Oslo (photo)

So, Dr Wikan, using your logic, it is the victim's fault they have been raped? Not in this universe. You sir may have book smarts, but you sure don't have any common sense.

And there you have it! Kicking out radical Muslims makes a nation safer and peaceable. Women can walk around without fear of being



raped, people just get along a lot better.

EDITOR'S COMMENT: Initially I thought that Prof Wikan was a man – usually men express such stupid excuses or defend such repelled actions like rape. Then I saw the photo and many of my wonders were solved in a sec. There is no doubt that her statement is a global monument of intellectual malfunction.

Why rape is as deadly a threat as the world has faced: Congo's cheap weapon of mass destruction

Source: <http://www.independent.co.uk/news/world/why-rape-is-as-deadly-a-threat-as-the-world-has-faced-congos-cheap-weapon-of-mass-destruction-9950642.html>



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Each day at the Panzi hospital in eastern Congo, Dr Denis Mukwege is trying to consign a devastating weapon of mass destruction to the past. The gynaecologist, who has been awarded the European Parliament's highest human-rights honour, talks to Patrick Strudwick

Some of the women arrive naked. Some are only just alive, with knife or gunshot wounds to the thighs, genitals or pelvis. Many have been raped repeatedly by multiple attackers, tied up and brutalised in front of their husbands, parents and children. Sticks are used on some. Chemicals on others, doused after the rape to burn and scar, to ensure ruination. It works. Internal injuries can be so extensive as to defy medical solution.

Dr Denis Mukwege tries to help all who arrive at Panzi Hospital, the clinic he set up 15 years ago in the hills above Bukavu, eastern Congo. After training in France to become a gynaecologist, he was hoping to devote his career to treating women in pregnancy and labour. Instead, the results of the Second Congo War arrived – wave after wave, girls as young as two, women in



their eighties. Entire villages of women come, dozens clutching each other, silenced and bound by trauma's grip.

The war, which has claimed more than five million lives since 1998, officially ended in 2003 but continues in the east of the country. And so, children appear at Parzi's reception who are themselves the product of conflict rape, their mothers also used as a weapon of war. Rape, in the Democratic Republic of Congo, like many war-ravaged countries, is strategy, an implement to seize power – control, not only over entire communities and regions but, crucially, in this immense country, over the great mineral wealth. The trauma – physical, psychological – disables. And it is free. The cheapest weapon of mass destruction.

Today, 4,000 miles away, Mukwege sits on a stool in a lobby next to the plenary chamber in Strasbourg's European Parliament – a vast glass cylinder abuzz with technocrats, MEPs and media. Mukwege is here because he is the recipient of the Sakharov Prize For Freedom of Thought, the highest human-rights award bestowed by the European Parliament. Last year it honoured Malala Yousafzai. Many believe that Mukwege will, like Yousafzai, be decorated by the Nobel committee.

Posters bearing his face adorn each wall and corridor; an inapt iconography for a man wishing that the spotlight was not on him but the women he treats. Against the din of bustling officials and TV crews, Mukwege smiles and locks eyes with me. "This prize is not really for me," he says softly. "It belongs to the women who have been fighting for 15 years for their rights, for their dignity, for their freedom."

"But I am very happy this prize came now because the world does not understand what it means to be raped with extreme violence. We need to highlight what is going on in this region. It is a terrible disease, women destroyed in a way that denies their humanity." Mukwege, 59, treats 10 women a day in theatre. He has, in total, tended to more than 30,000 survivors. In what psychological state are patients when they arrive?

"They are dehumanised," he says. "Most are shamed by what happened to them. Most are excluded from their own community. They feel life has no sense." He cites the plentiful

research into the psychological trauma that survivors carry, often forever.

Dr Mukwege and his team do what they can. Soon after treating his first few patients in 1999, the doctor, whose father was a pastor, realised that medicine alone was insufficient. He describes the "four pillars" of his approach.

"We treat them medically – surgically; psychologically – the trauma; legally – to teach them their rights and help them go to court, if they want to," he says. "The fourth way is to support them economically so they can be strong and fight for their own rights."

Some, however, are too damaged for treatment. Dr Mukwege specialises in repairing vaginal fistulas – holes created either between the vagina and rectum, or vagina and bladder – a common occurrence after violent rape. "Women who have been severely violated are completely destroyed – some we simply cannot cure," he says. "And unfortunately, these are often young girls aged 14, 15, 16, 17. They have to wear a colostomy bag for the rest of their lives."

Without medical intervention, urine, blood and faeces trickle down, causing burns, infections, ulcerations, abscesses and dehydration. The smell from infections ensures everyone in the village knows what has happened. Many are shunned. Isolation engulfs. Fistulas can also lead to nerve damage called "foot drop" in which the lower limbs become paralysed. Women are left unable to walk.

"The situation is absolutely awful," says Mukwege, slowly, his French Congolese accent resonating around every syllable. He enunciates "rape" quite unlike anyone I have heard – the "r" is hard, like a German "r", the "a" is elongated; the effect is a snarl, an alarm, a pronunciation to denote the grotesque profundity of the crime.

"We are working with doctors and universities to get more technology into our hospital to improve the lives of those women, but unfortunately we still have to deal with failure."

He changes tack. "It's not the number [of women] that's important, it's the individual stories, it's the person sat opposite you who says, 'Doctor, I'm sorry, every time I come to see you people turn their heads away from me. They won't look.'" Some of the patients return several times. A



community might ignore her after being attacked but rapists do not, with some women being raped again and again.

By the time women are in Mukwege's care, the trauma has fanned out in all directions. "If a child has seen his mother being raped he will never be the same again," he says. "And if husbands stood by [during attacks], unable to help their wife, it completely changes their relationship. This problem destroys families as a whole."

There is another important consequence,

all her family – her husband, father, mother and four children – were killed." The woman eventually returned to her village but with a baby, born from the innumerable rapes she endured.

"It was very hard for her..." says Mukwege, his voice unsteady "to keep this child, to know, 'She is the child of the one who raped me, killed all my family and contaminated me with Aids'."

He stops again, frowning, wincing. "How can all this happen in the life of someone?"



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which, for Mukwege is a "time bomb": the babies. "They are often not loved when they arrive because they are the result of rape. People sometimes blame the children. Often families say, 'This is a horrible child; he does not belong to us.' We are raising a crisis."

Among the thousands that he has treated – a fraction of the estimated millions of women raped amid this conflict – I wonder whether one patient stands out. "Yes," he says, exhaling slowly. "There is one lady. She was raped and taken into the bush and kept as a slave for three years. She was also, as a result of the rapes, contaminated with Aids. When she came home she found that while she was gone

Dr Mukwege on his ward rounds in Bukavu (Getty)

We do not speak because he knows the answer. It is no secret why and how this happens. Rape emblemises Congo's history – an area brutalised for 500 years by leaders and nations crazed with greed in a rush for natural resources: rubber, oil, diamonds, copper, uranium, cobalt and coltan. The last of these is used liberally in mobile phones, cameras, printers and laptops. First came the Portuguese, in the 1480s, enslaving and destabilising as British ships arrived taking captives. In the late 19th century,



as demand for rubber spiked, Belgium's King Leopold II claimed the country, ordering further gargantuan enslavements, commanding torture and murder on an unfathomable scale: more than 10 million died.

By 1960, when independence was declared, the traumatised nation was ripped asunder, fractured, drained not only of minerals but of human resources: an insufficiently educated nation left to stagger on unaided. The former army officer and police sergeant Joseph-Desire Mobutu exploited the power vacuum, seized control and bled the resources further.

When Rwanda invaded in 1996 (the First Congo War), helping other neighbouring countries topple Mobutu – who had been backed by Western governments – little improved. A year later, when the Second Congo War erupted, drawing in nine nations, the turmoil was anarchic, dozens of rival militia groups, rebels and army factions killing and enslaving to gain control of the mines – a dire cacophony of child soldiers and mass starvation, collapsing infrastructure and, all along, rape.

This is why the women still come to the Panzi hospital, because a solution to the crisis does not. No one stops this.

In 2011, Mukwege compared the international reaction to that of Bosnia in the 1990s. "Since Bosnia was on Europe's doorstep, and Europe was ashamed, it didn't last so long," he said. "When it happens in Africa, people say, 'It's cultural. It's African. It's far away'." A year later, in an address at the UN he spoke of the "deafening silence and the lack of courage of the international community".

Some see such silence as deliberate, in order that the coltan keeps coming, regardless. It is possible, although lengthy and expensive, for companies to ascertain the provenance of most samples. However, all countries through which the metal passes would need to be signed up to ethical-sourcing policies and so far, although the United States has imposed restrictions on imports, the EU has not. "The West has a responsibility because it knows how coltan is produced," says Mukwege. "They can get this without destroying women." We, as Westerners, he adds, should stop buying the devices and buy instead products "without blood".

Meanwhile, the Panzi hospital is left with the wreckage. Its four pillars of care prove transformative for many. Mukwege returns to the woman who was enslaved. "Today she not only supports her child but also other patients living with Aids," he says. "She's really strong. She built her own house. She built her own business. She is a leader in her community."

Mukwege has admitted that after several years treating the severely traumatised every day he eventually had to stop listening to their accounts, encouraging the psychologists to step in. But, he added: "One does not get used to the suffering." Now, however, the mental battle for him is even tougher.

In 2012, not long after his UN speech – and many believe in response to it – five armed men went to Dr Mukwege's house, rounded up his two daughters, trained guns at their heads and waited for the doctor to come home.

When Mukwege got out of his car, the men pointed their AK47s at him. As his security guard attempted to save him, the hitmen shot the guard dead. Mukwege fell to the ground narrowly missing the bullets aimed at him. The attackers fled. They have never been caught.

In fear, Mukwege took his family to Sweden and then Brussels, living in exile for three months, until the women of Bukavu not only pleaded for him to return, but sold onions and pineapples to pay for his flight. On average women in the region earn less than \$1 a day.

When he returned, in January 2013, they lined the streets, thousands cheering his homecoming. Reports described banners reading, "We are behind you", T-shirts saying, "Welcome our Superman", and a chorus of women singing in praise and thanks. Mukwege addressed the crowd: "The power of darkness will be defeated," he said.

But darkness lingers. How has he coped with the rumbling threat of murder? "It was very hard," he says. "Because I just thought, 'Why does this have to happen to me? What am I doing that's bad? I'm just trying to help people.' But if you say violence is not a good thing, you become a dissident. This is terrible. People have to hide because they say violence is not acceptable."

Mukwege has to hide, too. No longer safe at his home, he moved in to the hospital. One well-wisher told him, "We women



will protect you." And now they do – a doctor buffered by his patients. "I don't have any social life," he says. "But I'm not complaining, I'm happy to be doing what I'm doing because when I can see how strong women are, all my strength, all my inspiration comes from them." Even though carrying on could put his family in danger? "I think my family supports me," he says. Does he ever think about stopping? "Never. If I give up, it would be to accept that all the perpetrators are right. So I will not give up. It is perpetrators who will give up." As I get up to leave one final question blurts out. Do you believe in God? "Yes," he says. Even after everything you have seen? "For me, God gave us a choice to do bad or good. We are free. It is our choice." The next morning, at a press conference, he calls on reporters and politicians to intervene. "What is being done to protect these women?" he asks. "We need a justice in which victims have the opportunity to confront their attackers. This will never happen unless there is a political change. "We need your voices – if the media decided that a situation has to change you have the power. You can give the information to 500 million people so that they know that when they use their telephone, [they are aware of] the

victims. You can ensure the people send that message to politicians. What we're missing today is the political will to change – so that the minerals can be mined cleanly. There are multi-nationals in Europe, who are transparent and can give us all a good conscience." He turns to the men. "If men can stand up and say 'this is not acceptable' then our world can change. Otherwise our silence says, 'this is a woman's problem'. Those who commit these acts dirty our image as men." As Mukwege speaks his hands form points, cones, gavels, punching through each phrase, his body and voice united in urgency. It is not enough to listen to me, his presence cries. The chairperson tries to draw the session to a close, but Mukwege leans in to the microphone. "We have an opportunity to draw a line under using rape as a weapon of war," he cries. "To say no, to say this is not acceptable. We've done this with chemical and biological arms and we can do the same thing for sexual crimes." His eyes – yellowed, wide – emit a plea too, beseeching, bellowing out beyond the parliament, beyond the EU, begging the world to listen to a message sent from hundreds of thousands of women, butchered and shunned and broken: do something.

Selena Gomez pulls down Instagram picture that infuriated Muslims

Source: <http://www.dailymail.co.uk/news/article-2893462/Selena-Gomez-sparks-anger-displaying-ANKLES-visit-Abu-Dhabi-mosque.html>



Jan 02 – Pop starlet Selena Gomez was so heavily criticized for posting pictures of herself flashing her ankle inside Abu Dhabi's Grand Mosque on Instagram that she appears to have deleted the evidence altogether.



A second picture, showing Gomez and fellow musicians Kendall Jenner, Gigi Hadid, Cody Simpson and



© kendalljenner/instagram

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Shay Mitchell smiling and striking poses has also been lambasted but remained on her Instagram Thursday.

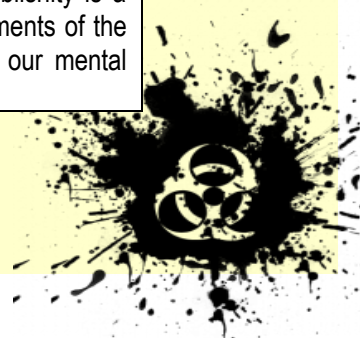
Mosque visiting rules strictly ban all 'intimate behavior' including holding hands and kissing, and states that all skirts must be ankle-length.

Commenting on the picture, Alaa Almitwally said: 'Disrespectful! It's a religion place not a place to have fun in, so disappointed.'

Meanwhile another user, Ayisha Elturk, said: 'If their intent was to learn about Islam they wouldn't be posing like they were standing outside and amusement park.'



EDITOR'S COMMENT: One might say that she is just a young and uneducated American starlet. But she is in the music industry and surrounded by a group of professionals that should have warned her about the dressing codes, traditions and heritage valid in the UAE. Provoking for publicity is a stupid strategy and we are fed of it. We are also fed up with stupidity and brainless statements of the show biz people influencing new generations and youngsters. Total freedom is bad for our mental health.



U.S. seen losing its share of world's highly skilled migrants

By Emilio Zagheni

Source: <http://www.homelandsecuritynewswire.com/dr20150105-u-s-seen-losing-its-share-of-world-s-highly-skilled-migrants>

Jan 05 – **The United States has always been known as a nation of immigrants and a top destination for scientists and other highly skilled professionals.** That ability to attract the world's most educated and innovative people to its shores has often been credited with powering the U.S. economy.

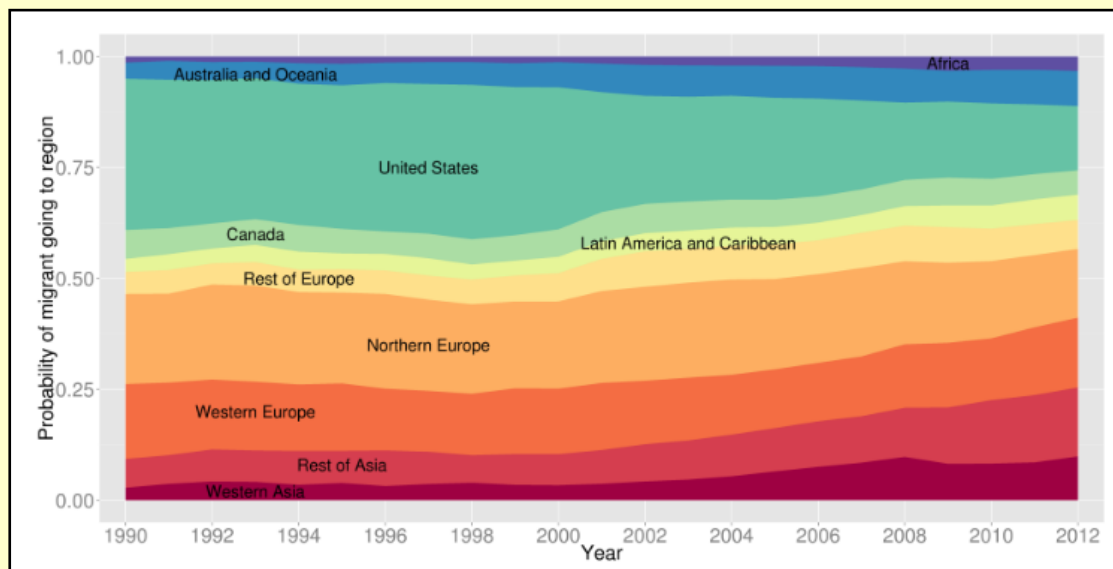
But strikingly, a new study of worldwide migration patterns suggests the United States is losing its reputation as a mecca for professionals as its global share of the most highly educated migrants declines. The result raises the question of whether the country can remain competitive in attracting top talent in an increasingly globalized economy.

Colleagues and I analyzed recent trends in international migration of highly skilled workers — those with bachelor's degrees or higher — using a data set of unprecedented detail, extracted from LinkedIn, the social networking website for professionals.

LinkedIn counts more than 200 million members in more than 200 countries and territories. People typically use their LinkedIn profiles to post their employment and educational history. That information provides the most comprehensive and up-to-date picture of the international flows of highly skilled migrants.

Respecting the privacy of LinkedIn's members was a primary concern for us. We removed all personally identifiable information from our data set before conducting the study and only analyzed data in aggregate.

The study leveraged various aspects of **LinkedIn's Economic Graph**— a digital map of the world economy based on member profiles — to understand trends in migration patterns. The research is the result of a collaboration between Bogdan State, who at the time was a Sociology Ph.D. student at Stanford University, Mario Rodriguez, a senior data scientist at LinkedIn, Dirk Helbing, a professor at ETH Zurich and Emilio Zagheni, an assistant professor at the University of Washington, Seattle.



Distribution of Migration Flows, by year and region of destination, 1990-2012

A topic ignored

Most of the public discussion on immigration reform has focused on the issue of undocumented immigrants living in the US and the potential consequences of highly-skilled immigrations on jobs and wages of Americans. **Less attention has been paid, however, to the changing position of the United States as a destination of the**



world's most sought after migrants.

Our study, which comes at a time when the country is mired in a divisive fight over such reform, counters conventional wisdom that the US is the incontestable top choice for professionals migrating from other countries.

We tracked the proportion of migrants whose destination was the United States, out of all migrants observed during a particular calendar year, covering the period from 1990 to 2012. In our sample of LinkedIn users, we observed a slight increase of the fraction of migrants who went to the US during the 1990s, followed by a sharp downward trend after the year 2000.

While 27 percent of migrating professionals chose the United States in 2000, just 13 percent did in 2012. The decline was seen across education levels, from bachelor's to doctorates. The biggest drop was among those in the science, technology, engineering, and math fields, from 37 percent to 15 percent.

The biggest beneficiaries of the change were Asian countries, which witnessed the highest increase in professional migrants, attracting a cumulative 26 percent in 2012, compared with just 10 percent in 2000.

Increasing opportunities or a drop in demand?

The patterns that we observed could be tied to a variety of factors from improved career opportunities across the globe to a drop in demand for highly skilled migrants in the US or inefficiencies in its immigration system.

During the first decade of the twenty-first century, for example, the United States experienced two major economic crises: the collapse of the "dot-com bubble" from 1999 to 2001 and the financial crisis of 2008. These crises adversely affected opportunities for immigrants in the United States.

Nonetheless, our findings indicate more than a reaction to short-term crises. Long-term structural changes are taking place in the global system of employment-based, highly skilled migration.

Skilled immigrants have been a source of innovation and economic strength for the United States. One of the implications of the study is that, in the increasing global competition for talent, the United States will have to work harder to attract and retain the world's best and brightest. That may be an issue Americans will have to ponder as they debate the best way to implement immigration reform.

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Emilio Zagheni is Assistant Professor of Sociology at University of Washington.

► **Read the full study at:**

http://zagheni.net/uploads/3/1/7/9/3179747/migration_professionals_linkedin.pdf

Young researchers increasingly denied research grants, putting the future of U.S. science at risk

Source: <http://www.homelandsecuritynewswire.com/dr20150108-young-researchers-increasingly-denied-research-grants-putting-the-future-of-u-s-science-at-risk>

Jan 08 – **America's youngest scientists, increasingly losing research dollars, are leaving the academic biomedical workforce, a brain drain that poses grave risks for the future of science,** according to an article published this week by Johns Hopkins University president Ronald J. Daniels.

The article, which appears in the online Early Edition of the journal *Proceedings of the National Academy of Sciences*, illustrates how for more than a generation, grants for young scientists have declined.

A Johns Hopkins release reports that **the number of principal investigators with a leading National Institutes of Health grant who are 36 years old or younger dropped from 18 percent in 1983 to 3 percent in 2010. Meanwhile, the average age when a scientist with a medical degree gets her first of these grants has risen from just under 38 years old in 1980 to more than 45 in 2013.**

"The implications of these data for our young scientists are



arresting,” Daniels writes in the PNAS paper. “Without their own funding, young researchers are prevented from starting their own laboratories, pursuing their own research, and advancing their own careers in academic science. It is not surprising that many of our youngest minds are choosing to leave their positions.”

If young talent continues to leave academia, Daniels says it could lead to a gradual evaporation of new discoveries, the loss of future leaders and mentors, a less diverse workforce and the loss of scientists at what should be a pivotal point in their career.

Daniels points to three reasons for the decline in research funding for young scientists — longer training periods, a grant system that may favor incumbents and an increase in the cost of research that is borne by universities, causing some institutions to shy away from unproven researchers in favor of scientists with established funding streams.

“The inability to staunch — if not reverse — the above trends stands as an urgent and compelling policy challenge,” Daniels says. “The current stewards of the U.S. research

enterprise bear a responsibility to sustain and safeguard that enterprise so that it can provide a platform for the scientists and the science of generations to come.”

Daniels proposes several policy reforms to better support young scientists including more robust funding for the NIH — with more of that money dedicated to new talent; and refining the peer review model to create a more accepting environment for inexperienced scientists and daring proposals. He also suggests the creation of a standing body to undertake a continuing review of the issue, assess the effectiveness of any interventions and press stakeholders — Congress, the NIH, federal agencies, universities, and private industry — into action.

“Other countries are marshaling the will and resources to invest in the next generation of young scientists,” Daniels says. “A comparable solution in the United States will require a comparable commitment on the part of all actors in the biomedical science ecosystem.... Our next generation of scientists, and indeed our next generation of science, demands nothing less.”

— Read more in Ronald J. Daniels, “A generation at risk: Young investigators and the future of the biomedical workforce,” Proceedings of the National Academy of Sciences (8 December 2014)

‘Gekaufte Journalisten’: The German Book that will Rock the World

Source: <http://theagendadaily.com/gekaufte-journalisten-german-book-will-rock-world/>

This month’s best-seller in Germany called ‘Gekaufte Journalisten’ or ‘Bought Journalists’ in English uncovers the practice of journalists being paid money to distort particular news stories.



‘Bought Journalists’

The best-selling book which has become hugely popular in Germany and talks of bribery, spies and cover-ups could easily be mistaken for a script from a Bourne movie. According to the book’s author, ex-journalist

Udo Ulfkotte, journalists can be bought to put a specific twist on news stories and that he was taught “to lie, to betray and not to tell the truth to the public”.

During his time working as the editor the Frankfurter Allgemeine Zeitung, one of Germany’s largest newspapers, Ulfkotte explains how he was secretly paid by the CIA and



the German Secret Service (Bundesnachrichtendienst) to spin particular news stories in a way that was positive for the United States and bad for its enemies.

European Media

For most people this will come as a shock but for German journalists, it's not at all surprising: "I think that people who know nothing about the work of the media in Germany and in Europe as a whole, will be shocked. For those who still believe that our media is free and independent, reading this book will certainly be a shock, because it denies everything, what they believe" says Zuerst Oksenrayeter, chief editor of 'Bought Journalists'.

English Edition

The book is now ranked seventh in the list of best sellers in Germany with more and more people turning to it in an attempt to understand what is happening in German journalism. At present, the book is only available in German. However, Agenda Daily can confirm that the book is in the process of being translated into English, Russian, Turkish and Hungarian. Updates on the English release date to follow soon.

Read also from the same author



Der Krieg in unseren Städten

(War on our cities – March 2003)

Source: http://www.amazon.de/St%C3%A4dten-radikale-Islamisten-Deutschland-unterwandern/dp/38_21839783/ref=sr_1_1?ie=UTF8&s=books&qid=1250258351&sr=1-1

Germany is undermined. Violent Islamists disguise themselves as peaceful Muslims, set up a secret network and maintain excellent relations with Al Qaeda, Hamas, Hezbollah and other terrorist groups. Bestselling author Udo Ulfkotte has unmasked for the first time this network of Islamists using exclusive and explosive information from German security authorities. He mentions the names of individuals, families and organizations prepare for an attack on our constitutional state. Their goal: an Islamic theocracy.

Turkey's Ever Expanding 'Helping Hand' over Latin America

By Erman Akilli

Source: <http://cesran.org/turkeys-ever-expanding-helping-hand-over-latin-america.html>

Jan 06 – **It is well known that Turkey has expanded its soft power through international aid, which was about \$3.4 billion in 2012.** It is quite likely more than that now. Regarding a specific case, in September 2014, a memorandum of understanding was signed between the Turkish Cooperation and Coordination Agency (TİKA), and the Mexican Agency for International Development (AMEXCID) on close cooperation in terms of regional

and international aid projects. In other words, from now on, both Turkey and Mexico can expand their foreign and humanitarian aid using each other's experiences. AMEXCID General Director Juan Manuel Valle Perena mentioned that through TİKA's experiences in Africa and Central Asia, AMEXCID wants to enlarge its projects in those regions. TİKA also signed a memorandum of understanding with the Presidential Agency for International Cooperation (APC-Colombia) in 2013, which would



serve as a basis for establishing cooperation and enhancing relations in tourism, social and economic infrastructure, science and technology, energy, productivity and competitiveness, agriculture and social support projects. Providing such aid in Latin America and the Caribbean is of significant importance



to Turkey. Contrary to limited regional visions which characterized the Cold War era, such international aid programs and projects indicate the implementation of an international vision.

As both doctrinaire and practitioner of the “Strategic Depth,” Prime Minister Ahmet Davutoğlu’s insights have also widened the horizon of Turkish foreign policy. Considering its status as a peripheral state during the Cold War era, Turkey now has the vision of one of the central states of the international system regarding foreign policy actions in the global arena. This success in foreign policy is boosted by TİKA, one of the executive tools of Turkey’s foreign policy in different regions and continents around the globe.

In this way, foreign aid and humanitarian diplomacy are becoming key tools in states’ foreign policy agenda. Thus, TİKA constitutes a unique institution for Turkey in this manner. It is clear that TİKA’s uniqueness and pivotal role in foreign policy has been bestowed via the “Strategic Depth” doctrine.

Before reviewing TİKA’s operations in Latin America and the Caribbean, it is essential to consider its roots, which go back to the early 1990s. After the dissolution of the Soviet Union, the international system had to shift and reshape its structure due to the new world order that rose from the ashes of the bi-polar

world system. During this process, Turkey had to revise its foreign policy according to new opportunities appearing on the periphery. This process gained momentum due to the newly-emerged Turkic republics following the dissolution of the Soviet Union. As a result, Turkey sought out partnership opportunities based on mutual Turkic origin.

As mentioned before, prior to the 1990s, Turkey had very limited interaction with the surrounding region and its people. Many authors mentioned this type of low-profile relationship status as “consent to resignation” from the region, due to Turkey’s dominant state ideology of at that period, called a “Western” state ideology, from a Kemalist understanding of foreign

and domestic policies. According to Western state ideology, Turkey’s sole foreign policy recipient must be the “Western” world alone. In other words, regions such as Central Asia, the Middle East, Far East, Latin America and the Caribbean had been intentionally ignored. However, the turning point in policy which has led to the current, active soft power, involved foreign policy, including TİKA, changing the appearance of Turkish policy, and transforming it into an efficient actor in various regions, not only in Turkic states.

Regarding Latin America and the Caribbean, Turkey’s approach is apparent in two distinctive approaches. First, developing bilateral relations in all possible fields such as social interaction, trade, the economy, education and culture, and **second,** establishing institutional cooperation with regional organizations such as AMEXCID, the Organization of American States (OAS), Association of Caribbean States (ACS), the Southern Common Market (Mercosur) and the Caribbean Community (CARICOM). Furthermore, **Turkey has signed over 200 agreements with the countries of the region, in order to establish a legal basis for bilateral relations, covering almost every field of**



cooperation. TİKA has an executive role for Turkey for establishing and crowning these relations with regional partners. In doing so, TİKA has been implementing various development projects and providing technical support in many fields to the countries in the region.

As the continuation of TİKA's success in the region, Turkey has an ever-expanding "helping hand" reaching toward Latin America and the Caribbean in both development and humanitarian aid. Some of the aid is humanitarian support to Central American and Caribbean countries after they were hit by several hurricanes, and lately, to Haiti and Chile following the devastation caused by major earthquakes. Besides aid in kind, Turkey has contributed \$1 million to Haiti and pledged to undertake a project with a budget of an additional \$1 million. The Turkish government donated \$500,000 to Chile after it was hit by a devastating earthquake. In addition to the previously donated \$2 million, the government provided an additional \$1 million at the Haiti Donors' Conference. Many Turkish civil society organizations also contributed to the aid efforts in different ways. Furthermore, in order to support the healthcare capacity in Belize, TİKA provided six intensive care beds, one regular bed, five mechanical ventilation units, seven invasive monitors, one defibrillator, two nebulizers, two pulse oximeters and one EKG device. Additionally, providing aid through TİKA

in education, Turkey established the Turkish history and culture department at Havana University, Cuba; provided substructure aid for schools in Mexico City, and provided substructure aid for schools in the provinces of Salta and Buenos Aires, Argentina. These projects are just the tip of the iceberg of TİKA's activity around the region.

It was mentioned at the beginning that from Turkey's perspective, developing a specific foreign policy aimed towards Latin America and the Caribbean is significant. Unfortunately, Turkey was forced to be one-dimensional in its foreign policy for more than 70 years, and being one-dimensional in foreign policy and having only one focus caused Turkey to be acknowledged as a peripheral state. For sure, this acknowledgement took place during the Cold War era. However, until the Justice and Development Party (AK Party) came to power, it was impossible to claim that Turkey had generated either new focuses or dimensions in its foreign policy. The bi-polar world system is buried under the ruins of the Soviet Union, and in a multi-polar world order, a state cannot be bound to a single region. Thanks to the "Strategic Depth" doctrine, Davutoğlu's multi-dimensional foreign policy and TİKA's projects ongoing in more than 120 countries from the Pacific to Central Asia and everywhere in between, Turkey now has many different foreign policy destinations around the globe.

Small UASs Innovations

Source: <http://i-hls.com/2015/01/small-uass-innovations/>

Among the main attractions at the recent CES fair in Las Vegas, was the unmanned aerial system (UAS) show. Some of the featured models first began as military platforms, and have since made their way to the civilian market, whose potential is estimated at \$130 million for 2015. By the end of this decade, the sector is expected to reach \$1 billion in revenues. In addition to standard UAS features, many manufacturers augment their systems with additional unique abilities.



By the end of this decade, the sector is expected to reach \$1 billion in revenues. In addition to standard UAS features, many manufacturers augment their systems with additional unique abilities.

X4 Pro by Hubsan

Hubsan began as a manufacturer of unmanned aerial vehicles (UAV) for enthusiast pilots. About three years ago, the company realized UAVs are not only quite expensive to



produce, but also quite complicated to set up, even for its most devoted clientele. So they changed course and began designing and constructing much cheaper units, at prices ranging between \$30 and \$500. Husban is proud of the smartphone-control feature of the X4 Pro, **enabling the user to pilot the system from anywhere in the world.** Its UAVs have a maximal operating radius of 45 km, and their GPS is capable of identifying nearby airports and steer clear away from them.



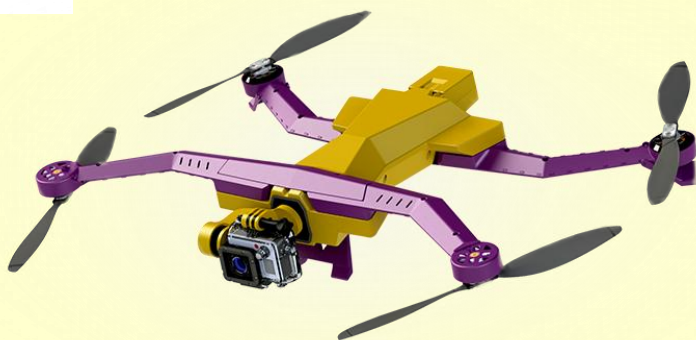
Flyr1 by Trace

Trace's new model (see above) comes complete with basic video analytics capabilities. Having programmed the UAVs system with the pattern or object it is tasked with identifying, it is capable of keeping a constant flight course and angle, along with a fixed distant from the target object. The Flyr1's video imagery is

streamed to any smartphone. At this stage, Trace is confident this is an excellent application for improving professional athletes' training programs.

Airdog

Having completed a successful round of crowd funding, this company unveiled a tiny UAV which monitors objects. Nevertheless, its monitoring feature is based on a different technology: the target object is wearing a special bracelet that allows this system to pinpoint its location and produce HD quality imagery.



Torguing by Zano

Sometimes, one tiny UAV is not enough. This, at least, is the prevailing opinion at Zano, which began as a military technologies company in Australia and the UK. Two years ago, the company made the transition to the civilian sector. It features systems which come complete with dedicated payload comprising barometric sensors. Another feature: all its systems can fly in a swarm, per joint command and control.

EDITOR'S COMMENT: That "enabling the user to pilot the system [X4 Pro] from anywhere in the world" worries me A LOT!!!

International conflict tops list of global risks in 2015, says World Economic Forum

By Emily Hough (Editor-in-Chief @ Crisis Resonse Journal)
Source: <http://www.crisis-response.com/news/news.php?article=841>

The biggest threat to the stability of the world in the next 10 years comes from the risk of international conflict, according to the 10th edition of the *Global Risks report*, which is published today.



The report, which every year features an assessment by experts on the top global risks in terms of likelihood and potential impact over the coming 10 years, finds interstate conflict with regional consequences as the number one global risk in terms of likelihood, and the fourth most serious risk in terms of impact.

to solve its most pressing societal issues, as societies are under threat from economic, environmental and geopolitical risks. Indeed, the societal risk accounts for the top two potentially impactful risks.

Also noteworthy is the presence of more environmental risks among the top risks than economic ones. This comes as a result of a

1	Interstate conflict with regional consequences (geopolitical risk)
2	Extreme weather events (environmental risk)
3	Failure of national government (geopolitical risk)
4	State collapse or crisis (geopolitical risk)
5	High structural unemployment or underemployment (economic risk)

Top five global risks in terms of impact

1	Failure of climate-change adaptation (environmental risk)
2	Infectious diseases
3	Weapons of mass destruction (geopolitical risk)
4	State collapse or crisis (geopolitical risk)
5	High structural unemployment or underemployment (economic risk)

Top five global risks in terms of likelihood

In terms of likelihood, as a risk it exceeds extreme weather events (2), failure of national governance systems (3), state collapse or crisis (4) and high structural unemployment or underemployment (5).

In looking at global risks in terms of their potential impact, the nearly 900 experts that took part in the Global Risk Perception Survey rated water crises as the greatest risk facing the world. Other top risks alongside that and interstate conflict in terms of impact are: rapid and massive spread of infectious diseases (2), weapons of mass destruction (3) and failure of climate change adaptation (5).

With the 28 global risks that were assessed in 2015 grouped into five categories – economic, environmental, geopolitical, societal and technological – 2015 stands out as a year when geopolitical risks, having been largely absent from the landscape of leading risks for the past half-decade, returns to the fore. With geopolitics increasingly influencing the global economy, these risks account for three of the five most likely, and two of the most potentially impactful, risks in 2015. Also in this category, three risks stand out as having intensified the most since 2014 in terms of likelihood and impact. These are interstate conflict with regional consequences, weapons of mass destruction and terrorist attacks.

The risk landscape in 2015 also shows that there remains concern over the world's ability

marked increase in experts' negative assessment of existing preparations to cope with challenges such as extreme weather and climate change, rather than owing to a diminution of fears over chronic economic risks such as unemployment and underemployment or fiscal crises, which have remained relatively stable from 2014.

"Twenty-five years after the fall of the Berlin Wall, the world again faces the risk of major conflict between states," said Margareta Drzeniek-Hanouz, Lead Economist, World Economic Forum. "However, today the means to wage such conflict, whether through cyberattack, competition for resources or sanctions and other economic tools, is broader than ever. Addressing all these possible triggers and seeking to return the world to a path of partnership, rather than competition, should be a priority for leaders as we enter 2015."

In addition to assessing the likelihood and potential impact of these 28 global risks, Global Risks 2015 examines the interconnections between risks, as well as how they interplay with trends shaping the short- to medium-term risk landscape. It also offers analysis of three specific cases which emerge from the interconnections maps: the



interplay between geopolitics and economics, the risks related to rapid and unplanned urbanization in developing countries and one on emerging technologies.

On urbanisation, the report considers how best to build sufficient resilience to mitigate the challenges associated with managing the world's rapid and historical transition from predominantly rural to urban living.

"Without doubt, urbanisation has increased social well-being. But when cities develop too rapidly, their vulnerability increases: pandemics; breakdowns of or attacks on power, water or transport systems; and the effects of climate change are all major threats," said Axel P Lehmann, Chief Risk Officer at Zurich Insurance Group.

The rapid pace of innovation in emerging technologies, from synthetic biology to artificial intelligence, also has far-reaching societal, economic and ethical implications. Developing regulatory environments that are adaptive enough to safeguard their rapid development and allow their benefits to be reaped, while preventing their misuse and any unforeseen negative consequences, is a critical challenge for leaders.

John Drzik, President of Global Risk and Specialties at Marsh, said: "Innovation is critical

to global prosperity, but also creates new risks. We must anticipate the issues that will arise from emerging technologies, and develop the safeguards and governance to prevent avoidable disasters."

The report also provides analysis related to global risks for which respondents feel their own region is least prepared, as well as on the global risks on which they feel most progress has been made over the last 10 years. It also presents for the first time country-level data on how businesses perceive global risks in their countries, which can be accessed [here](#). Moreover, the report features three examples of risk management and resilience practices related to extreme weather events.

The *Global Risks 2015* report has been developed with the support of Strategic Partners Marsh & McLennan Companies and Zurich Insurance Group. The report also benefited from the collaboration of its academic advisers: the Oxford Martin School (University of Oxford), the National University of Singapore, the Wharton Risk Management and Decision Processes Center (University of Pennsylvania), and the Advisory Board of the Global Risks 2015 report.

Drone loaded with meth crashes near US-Mexico border crossing

Source: <http://www.stripes.com/news/americas/drone-loaded-with-meth-crashes-near-us-mexico-border-crossing-1.325064>



Police in a Mexican border city said Wednesday that a drone overloaded with illicit methamphetamine crashed into a supermarket parking lot.

Tijuana police spokesman Jorge Morrua said authorities were alerted after the drone fell Tuesday night near the San Ysidro crossing at Mexico's border with California.

Six packets of the drug, weighing more than six pounds, were

taped to the six-propeller remote-controlled aircraft. Morrua said authorities are

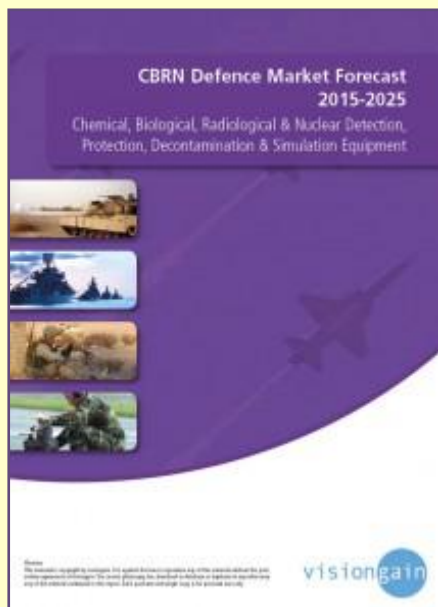


investigating where the flight originated and who was controlling it. He said it was not the first time they had seen drones used for smuggling drugs across the border. Other innovative efforts have included catapults, ultralight aircraft and tunnels. In April, authorities in South Carolina found a drone outside the fence of a prison that had been carrying cellphones, marijuana and tobacco.



CBRN Defence Market Forecast 2015-2025: CBRN Detection, Protection, Decontamination & Simulation Equipment

Source: <http://www.prnewswire.com/news-releases/cbrn-defence-market-forecast-2015-2025-chemical-biological-radiological--nuclear-detection-protection-decontamination--simulation-equipment-300011455.html>



Dec 17, 2014 – The current geostrategic circumstances surrounding the Syrian Civil War, the international campaign against the terrorist organisation ISIS, and the continuously spreading Ebola virus epidemic in West Africa have led to an increased interest in Chemical, Biological, Radiological and Nuclear Defence. Strong growth in the developing world, still in the process of creating their own significant CBRN capabilities will offset the strong financial constraints of the Western nations. CBRN defence remains an indispensable part of the strategic security preparedness of all nations. This important characteristic of the market assures a consistent growth over the forecasted period. Visiongain assesses that **global CBRN defence spending will reach \$10.2bn in 2015.**

What is the future of the CBRN market?

Visiongain's comprehensive analysis contains highly quantitative content delivering solid conclusions benefiting

your analysis and illustrates new opportunities and potential revenue streams helping you to remain competitive. This definitive report will benefit your decision making and help to direct your future business strategy.

What you will discover in this 370 page report:

- View global CBRN defence market forecasts from 2015-2025
- Keep your knowledge ahead of your competition and ensure you exploit key business opportunities
- The report provides detailed regional, national, and submarket sales projections of the market, analysis of the various competitors, and the market's commercial drivers and restraints, allowing you to more effectively compete in its environment. In addition to market forecasts covering the period 2015-2025, this new study brings together current market data, market share and submarket breakdown information, original critical analysis, and revealing insight into commercial developments.
- Our report provides 229 tables, charts and graphs
- See a thorough assessment of the current and future state of the CBRN defence equipment market.
- Our report details 328 CBRN contracts projects & programmes.
- Discover where opportunities exist, and where barriers to entry are high.

See two exclusive visiongain interviews with thought leaders

- By reading the transcript of exclusive expert opinion interviews contained in the report you will keep up to speed with what is really happening in the industry. You will gain a thorough knowledge on the CBRN defence sector finding strategic advantages for your work and will learn how your organisation can benefit, allowing you to assess prospects for investments and sales.

- Hamish de Bretton-Gordon, Managing Director CBRN, Avon Protection
- Dr Joachim Stach, Director of CBRNE Business Development, Bruker Corporation

- Discover sales predictions for the key CBRN end use submarkets from 2015-2025

- What are the dynamics within the CBRN defence industry? Which submarkets will generate the most revenue? Use our forecasts and expert insight to grow your business and gain more insight into 4 key submarkets

- Detection



- Protection
- Decontamination
- Simulation

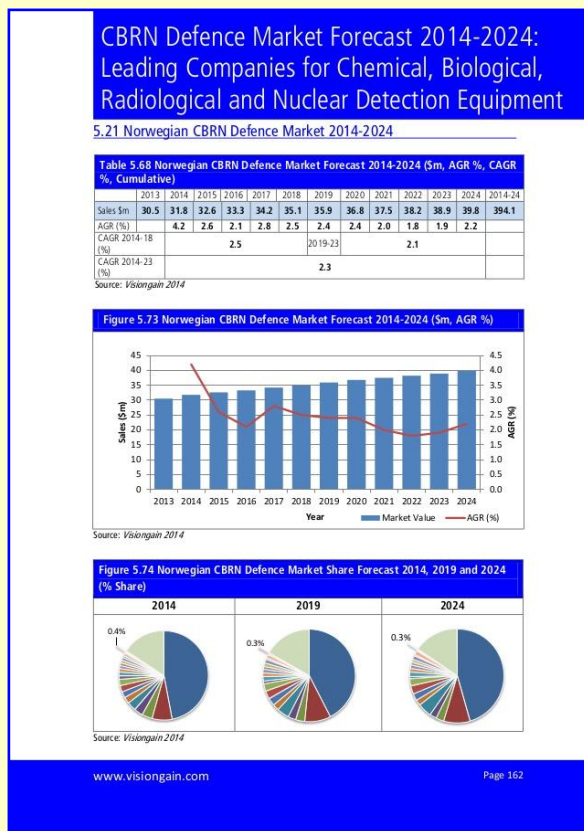
Understand the prospects for the leading national CBRN Defence Markets– where will the highest revenues and opportunities occur?

- Learn about the market potential for CBRN Defence companies in the developed and developing countries, from 2015 onwards. You will see where and how opportunities exist with revealing individual market forecasts and analysis from 2015-2025.

- United States
- China
- India
- Saudi Arabia
- United Kingdom
- Russia
- Italy
- France
- Germany
- Israel
- Spain
- The Netherlands
- Norway
- Japan
- Republic of Korea
- United Arab Emirates
- Australia
- Turkey
- Canada
- Brazil
- (Plus a Rest of the World Forecast)

- Within each national market you will see industry activity with detailed data revealing where companies are earning their revenues, with which products, and with which technology.

- You will be able to examine several detailed tables containing 328 significant contracts, projects & programmes.
- Explore the factors affecting product developers, and everyone within the value chain. Learn about the forces influencing market dynamics.
- Explore the political, economic, social, and technological (PEST / SWOT) issues assessing product advances. Discover what the present and future outlook for business will be. Learn about the following business critical issues:
 - Research and development (R&D) strategy
 - Technological issues and constraints.
 - Supply and demand dynamics
 - Competition from new product types
 - Increasing specialisation by leading players
 - Increasing industry consolidation.
 - Advances in product quality
 - Analysis of barriers to entry
 - Demographic changes



Identify who the leading companies are within the CBRN defence equipment market
 - Our report reveals the companies which hold the greatest potential. In particular, exploring and analyzing the activities of these companies: See where the expected gains will be. View visiongain's assessment of the prospects for established competitors, rising companies, and new market entrants. Our work explains that potential, helping you stay ahead. Gain a thorough understanding of the competitive landscape with profiles of 30 leading companies examining their positioning, capabilities, product portfolios, R&D activity, services, focus, strategies, M&A activity, and future outlook:

- AirBoss of America Corporation
- Airbus Group
- Alfred Kärcher GmbH & Co
- Allen Vanguard Corporation
- Argon Electronics Ltd
- Avon Rubber PLC
- Biofire Diagnostics Inc
- Bioquell PLC
- Blücher GmbH
- Bruker Corporation
- Chemring Group PLC
- CNIM Group
- Cristanini SpA
- Drägerwerk AG & Co KGaA
- Elbit Systems Ltd
- Emergent BioSolutions Inc
- Federal Resources
- FLIR Systems Inc
- General Dynamics Corporation
- Morphix Technologies
- Nexter Group
- OWR Group
- Paul Boyé Technologies
- Proengin
- Rheinmetall AG
- Smiths Group PLC
- Temet Group
- Thales Group
- Thermo Fisher Scientific
- Tyco International

**CBRN Defence Market Forecast 2014-2024:
 Leading Companies for Chemical, Biological,
 Radiological and Nuclear Detection Equipment**

[7. Expert Opinion](#)

[7.1 Avon Protection](#)

Avon Protection is established as a leading global brand in CBRN respiratory protection & defense system technology offering innovative Personal Protective Equipment (PPE) products and services across terrestrial, aerospace and marine markets. With an unrivalled pedigree in mask design dating back to the 1920's, Avon Protection's advanced respiratory products are selected for their superior comfort and quality. The first choice for many PPE users worldwide and is the primary supplier of CBRN PPE to the United States Department of Defense.

Visiongain's questions were answered by **Andrew Lewis** (Group Finance Director) and **John Penton** (Sales Director Europe & Asia Pacific). Visiongain thanks them for their contributions.

[7.1.1 What is Avon's Background in the CBRN Defence Market?](#)

Visiongain: Could you begin by telling me about Avon and your position in the CBRN defence market?

Andrew Lewis/John Penton: Avon is a total solutions provider manufacturing a broad portfolio of innovative high-performance and timesaving respiratory PPE including full face masks, self-contained breathing apparatus, supplied air, powered air, particulate and air-purifying respirators, escape devices, escape hoods, filters for riot control and CBRN protection, complimentary accessories and training packages. Avon's products are the first choice for many military, law enforcement, emergency services, firefighting and industrial users, who put their trust in Avon's advanced respiratory protection solutions to face every conceivable threat. Avon is based in Wiltshire with half a dozen sites in North America and a global reach through sales offices in the Far East and Europe and with regular visits to the Middle East.

In the CBRN defence market, our focus is primarily on respiratory protection including filtered air, bottled air and now re-breathed air systems.

[7.1.2 World Leaders in Respiratory Mask Systems](#)

Visiongain: Which of your products is most important to your business and for your presence in the market?

Andrew Lewis/John Penton: I would say our most important product in terms of market presence is our core military gas mask, the M50 (FM50). The M50 was developed over an 8 year period in

www.visiongain.com
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Discover Information found nowhere else in this independent assessment of the CBRN Defence market
 CBRN Defence Market Forecast 2015-2025: Chemical, Biological, Radiological, & Nuclear Detection, Protection, Decontamination, Simulation Equipment, provides extensive security sector analysis. With the independent business intelligence found only in our work, you will discover where the prospects are for profit. In particular, our new research provides you with key strategic advantages: Our informed forecasts, independent and objective analysis, exclusive interviews and revealing company profiles will provide you with that necessary edge, allowing you to gain ground over your competitors.

What makes this report unique?

Visiongain consulted widely with leading industry experts and full transcripts from 2 exclusive interviews are included in the report. Visiongain's research methodology involves an exclusive blend of primary and secondary sources providing informed analysis. This methodology allows insight into the key drivers and restraints behind market dynamics and competitive developments. The report therefore presents an ideal balance of qualitative



analysis combined with extensive quantitative data including global, submarket and regional markets forecasts from 2015-2025

Why choose Visiongain business intelligence?

Visiongain's; increasingly diverse sector coverage strengthens our research portfolio. The growing cross-sector convergence of key verticals and the interplay of game changing technologies across hitherto unrelated industries are creating new synergies, resulting in new business opportunities for you to leverage.

As such, visiongain's team of London based in-house analysts offer a wealth of knowledge and experience to inform your strategic business decisions.

How the CBRN Defence Market Forecast 2015-2025: Chemical, Biological, Radiological, & Nuclear Detection, Protection, Decontamination, Simulation Equipment will benefit you.

Visiongain's report is for anyone requiring analysis of the CBRN defence equipment market. You will discover market forecasts, technological trends, predictions and expert opinion providing you with independent analysis derived from our extensive primary and secondary research. Only by purchasing this report will you receive this critical business intelligence revealing where revenue growth is likely and where the lucrative potential market prospects are. Don't miss this key opportunity to gain a competitive advantage.

Avoid falling behind your competitors, overlooking critical business opportunities or losing industry influence. In our new report you will discover forecasts from 2015-2025 at the global, submarket, and national level. The report also assesses technologies, competitive forces and expected product pipeline developments. Read on to discover the prospects for the CBRN sector and find out what its future market prospects are.

If you buy our report today your knowledge will stay one step ahead of your competitors. Discover how our report could benefit your research, analyses and strategic decisions, saving you time. To gain an understanding of how to tap into the potential of this market and stay one step ahead of the competition you must order the CBRN Defence Market Forecast 2015-2025: Chemical, Biological, Radiological, & Nuclear Detection, Protection, Decontamination, Simulation Equipment.

► Read the full report at: <http://www.reportlinker.com/p02571501-summary/view-report.html>

Patient Decontamination in a Mass Chemical Exposure Incident: National Planning Guidance for Communities

By Susan M. Cibulsky, PhD, Mark A. Kirk, MD, Joselito S. Ignacio, MA, MPH, CIH, CSP, REHS, Adam D. Leary, MA, MS and Michael D. Schwartz, MD

Source: http://www.enmagazine.com/items/PatientDeconinMassChemExposureIncident_Sept2012DraftforReview.pdf

Executive Summary

Each day, substantial quantities of hazardous chemicals are produced, transported, stored, and used for industrial or household purposes. Stockpiles of chemical weapons around the world, while currently being destroyed, still exist. Various terrorist organizations and non-state actors have shown interest in procuring or developing and using chemicals in terrorist attacks. In each instance, these chemicals pose significant risk to public health due to the potential for accidental or intentional release that could harm large numbers of people.

Civilian first responders (e.g., fire, hazardous materials (HAZMAT), and emergency medical service) and first receivers (e.g., health care facility-based and other clinical personnel), along with emergency managers, public health practitioners, law enforcement officials, and risk communication experts, must be prepared to respond to such incidents.

The potential for a large-scale chemical release resulting in the need to decontaminate an overwhelming number of people has garnered wide interest among



policy makers and emergency planners. Guidance and best practice documents have been published and specialized equipment has been purchased. However, decontamination practices have evolved based on sparse evidence. Limited research has been conducted on decontaminating civilians. Patient decontamination, like other aspects of disaster response, medicine, and public health, could benefit from an assessment of the body of evidence, enhanced incorporation of the evidence into planning and practice, and

release. Efforts to enhance preparedness for patient decontamination in a mass exposure incident may also benefit the care that is provided to individual contaminated patients in other circumstances.

Audience, scope, and intent

The intended audience includes senior leaders, planners, incident commanders, emergency management personnel, and trainers of local response organizations and health care facilities. Though the guidance was developed with this specific audience in mind, it may be of value to other audiences, including first responders and first receivers, community leaders, scientific researchers, as well as others from the response and emergency management fields. A basic assumption of this document is that mass patient decontamination takes place at the level of the local affected community. Due to the need for chemically-contaminated patients to be decontaminated as soon as possible, the federal government will likely not be able to participate directly in the decontamination response. Therefore, **this guidance is directed primarily at local organizations.**

The subject matter considered here is limited to external contamination of living people (henceforth defined as “patients”; see Appendix B: Lexicon) with toxic industrial chemicals (TICs), toxic industrial materials (TIMs), or chemical warfare agents (CWAs) in a mass casualty incident resulting from an accidental or intentional release. This guidance attempts to address the full spectrum of the decontamination response operation, from initial assessment and decision making through evaluation of decontamination effectiveness. Further, the entire affected community is considered, with emphasis on coordination between on-scene and health care facility-based response activities and communication on multiple levels. Patient decontamination principles are set forth here from a strategic perspective, rather than a tactical one. The principles are meant to guide, but not specify,



Patient Decontamination in a Mass Chemical Exposure Incident: National Planning Guidance for Communities



additional study to generate needed evidence. Furthermore, many current guidance and best practice documents do not address the full spectrum of issues that a community may face when large-scale patient decontamination is necessary in a mass chemical exposure incident.

The need for examination of current patient decontamination practices was identified by experts in the emergency response and medical communities. The White House National Security Council (NSC) staff followed with a request for evidence-based national planning guidance for mass patient decontamination in a large-scale chemical



operational practices. The guidance is evidence-based to the extent possible and the supporting evidence is documented and briefly discussed.

The approach in this guidance is flexible and scalable according to the resource and capability limitations of the community. The recommendations should be adapted as each unique community sees fit according to their own hazard and risk assessment.

Examples of how the guidance might be used include:

- ✓ **Planners:** incorporate current evidence-based recommendations during development or revision of an organization's response plans.
- ✓ **Community leaders, public health officials:** enhance system-wide coordination and develop plans for communicating with patients and the whole community.

- ✓ **Trainers:** develop, improve, or augment training of response personnel for patient decontamination operations, using current evidence-based recommendations.
- ✓ **Emergency managers:** generate policy and plans to address issues related to system-wide coordination, the whole community response, and crisis and risk communications, as well as other overarching issues.
- ✓ **Hospital emergency managers:** incorporate evidence-based recommendations into the hospital response plan and training program addressing the hospital's unique challenges, and enhance coordination of the hospital response with those of the rest of the community through effective interagency planning and communication.
- ✓ **Researchers:** identify knowledge gaps and conduct research to investigate them.

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

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Israel continues to turn a blind eye to the danger of Syrian chemical weapons

By Arie Egozi

Source: <http://i-hls.com/2014/12/israel-continues-turn-blind-eye-danger-syrian-chemical-weapons/>

Israeli policy makers seem to have decided to ignore one deadly fact: Syria did not surrender its entire chemical arsenal. Syria continues to use it.



Yesterday, Israel's TV *Channel Two* reported what we at *iHLS* have already in the past: the Syrian Army continues to use chemical weapons in the framework of its attacks on rebel strongholds.

According to the sources quoted by *Channel Two's* report, the Syrian forces used **chlorine gas** to attack forces opposing Assad's regime in the suburbs of Damascus, killing a few people and injuring dozens. The Syrian Army's repeated use of chemical weapons is one of over 40 cited cases of contraband WMD deployment.



As reported by *Channel Two*, Israel's defense establishment is taking the use of chlorine gas rather lightly, claiming chlorine is less dangerous than other material Syria was – and may still be – in possession of.

Any chemistry-one-on-one graduate would tell you chlorine gas is deadly. Worse still, Syria is indeed in possession of other chemical weapons.

I already said, back in September, that what any junior intelligence officer knows failed to reach the Oval Office. Whilst we at *iHLS* keep alerting, based on our sources, that Syria did not destroy its chemical arsenal, the US hailed "the mission's completion". But the mission is far from complete. Assad is laughing his head off.

I also wrote on this issue after the U.S. expressed concern that ISIS and other terrorist organization will succeed in laying their hands on chemical weapons in case Syria still keeps them in storage. "In Case"? What a stupid assumption. The question is 'how much' do the Syrians have, not whether they do. This was my take on this topic back then.

The fact the Americans do not know the facts is fine. But here in Israel, some seem to have joined the choir of those who say the danger of Syrian chemical weapons is gone, so protective masks do not need to be produced and distributed.

So here the facts: Syria did not relinquish a fraction of its chemical arsenal. Assad is an expert at fooling the gullible, naïve, West.

Syria is among the most advanced countries in the Middle East in the field of chemical warfare.

Egypt furnished them with initial capabilities a little prior to the war in 1973. Since then, Syria acquired many and varied capabilities, including mustard gas and Sarin gas, and probably vx nerve gas as well. Various reports abound, according to which Syria manufactured chemical weapons since the 1980's at Hama, Homs and Al-Safira, near Aleppo. Nevertheless, Syria remains dependent on foreign sources when it comes to dual-use chemicals (used for both civil and military purposes), as well as for supply of catalysts – which are crucial for chemical weapons.

Syria still has Scud B and Scud C missiles, as well as artillery shells and rockets. These delivery systems seem capable of launching chemical warheads. Until recently, Syria refused to co-sign CWC – the Chemical Weapons Convention, an anti-proliferation charter.

Arie Egozi is i-HLS' Editor-in-Chief

Chemical Maggie: Thatcher considered chem weapons stockpile in Cold War standoff

Source: <http://rt.com/uk/218607-thatcher-chemical-weapons-acquisition/>

Britain's late Prime Minister, Margaret Thatcher, considered reviving the UK's chemical weapons program in an effort to bolster Britain's "retaliatory capability" against perceived Soviet threats, National Archive papers reveal.

The papers, released under the 30-year rule that compels the publication of secret Cabinet documents three decades afterward, show that Thatcher's government secretly mulled chemical warfare against



the Soviet Union in 1984. The plans were hatched as Cold War tensions between the UK and the Soviet Union ran high, particularly during the British miners' strike, in which Soviet leaders were suspected by Thatcher's government of supporting the National Union of Mineworkers' year-long struggle against her plan for pit closures.

The papers show that Thatcher claimed a



failure on behalf of the UK government to adequately prepare for potential Soviet chemical attacks would amount to negligence.

Previously classified papers, published Tuesday, warned chemical strikes by Russian aircraft on vulnerable or sensitive British targets could have a catastrophic impact, resulting in a colossal loss of life.

One defense paper, contained in the secret Home Office file, estimated as many as 140,000 civilians could be injured and over 20,000 could die if dockyards in Liverpool were hit with poisonous gases. Government officials also predicted a strike on Gatwick Airport could result in 30,000 casualties and 16,000 fatalities.

Britain had ratified a treaty under the Geneva Convention, which outlawed the use of toxic substances in warfare. But the international agreement's protocols did not ban the production or development of these weapons of mass destruction, and deemed their use in cases of retaliation permissible.

Alarmed by the Soviet Union's growing stockpile of toxic nerve gases, strategic planners for the Ministry of Defence (MoD) warned military responses to such chemical attacks would likely escalate to nuclear warfare.

While the Thatcher government privately discussed the possibility of reviving its chemical warfare capability, problems arising from such a move were anticipated.

One paper, released by the National Archives, noted chemical warfare would likely be "an emotional issue" in Britain. Any plans to further develop the state's capabilities in this context should remain secret until "the general public can be given credible guidance on protection measures," it concluded.

Another paper entitled 'Secret UK Eyes A' said the sharp U-turn in the government's chemical weapons policy, following 25 years of divestment from such weapons, could provoke "political controversy."

But the strategic defense paper said UK military chiefs operating under the Thatcher government firmly believed the only credible deterrent to the communist bloc's deployment of chemical weapons was Britain's "ability to retaliate in kind."

The previously secret file does not indicate the final results of the UK government's deliberations on the issue. But a letter penned by Thatcher's private secretary, Charles Powell, relating to a chemical weapons summit later that year, sheds further light on the government's stance.

Powell wrote to the permanent secretary of the MoD, confirming the decision. "Modern NBC [nuclear, biological or chemical] equipment should be issued to servicemen and essential civilians in British forces Germany and to some 140,000 servicemen in the UK with a NATO role."

"The Americans should be encouraged to move forward with modernization of their capability ... Public opinion in the UK could be brought gently to a better and wider perception of the imbalance between Soviet and NATO capabilities in chemical warfare while avoiding an upsurge of alarm," Powell wrote.

The MoD, at the time, estimated the Soviet Union possessed over 300,000 tons of nerve agents.

Thatcher's government mulled over the idea equipping British homes with protective chemical weapons shelters but the proposed scheme floundered after experts noted that people would have to remain in them for



up to 10 hours in the aftermath of a chemical attack.

The Home Office file indicates that Thatcher felt the Soviet Union had the upper hand with respect to chemical weapons and that this created an "enormous imbalance" on a fraught global stage.

This imbalance "in Soviet and Western capabilities in CW" posed a huge threat to Britain, one paper recorded the then-PM, who died in 2012, as saying.

Britain has said it voluntarily ceased stockpiling chemical weapons in the 1950s.

Poison Pages

What's so dangerous about wallpaper samples?

By Laura Bien

Source: <http://annarborchronicle.com/2012/05/03/in-the-archives-poison-pages/>

A second-floor shelf of University of Michigan's Buhr book storage facility contains Michigan's single most dangerous book.



One of the arsenical wallpapers in "Shadows".

It is one of only two known copies to exist in the state. If not for its historical importance, even the most fervent bibliophile might agree: the fewer copies in the world the better.

"Shadows from the Walls of Death" is dangerous not in the sense of a book containing radical ideas. Nor is it



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dangerous in the way a bomb-building manual might be. In fact, after the title page and preface, the following 86 pages, each one measuring about 22 by 30 inches, contain no printed words at all.

Michigan State University holds the other copy of "Shadows" in its Special Collections library division. The volume is sealed in a protective container, and each page is individually encapsulated.

Prospective "readers" of "Shadows" at the Buhr building must wear blue plastic protective gloves. During a visit to the Buhr some days ago, the book was wheeled out slowly on its individual cart. The marbled pattern on the cover showed through a protective thick-gauge plastic bag.

I held my breath as I gingerly eased open the cover, and while "reading" the pages I was careful to avoid any skin contact. "Shadows" is saturated with a deadly amount of arsenic.

UM alum Robert Kedzie created "Shadows from the Walls of Death." After receiving his degree with the medical school's first graduating class, in 1851, Kedzie established a medical practice in Kalamazoo and later Eaton County's Vermontville. He left his practice, along with his wife and three sons, to serve as a Civil War surgeon with Michigan's 12th Regiment. Kedzie was captured and imprisoned at Shiloh, but paroled.

In 1863 he returned to Michigan to chair Michigan Agricultural College's (MSU's) chemistry department. Some three decades later, Kedzie imported 1,700 pounds of beet seeds from Europe in a campaign to assess the suitability of Michigan soil for sugar beet production. The seed was sent to 400 Lower Peninsula farmers. Of those, 228 responded and mailed



beets back to Lansing for analysis. They were found to contain 14% sugar. Michigan's beet sugar industry was born.

Before donning the mantle of "Father of the Michigan Beet Sugar Industry," Kedzie was elected to serve with the state's board of health when it formed in 1873. He chaired the committee on "Poisons, Special Sources of Danger to Life and Health, &c." Kedzie wasted no time in reporting his chief concern in an essay, "Poisonous Papers," included in the Board of Health's inaugural 1874 report.

He called attention to a problem raised by Massachusetts' board of health in 1872 – the widespread use of wallpaper colored with arsenical pigment.



Another arsenical wallpaper from "Shadows."

The story of Napoleon poisoned by arsenical wallpaper while imprisoned on the island of St. Helena in 1815 is a familiar rumor. Largely forgotten, however, is that arsenical wallpaper was common and widely used in Michigan, Massachusetts, and elsewhere in the 19th-century United States. In 1887, the American Medical

Association estimated that between 1879 and 1883, 54–65% of all wallpaper sold in the United States contained arsenic, a third of which at dangerous levels. Over time, the poisonous pigment could flake or be brushed off the wallpaper and float in the air as inhalable dust or settle on furniture in the home.

Kedzie cited several cases of wallpaper poisoning in his essay, including one from a family in Manchester in Washtenaw County.

The walls of one bed-room were covered with a paper the ground work of which was stone color with bands of bright green ornamented with gilt. The daughter, Emma, aged 9, occupied this room for several months. Soon after occupying the room her health began to fail, and she exhibited the following symptoms: Lameness, resembling rheumatism, darting pains in various portions of the body; languor in the morning, feverishness, pains in the head and about the frontal sinuses, sores in various parts of the body, faint spells, turning white about the mouth, and great loss of flesh. The best medical advice that could be procured was obtained, but no essential improvement followed. Whenever she left home for a few weeks her health improved; but she relapsed into her former condition on returning home.

Kedzie tested the paper and found it contained a high level of arsenic. Emma was removed from the room and regained her health.

An Economical Dye

Originally a byproduct of the European mining industry, arsenic offered mining companies a means of profiting from a waste product, and offered manufacturers a means of obtaining a cheap dye. Thousands of tons were annually imported to the United States. The substance produced lovely hues ranging from deep emerald to pale sea-green. Arsenic could also be mixed into other colors, giving them a soft, appealing pastel appearance.

The first application of arsenic as a pigment was as a paint dye. The pale green shade caught on as a "refined" color. American manufacturers began using arsenic to color a range of consumer goods. Children's toys were painted with arsenical paint. Arsenic-dyed paper was used in greeting cards, stationery, candy boxes, concert tickets, posters, food container labels, mailing labels, pamphlets, playing cards, book-bindings, and envelopes –envelopes the sender had to lick.

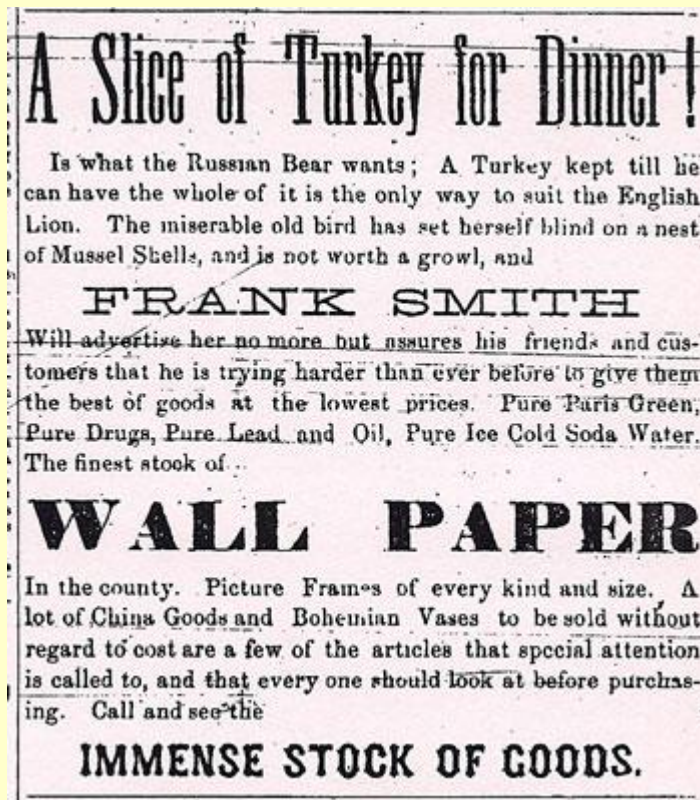
"A professor at the Agricultural College," wrote Kedzie in "Poisonous Papers," "brought home a package of lead pencils around which was a broad band of beautiful green paper.



His little children, attracted by the beautiful color of this paper, wanted it to play with, but he handed it to me for analysis, and I found it contained enough arsenic to poison all of them.” Kedzie went on to cite cases involving a baby’s toy box decorated with green paper, a U.S. Express Co. package with a green mailing label, and green store price tags, all of which tested positive for arsenic.

Arsenic Elsewhere

In 19th-century Michigan, arsenic served as a home rat poison and insecticide – even childrens’ stuffed animals were dusted with it by manufacturers to prevent infestation. Arsenic appeared in green lampshades, cosmetics, and copper cookware. It was used to color candy and glaze fudge. Cheesemakers sometimes threw a pinch or two into the cheesemaking vat in the hope of killing ptomaine.



Ypsilanti druggist Frank Smith sold Paris Green and wallpapers that like as not were impregnated with arsenic, as seen in this 1878 ad.

Arsenic was an ingredient in many patent medicines. As late as 1921 the American Medical Association was still finding arsenic in patent medicines that included Blue Bell Kidney Tablets, Botanic Blood Balm, Wildroot Dandruff Remedy, Dander-Off, Dr. Miles’ Restorative Nervine, La Franco Vitalizer No. 200, and others. Arsenic was also used in mainstream medicine as a treatment for syphilis.

Arsenic was extensively used in 19th-century Michigan agriculture as the ubiquitous insecticide “Paris Green.” It was dusted on tomatoes, potato foliage, cabbage,

cucumbers, grapes, melons, and sprayed on fruit trees.

Arsenic-dyed cloth led to an 1860s fad for emerald-green tartan-fabric ball gowns. Luckily the trend was short-lived. The 1884 annual report from Massachusetts’ State Board of Health, Lunacy, and Charity said, “Attention has very frequently been called to the presence of large amounts of arsenic in green tartan, which has given rise so many times to dangerous symptoms of poisoning when made into dresses and worn, so that it is very rare now to see a green tartan dress.” The report continued:

This fabric is still used, however, to a very dangerous extent, chiefly for the purposes of ornamentation, and may often be seen embellishing the walls and tables at church and society fairs, and in confectionery, toy and dry-goods stores. The writer has repeatedly seen this poisonous fabric used at church fairs and picnics as a covering for confectionery and food, to protect the latter from flies. As is well known, the arsenical pigment is so loosely applied to the cloth that a portion of it easily separates upon the slightest motion. Prof. Hoffmann after examining a large number of specimens estimated that twenty or thirty grains of the pigment would separate from a dress per hour, when worn in a ball-room.

Two to three grains (130-195 milligrams) could prove fatal if ingested.

Arsenic was also used to dye stockings, underwear, curtains, millinery decorations, artificial flowers, and cloth linings for bassinets and cribs in a variety of colors. Green flannel boot linings impregnated with arsenic allegedly killed several California gravel miners in 1875. Arsenic poisoning is still a concern for modern-day reenactors who wish to wear authentic Victorian-era clothing.



Mysterious Poisonings

Skin ulcerations are one symptom of arsenic poisoning. Others include headache, abdominal pain, diarrhea, patches of skin discoloration, hair loss, coughing, convulsions, and neuropathy in the hands and feet.

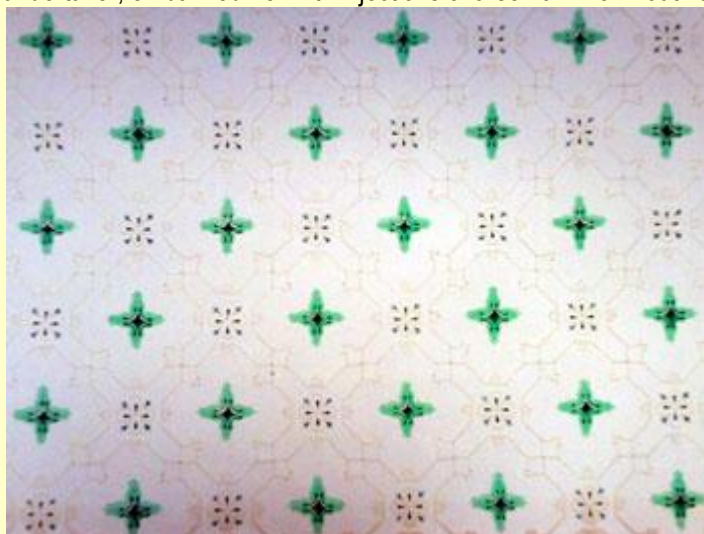
In 19th-century Michigan, those symptoms pertained to a range of diseases. Arsenic poisoning was often diagnosed as conditions that included “general debility,” neuralgia, consumption (tuberculosis), cholera, rheumatism, gastritis, dysentery, or paralysis – all of which commonly appear as causes of death on old Michigan death certificates.

Sometimes the symptoms were not produced by a chronic condition caused by long-term exposure, but by acute conditions deliberately and maliciously created. Over the years, UM served as the state’s resource for toxicological examinations in arsenic poisoning cases.

In the summer of 1846, the Oakland Gazette reported suspicion surrounding the death of one Harriet Russell. Her remains were disinterred and her stomach and intestines sent to Ann Arbor for testing. Silas Douglas of the chemistry department tested the samples and found arsenic. Russell’s husband was taken into custody.

In the summer of 1861, the Grand Traverse Herald reported another suspicious death. Douglas analyzed the stomach contents of one Nicholas Frankinburger of Traverse City, finding a large quantity of arsenic. Douglas’ skills were employed again in 1865 in the notorious Battle Creek Haviland murder case in which Sarah Haviland was accused of poisoning three children. His findings led to her conviction.

In addition to Douglas, other UM toxicologists and pathologists served as analysts and expert witnesses in arsenic poisoning cases. As arsenic was a late 19th-century ingredient in embalming fluid, post-mortem embalming could hide ante-mortem poisoning attempts. In the spring of 1892 the wife of Matthew Millard, a leading businessman of Ionia County, took ill and died. Her husband, a onetime undertaker, embalmed her with injections of arsenic in her mouth and rectum and had her buried.



Pretty green stars conceal a lethal secret.

Due to suspicions of poisoning, Mrs. Millard was exhumed 105 days later and several tissue samples were analyzed. Mrs. Millard was re-buried, then re-exhumed again so that more samples could be taken. Arsenic was found in her internal organs. The case went to court. The leading toxicological textbook of the day taught that arsenic could not spread to internal organs after death;

therefore, said the prosecution, Mrs. Millard’s husband must have poisoned her. Robert Kedzie and UM toxicologist Victor Vaughn testified for the defense, saying that arsenic could indeed spread throughout the body after death; the presence of the poison in the internal organs did not necessarily indicate ante-mortem poisoning. To prove it, Vaughn duplicated the arsenic injection procedure on a corpse and buried it. When exhumed, it was found that the arsenic had spread to the internal organs. Millard was ultimately acquitted.

In the celebrated 1895 New York case of Mary Alice Fleming’s alleged matricide by clam chowder, Vaughn testified for the prosecution. “Dr. Vaughn is the discoverer of tyrotoxin, the ptomaine poison found in stale milk, and enjoys a world-wide celebrity for original research in toxicology and physiological chemistry,” wrote the June 11, 1896 New York Times. The story went on to say that Vaughn testified about the types and classifications of poisons and described in detail the symptoms of arsenic poisoning. He agreed that it appeared that



Mary Alice’s mother had apparently died of arsenic poisoning. Though the prosecution’s case was strong, popular sentiment of the time ran against the death penalty for a woman, and Mary Alice was acquitted.

Vaughn, along with UM pathologist Alfred Warthin also provided analyses in the 1909-1911 Sparling family poisonings in Ubyly, near Bad Axe in Michigan’s Thumb area. The father, John Sparling and three of his four sons, Peter, Albert, and Scyrel, died from arsenic and strychnine poisoning in a case that involved alleged improprieties between the mother and a local doctor, Robert Macgregor. Macgregor encouraged her to take out life insurance policies on her family members. Vaughn and Warthin found evidence of arsenic poisoning, and Macgregor went to Jackson State Prison with a life sentence, though he was later pardoned by Governor Ferris.

Nearly four decades earlier, Robert Kedzie had delivered his own verdict: arsenical wallpapers must be eliminated from the state. In 1874 he collected numerous wallpaper samples from Detroit, Lansing, and Jackson stores, cut them into pages, and had them bound into 100 books which he distributed to libraries around Michigan.

The dainty and artistic wallpaper samples stand in contrast to a dire Biblical quotation on the title page of “Shadows of the Walls of Death”:

And behold, if the plague be in the walls of the house, with hollow strakes, greenish or reddish, ... Then the priest shall go out of the house to the door of the house, and shut up the house seven days. ... And he shall cause the house to be scraped within round about, and they shall pour out the dust that they scrape off without the city into an unclean place.

Kedzie’s public health campaign was reported to have poisoned one lady who examined the book, but it otherwise effectively publicized the dangers of living in a house papered in arsenic. Scraps of arsenical wallpaper may still be found here and there in historical homes, now merely an antique curiosity to be

removed for safety’s sake. It is no longer a silent everyday threat disguised as beautiful patterns on the walls.



Mystery Artifact

Last month, Jim Rees and Poohbah correctly guessed that the object was a blowtorch (honorable mention goes to Irene Hieber for guessing that it was an acetylene torch – you were right about the torch part).

Mystery Object

This artifact is a recent acquisition to the author’s collection (translation: scavenged from a curbside pile of junk while walking the dogs) and I can’t wait to try it out!

On second thought, I think I can wait.

This month’s Mystery Artifact dates from an era of more leisurely communication. This tiny cylinder had a specific function, but what was it?

Where in the house could you find it?

What did it do?

Take your best guess and good luck!

Laura Bien is the author of “Tales from the Ypsilanti Archives” and “Hidden History of Ypsilanti.”



A Veteran's Chemical Burns Expanded Military Doctors' Knowledge, but His Care Faltered

By C.J. Chivers

Source: <http://www.nytimes.com/2014/12/31/us/veterans-chemical-burns-expanded-military-doctors-knowledge-but-his-care-faltered.html>

Daniel Mould's (photo) sense of abandonment was profound.



An Air Force staff sergeant wounded in a chemical weapon accident in 2004, he willingly helped the military study his wounds. From his bed in a Philadelphia burn ward, as blisters from sulfur-mustard agent erupted on his skin, he signed a waiver allowing doctors to gather his body fluids to experiment with new laboratory methods for confirming chemical exposure.

Blisters from sulfur-mustard agent erupted on Sergeant Mould's skin as he lay at a Philadelphia burn ward in 2004. Credit U.S. Army Medical Research Institute of Chemical Defense

When Over the next 18 months, as the military gave him attentive care and doctors prepared peer-reviewed journal articles about his case, another branch of the service, the Army, concluded that it needed to be exhaustive in tracking troops exposed to chemical warfare agents: Citing Sergeant Mould's burns, it called for monitoring victims for life.

The case seemed a welcome example of the military's working closely with a patient to

improve understanding of a rare battlefield risk and to develop practices to learn from patients' medical experiences. Then came the shift.

Sergeant Mould accepted medical retirement in 2006, he was suffering a cascade of health problems, but he said he had been assured of long-term monitoring. Instead, he said, "the Air Force never contacted me again. I've never been tracked."

In October, reacting to an investigation by The New York Times, the Army surgeon general's office announced that it would begin monitoring the long-term health of all veterans exposed to nerve or blister agents during the American occupation of Iraq. The victims had been kept secret as long as a decade, and the Army's treatment guidelines had not been followed.

For Mr. Mould, 45, who had never spoken publicly about the accident, the irony of the



Army's announcement was startling. Even the person whose wounds spurred one branch of the military to call for tracking exposed veterans had not been enrolled in long-term monitoring — by either the Pentagon or the Department of Veterans Affairs.

The origins of his case span almost a century of American chemical-warfare policies, and like the experience of Iraq —



where troops were wounded by abandoned chemical weapons — his example speaks to the persistent dangers presented by discarded or forgotten munitions.

Almost all of the military's previous chemical-exposure victims had been World War I veterans or human subjects in classified military tests during World War II and the Cold War. The latter group, tens of thousands of enlisted men, were systematically exposed to nerve and blister agents in gas-chamber tests, field exercises or other efforts to evaluate protective equipment and human reactions to chemical-warfare agents.

Often the human subjects were sworn to silence. The Pentagon denied their existence for decades, until victims came forward with medical claims, prompting a 1993 review of the military's conduct by the National Academies' Institute of Medicine, which noted "a well-ingrained pattern of abuse and neglect" of the human subjects, some of whom had been duped into consent.

That review also found enduring negligence: "No formal long-term follow-up medical care or monitoring was provided" for exposure victims, even though follow-up, the authors said, "could have provided a wealth of information on the effects of these war gases."

Tracking exposure victims is important, military and health officials say, because blister and nerve agents can carry long-term effects. Sulfur mustard, for example, can cause lingering respiratory difficulties and is carcinogenic, although precise risks have proved hard to measure in the limited studies to date.

That legacy of squandered opportunities appeared to change by 2004, when Sergeant Mould was burned.

His wounding was like a case study in the long-lasting dangers of modern weapons. In 1917 and 1918, the United States brewed chemical agents for use on Europe's front lines, only to find it had little storage capacity for thousands of tons of chemical artillery shells that had not been fired before the armistice in 1918.

The Army found a solution: Dump them off the East Coast. "War Gas Dumped Far Out At Sea," read the headline on a New York Times article in 1919, which noted that one vessel dropped 200,000 shells overboard between 60 and 100 miles out.

Little is known of the locations of many shells, which were scattered by multiple ships. But out of sight did not mean out of reach. One shell intersected with Sergeant Mould more than eight decades later, after the police found a rusted artillery projectile at a chicken farm in Delaware in the summer of 2004.

The projectile had been brought ashore by a fishing vessel and delivered to the farm with a load of crushed clamshells to be used as roadway fill.

Sergeant Mould, at the time assigned to an explosive ordnance disposal team on Dover Air Force Base, was dispatched to pick up the shell and bring it back the base. There, he said, he and a more senior noncommissioned officer misidentified it as a conventional, high-explosive 75-millimeter round.

The next day, Sergeant Mould's team was assigned to destroy the shell. The plan was to breach it with a small shaped charge, causing its suspected contents to burn out and minimizing the risk of a larger blast or fragmentation.

After the team detonated the shaped charge, Mr. Mould recalled later, something was clearly wrong: The shell was leaking a "liquid about the consistency of vegetable oil and black as the ace of spades." The liquid, he said, smelled like hot asphalt.

A more senior disposal tech, he said, proposed that the shell was a tar-filled practice round. The three techs sealed it in garbage bags to contain the odor and planned to finish destroying it another day.

As the team packed the round, sticky liquid spilled onto Sergeant Mould's sleeve.

At 4 a.m. the next day, Mr. Mould recalled, he woke in pain. Blisters were rising on his left hand and arm. He understood immediately that what he had thought was tar had been a chemical warfare agent.

Sergeant Mould drove to an emergency room. Two other techs suffered exposure in the incident, including one who had a small chemical burn above one knee, according to the Air Force incident report. One did not reply to requests for comment; the other could not be reached.

Sergeant Mould's wounds required 10 days of hospital care and two months of convalescing at home. From the start, he



agreed to cooperate with military doctors who used his blood, urine and blister fluid to develop laboratory tests that allowed them to confirm exposure as long as 41 days out.

One participating doctor praised Sergeant Mould's attitude. "He really was very public-spirited about it," said Dr. Jonathan Newmark, then an Army neurologist at the Army's Medical Research Institute of Chemical Defense.

As his burns healed, Sergeant Mould began suffering other medical problems, including post-traumatic stress disorder. He also became angry at what he saw as government shortsightedness and silence.

"It turned out that people knew those shells were dumped there," he said. "I can't tell you how that upset me."



The 75-millimeter shell retrieved by Sergeant Mould and his teammates, taken the day before they attempted to destroy the round. Credit Daniel Mould/United States Air Force

In the years since, 15 more of the same type of mustard shells have come ashore in clam boats and been recovered from the Sea Watch International seafood plant in Delaware, said Dave Foster, an Army spokesman.

By then, prompted by Sergeant Mould's case, the procedures had changed. The shells were all destroyed in a specialized, sealed chamber known as an explosive destruction system, Mr. Foster said.

Another Air Force technician suffered mild chemical burns several years later retrieving

one of the mustard shells from the clam-processing plant. Reached by telephone, that victim declined to comment, beyond saying that she remained on active duty and that the Air Force had handled her case well.

Sergeant Mould was medically retired in 2006. His records show that he has suffered depression, reactive hypoglycemia and cardiac problems. He said he had been troubled by the military's lack of curiosity and follow-up.

"I can't tell you that my health problems were caused by mustard," he said, "but I can't be sure there is not a connection, either."

As his health failed, he said, the Air Force ceased following his case, and the V.A.'s handling of his routine medical care was so inadequate that he stopped visiting the department's hospitals.

The Air Force confirmed that it did not have a policy for long-term monitoring of its veterans exposed to chemical agents — like the one developed by the Army after Sergeant Mould was exposed — and that it stopped following him when he left active duty. When his care was handed off to Veterans Affairs, doctors there said, Mr. Mould was treated through 2009 for a range of health problems, but he had not been enrolled in long-term surveillance and the department had not tried to reach him since 2011.

Dr. Paul Ciminera, director of the V.A.'s Post-9/11 Era Environmental Health Program, said that now that other mustard-exposure victims had become known from Iraq, the V.A. had begun working with the Department of Defense to decide how best to track victims over time.

After The Times inquired about Mr. Mould's case, the Army said it would enroll him in a regimen of lifelong health monitoring — a step Dr. Newmark said made sense.

"Going forward, it is pretty clear that what we ought to do for these people is have a long-term safety net in place," he said.

Mr. Mould said this was all he had sought years ago. "I'd love it," he said, "if they'd just do what they said."

► Read also:

Medical Records of U.S. Casualties of Iraq's Chemical Weapons

Source: <http://www.nytimes.com/interactive/2014/10/14/world/middleeast/iraq-chemical-weapons-medical-records.html>



C. J. Chivers contributes to the Foreign and Investigative desks of The Times, and frequently posts for the At War blog, writing on conflict, politics, crime and human rights from Afghanistan, Iraq, Russia, Georgia, Chechnya and elsewhere on a wide range of assignments. In addition to writing, he shoots video and, occasionally, photographs. He served as Moscow correspondent from June 2004 through mid-2008. He has also covered war zones or conflict in the Palestinian territories, Israel and Central Asia. From 1999 until 2001 he was a Metro reporter covering crime and law enforcement in New York City, working in a three-reporter bureau inside the police headquarters in Lower Manhattan. While in this bureau, he covered the attacks on the World Trade Center on Sept. 11, 2001.

Before joining The Times, Mr. Chivers was a staff writer at The Providence Journal in Rhode Island from 1995 until 1999, covering crime and politics, and was a contributor to several magazines, writing on wildlife, natural history and conservation. He remains a contributor to Esquire and Field & Stream.

From 1988 until 1994, Mr. Chivers was an infantry officer in the United States Marine Corps, serving in the Persian Gulf War and performing peacekeeping duties as an infantry company commander during the Los Angeles riots. He was honorably discharged as a captain in 1994. In 1996, Mr. Chivers received the Livingston Award for International Journalism for a series on the collapse of commercial fishing in the North Atlantic. Two of his stories in The Times from Afghanistan were cited in the award of the Pulitzer Prize for Public Service in 2002. In 2007, his reconstruction for Esquire of the terrorist siege of a public school in Beslan, Russia, won the Michael Kelly Award and National Magazine Award for Reporting. He was also part of The Times's team that was awarded the Pulitzer Prize for International Reporting in 2009, for coverage of Afghanistan and Pakistan.

His book of history and conflict, "The Gun: The AK-47 and the Evolution of War" will be published by Simon & Schuster in the fall.

Mr. Chivers graduated with a B.A. cum laude in English from Cornell University in January 1988. He was the 1995 valedictorian of Columbia University Graduate School of Journalism. He also graduated from several military schools, including the United States Army's Ranger Course.

On-Field Personal Decontamination Glove for Chemical and/or Biological Hazardous Agents

Source:<http://www.nbcystem.it>



The glove DECON 2plus is a portable device for the on-field personal immediate decontamination from chemical and/or biological threats.

Such glove is an innovative product that is going to be marketed soon by NBCsystem srl (Blera VT, Italy), leader company at international level in the field of development, manufacture and marketing of protection and defence systems against non-conventional hazardous agents (chemical, biological, radiological and nuclear threats).



The experts of the Laboratory of Heterogeneous Catalysis of the Institute of Molecular Sciences and Technologies of the Italian National Research Council (CNR-ISTM), in Milan, Italy, shared their expertise with NBCsystem for the design and development of a novel decontamination tool, that is capable to remove and minimize the risk not only of highly-toxic chemical compounds (toxic industrial materials as well as chemical warfare agents), but also of pathogenic biological agents.



The synergistic action is based on a balanced mixture of a highly adsorbent clay from natural origin, together with a solid oxidant, that, in the presence of the heterogeneous catalyst contained in the powder, is able to release in-situ free-radical oxygen with remarkably high biocidal and decontaminating capability.

The decontamination activity is thus based on a bifunctional mechanism: molecular adsorption plus oxidative degradation.

This device is specifically designed for first responders, armed forces and police units as well as for all professionals operating in high-risk emergency scenarios. In the case of an unexpected chemical and/or biological contamination of small areas of the body, the hazardous agent can be easily, timely and efficiently removed and neutralised thanks to the special design of the glove and to the original formulation of the active decontamination powder.



Combo Cool

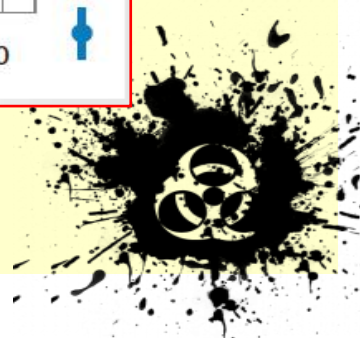
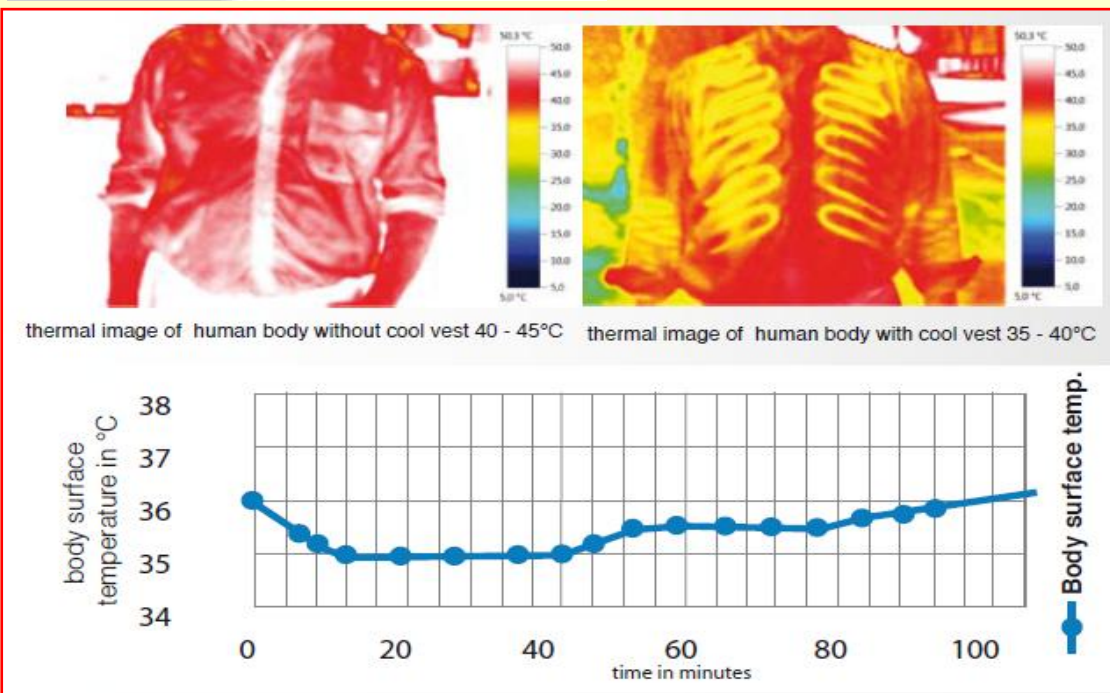
Source:<http://www.wolfengineering.de>

The patented Combo Cool System is made in Germany and is based on an optimized phase change material. It provides its capabilities in many different situations, where you need to "keep cool".

The patented, ergonomic cooling vest is designed for a high grade of comfort. It is made out of a specially developed infrared- and ultraviolet-light reflective material.

Special features

- ✓ 4 different programmes
- ✓ case control
- ✓ hand remote control
- ✓ battery lifetime: 7-10 hrs





Mobile Cool Regeneration System

The MCRS is ideal for special purpose vehicles without air conditioning. It is possible to connect up to 8 persons to cool them down in several minutes to a comfortable temperature. There is also the possibility to freeze up to three cartridges for the Combo Cool Sytem in a few minutes.

Can be used in military vehicles, field hospitals or fire trucks.

Washington DC Metro passenger dies and dozens injured as smoke fills train and station

Source: <http://www.theguardian.com/us-news/2015/jan/13/washington-dc-metro-passenger-dies-as-subway-train-fills-with-smoke>



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An image by Twitter user Andrew Litwin shows passengers trying to cope with the smoke inside the yellow line car near L'Enfant Plaza Metro station in Washington DC. Photograph: Andrew Litwin via Twitter/EPA

Jan 13 – A woman died when smoke poured through a subway train on the Washington DC Metro, forcing the evacuation of hundreds of people from a station just before afternoon rush hour. Dozens more people were injured, authorities said.



Hundreds of passengers had to flee the **L'Enfant Plaza station**, one of the subway system's busiest, about 3.30pm, said District of Columbia fire and emergency spokesman Timothy Wilson.

The Washington Post reported that a Virginia-bound Yellow Line train stopped suddenly just outside the station and began filling up with smoke, with some passengers choking and passing out while others passed around asthma inhalers for relief as they endured a long wait for rescue.



Another emergency official, Caroline Laurin, confirmed that a person had died. She said the National Transportation Safety Board was investigating and would provide additional information. The NTSB tweeted that it had begun an investigation and was on the scene.

A man received oxygen after being freed from the smoke-filled train. Photograph: Paul J Richards/AFP/Getty Images

"It started to get scary pretty quick," passenger Jonathan Rogers was quoted by The Washington Post



as saying. "People started praying. Smoke was coming in pretty steadily."



Passenger Saleh Damiger was quoted by the newspaper as saying that people were choking and yelling aboard the train. "It was a lot of smoke," she said. "We couldn't see each other. We felt like we were almost going to die."

Eighteen people from the station were taken to Medstar Washington hospital, most of them for smoke inhalation, according to spokeswoman So Young Pak. She said 11 were treated and released. Of the seven still in the hospital by 8pm on Monday, one was in a critical condition and one was in a serious condition, she said.

George Washington University hospital spokesman Matt Brock said in an email that 34 patients suffering from smoke inhalation had been brought there and their conditions varied. The Washington Post reported that 40 people were taken to Howard University hospital.

The source of the smoke was not immediately known.



Two CBRNE Directories of importance!



CBRNE Tech Index

Source: <http://globalbiodefense.com/2015/01/14/mriglobal-officially-launches-cbrne-tech-index/#.dpuf>

Jan 14 – A new comprehensive online database of Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) detection equipment, the [CBRNE Tech Index](#), was officially launched this week by MRIGlobal.

The CBRNE Tech Index allows users to view, compare, and filter products according to dozens of technology categories. The site aims to provide a venue for manufactures to display products and allow the users to make informed decisions on which product meets their needs.

CBRNE Tech Index capitalizes on decades of MRIGlobal experience with independent testing, evaluation, and validation of analytical instruments and methods for government and industrial clients. The resource is a one-stop-shop for those looking to research equipment, sensors, and products related to the analysis, detection, or identification of threat materials and everyday chemical and biological

Colorimetric (COLOR)

Colorimetric detectors indicate the presence of a target chemical through a chemical reaction that results in a color change to a reagent. Colorimetric detection covers a wide variety of products, from simple M8 paper for CWA to the SPX 300 for trace explosives detection. All of the products in the colorimetric detection category are generally simple to operate and have well-documented product test results to support vendor claims. The main disadvantages to the colorimetric systems are:

1. They are analyte specific and are not typically suited for determination of unknowns;
2. They typically require one-time use consumables such as cartridges, reagents, papers or swabs for each target chemical;
3. Detection limits are typically in the part-per-million to part-per-thousand range (ppm-ppth);
4. Interpretation of results may be subjective;
5. Results cannot typically be stored for review at a later time.

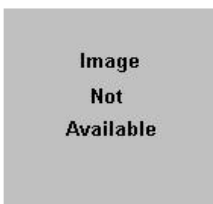
A few vendors offer electronic readers that provide more objective results than visual comparison and can store the results of a test. Advantages of colorimetric detection include small size, little or no power requirement, low cost, and minimal operator training.

Manufacturer

- American Innovations, Inc. (2)
- Anachemia Canada, Inc. (2)
- ChemSee, Inc. (2)
- CopQuest, Inc. (1)
- DetectaChem (1)
- Draeger Safety, Inc. (5)
- EMD Millipore (1)
- FLIR Systems, Inc. (3)
- Forensic Source (ODV) (1)
- HazChem (1)
- Haztech Systems, Inc. (7)
- Honeywell Analytics (1)
- Industrial Test Systems, Inc. (1)
- Innotech Products, Ltd. (3)
- Ketech (1)
- Koslow Scientific Company (1)
- Lindon Defense (1)
- Matheson Tri Gas (1)
- Mistral Security, Inc. (3)
- Morphix Technologies (3)
- MSA (1)
- Nextteq, LLC. (3)

Grid View List View | Compare Products | Products per page: 4 16 100 All

<< < 1 2 3 4 > >>



Hazard Classification Kit
HazChem



Ai-HME
American Innovations, Inc.
The AI-HME kit detects homemade explosives. The kit is primarily designed for bulk sampling, but sup...



Arsenic Quick Test Kit
Industrial Test Systems, Inc.
This test detects soluble inorganic arsenic (As+3 and As+5) in aqueous samples. Inorganic arsenic co...



C2 Chemical Agent Detector Kit
Anachemia Canada, Inc.
Handheld detector used for: determining the presence or absence of chemical agents, identifying chem...

compounds.

The website does not require registration or payment and has an easy user interface. The CBRNE Tech Index Blog, Conference Calendar and Test and Evaluation Services sections round out the site's offerings.

MRIGlobal scientists regularly test and evaluate equipment for government and industrial clients, providing expert and end-user feedback for product development and upgrades.



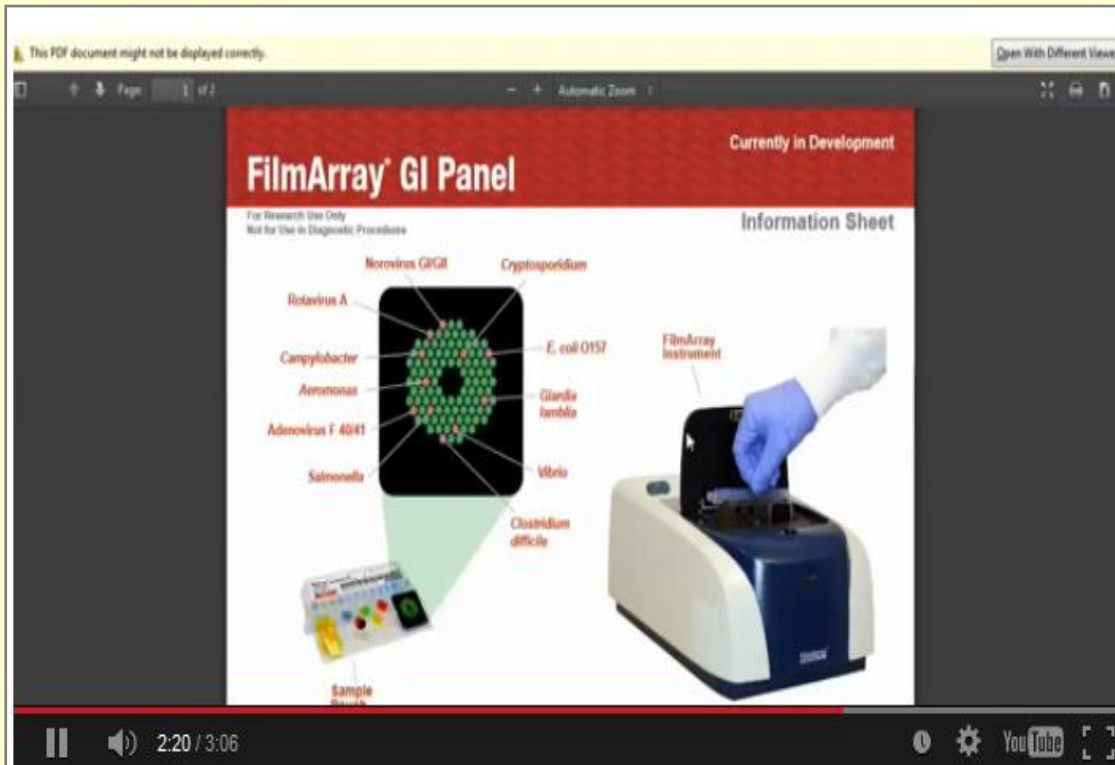
The CBRNe World Directory

Source: <http://www.cbrneworld.com/directory#axzz3P3ZZTMRK>



The only directory providing comparative information on all aspects of detection, identification and monitoring (DIM), protection, decontamination, reconnaissance and medical countermeasures. Edited by Gwyn Winfield and Andrea Schinzel, it has been designed by a stable of experts in their field. The video below shows a walkthrough of the functions.

The CBRNe World Directory is available in two forms: an online version and a two-volume print version. The print version has over thirty roundups on all aspects of EOD, CBRN and narcotics detection, e.g., portal radiation monitors, bulk explosive detection, respirators, disruptors, mobile laboratories, UGVs, medical countermeasures and handheld assays. These are collected in eleven chapters, each with an introductory essay from one of our experts on the needs of that field, developments in the technology and the things to watch. Following these you will find product quads providing more information on the



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items in the roundup.

Unique and Invaluable Aspects of the CBRNe World Annual Directory:

- Unique panel of subject matter experts drawn from academia, government, military and civil sectors.
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- Subscription to online version comes with training and standards resources, including additional tools and resources to download at no additional cost.

The print version is available for £350 (\$575) for both volumes, plus shipping costs, and we are taking orders now. For both volumes and a single annual licence to the online version (larger and continuously updated), the price is £990, plus shipping costs.

► Contact the Directory co-editor andrea.schinzel@cbmeworld.com to purchase.

Syria begins destruction of chemical weapons facilities - sources

Source: <http://www.reuters.com/article/2015/01/19/us-syria-crisis-chemicalweapons-idUSKBN0KS1GY20150119>

Jan 19 – Syria has started the long-delayed destruction of a dozen underground bunkers and hangars that were used for the production and storage of chemical weapons, diplomatic sources told Reuters on Monday.

Damascus last year handed over 1,300 metric tonnes of toxic agents after joining the Organisation for the Prohibition of Chemical Weapons (OPCW), but it is months behind schedule in destroying the facilities used to make and store its deadly stockpile.

Work at a first tunnel began on Dec. 24, but was delayed by winter storms. The site will be sealed off with cement walls by the end of January, said one source in The Hague, where the global chemical weapons watchdog is based.

"The work finally began, which is good news," said another source. "There were some technical issues and the bad weather has slowed up the process."

Syria joined the OPCW after a sarin gas attack killed more than 1,000 people in the Damascus suburb of Ghouta on Aug. 21, 2013, prompting threats of military intervention by the United States, which blamed President Bashar al-Assad's government. Assad's government and rebels blamed each other.

U.S. President Barack Obama called off military action against Damascus after Syria agreed to destroy its chemical stockpiles. A year later the United States began a bombing campaign against Islamic State militants in Syria with the tacit approval of Assad, which still continues.

More than 200,000 people have been killed and millions displaced in the Syrian civil war since March 2011.

The head of the OPCW is expected to provide an update on the destruction of Syria's production and storage sites, part of its obligations under OPCW membership, to foreign governments at closed door meetings in The Hague on Wednesday.

The technical details of how the seven hangars are to be demolished with explosives are still being drawn up with experts at the OPCW, the sources said. The sources declined to be identified while sharing information about the program before it is officially made public.

Repeated delays in destroying the facilities led to protests from Washington last month, when the U.S. representative to the OPCW, Bob Mikulak, called on Syria to speed up the process under tighter outside monitoring.

An OPCW fact finding mission has been investigating the use of chlorine bombs, which have killed and injured dozens of people in Syrian villages in violation of the Chemical Weapons Convention and U.N. Security Council resolutions on Syria.

Syria denies allegations by Western governments that it withheld part of its chemical weapons stockpile.

Western diplomats said Syria has failed to provide any documentation about the chemical weapons program, which was built up over decades and produced mass quantities of toxic nerve agents for warfare.



Agent Orange report comes after years of VA denials

By Patricia Kime (Staff Writer)

Source: <http://www.militarytimes.com/story/military/benefits/veterans/2015/01/17/va-agent-orange-c-123s/21754067/>

Jan 17 – A new Institute of Medicine report that found veterans were exposed to Agent Orange while flying in C-123 aircraft after the Vietnam War came three years after another federal agency reached a similar conclusion. But despite a pronouncement in January 2012 by the Agency for Toxic Substance and Disease Registry that these crews' levels of exposure to dioxin were 182 times higher than acceptable amounts, representing a 200-fold risk for cancer, the Veterans Affairs Department refused to acknowledge any link between the veterans' current illnesses and a history of serving on that aircraft. Instead, VA public health officials insisted that trace amounts of dioxin on internal aircraft surfaces were not "biologically available for skin absorption or inhalation because dioxin is not water- or sweat-soluble and does not give off airborne particles."

Meanwhile, since veterans found out in 2011 they may have been exposed, at least 10 with diseases associated with Agent Orange have had VA disability claims denied and some have died — although just how many have passed

Maj. Wes Carter, founder of the C-123 Veterans Association. Carter said that between



1,500 and 2,100 veterans flew the aircraft, used during the Vietnam War to spray the highly toxic defoliant and then kept in service for almost a decade after the conflict. He said his association knows of fewer than a handful of veterans whose claims have been approved, including just one who triumphed without having to file an appeal.

"[The numbers] are terribly vague. We scattered decades ago, and unlike many Navy folks, had no ship's association to keep us in touch. ... We want to simply say that there has been death and suffering," said Carter, a C-123 medical services officer who is among those whose claims were denied.

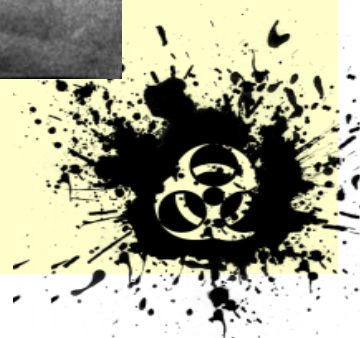
VA's fight to deny health treatment and claims

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away as a result of exposure-related illnesses is difficult to pin down, said retired Air Force

to what may amount to a small number of former service



members comes as no surprise to veterans organizations and lawmakers who have pushed VA for years to recognize certain environmental exposures.

From potential harm posed by depleted uranium, burn pits, tainted anthrax vaccines, anti-malarial medication, the water supply at Camp Lejeune, North Carolina, an incinerator at Atsugi Naval Air Station, Japan, and more, VA's approach regarding illnesses related to environmental pollution has been "delay, deny, wait 'til they die," said Rick Weidman, legislative director for Vietnam Veterans of America.

"We don't pay VA to be veteran antagonists, and we don't expect them to be advocates for the cause. What we expect is they be fair and neutral arbiters who have the best interest of veterans at heart," Weidman said. "But that's not what happened here. It's not what usually happens."

As part of its ongoing efforts to study Agent

In 2001, VA established the War Related Illness and Injury Study Center to provide care for service members with complex medical cases and medically unexplained illnesses. The center provides environmental exposure assessments and medical evaluations to veterans with difficult-to-diagnose symptoms related to deployment.

But not everyone who served in the military is eligible to be seen at the WRIISC, including many of the C-123 veterans who don't meet a requirement that they be combat veterans.

Weidman said it should be up to VA to get veterans in the door and help them instead of denying them care for what he calls "toxic wounds."

"The question is to get health care to these veterans who were exposed. These people are sick right now. they can't afford health care, they are too sick to work, they've lost their jobs.

[Rusting Agent Orange barrels at Johnston Atoll, circa 1976.](#)



Orange, VA awarded a \$600,000 contract in 2012 to researchers to develop a directory of exposures and paid IOM \$500,000 to look specifically at the C-123 issue.

The amount spent on issues that already have been examined and supported by "widely accepted science" vexes Sen. Richard Burr, R-N.C., whose office has worked since 2011 on the C-123 issue.

"The VA's delay has gone on long enough. IOM's report confirms what the VA already knew: C-123 crew members were exposed to dangerous levels of Agent Orange. Instead of ... commissioning an expensive study of [already] well-founded science, the VA could have been caring for these veterans," Burr said.

The [VA] secretary has the authority to immediately grant them access to care," Weidman said.

According to VA officials, the department has set up a working group to review the IOM report and is moving forward to respond.

Weidman said he hopes the findings by IOM will help pave the way for other veterans with exposure-related illnesses to get help at VA.

"The C-123s were the canary in the coal mine. If [VA] could have gotten away with it, they would have kept doing it to Gulf War vets, Iraq and Afghanistan veterans and any other young people who have been exposed to environmental toxins or will be exposed," Weidman said.



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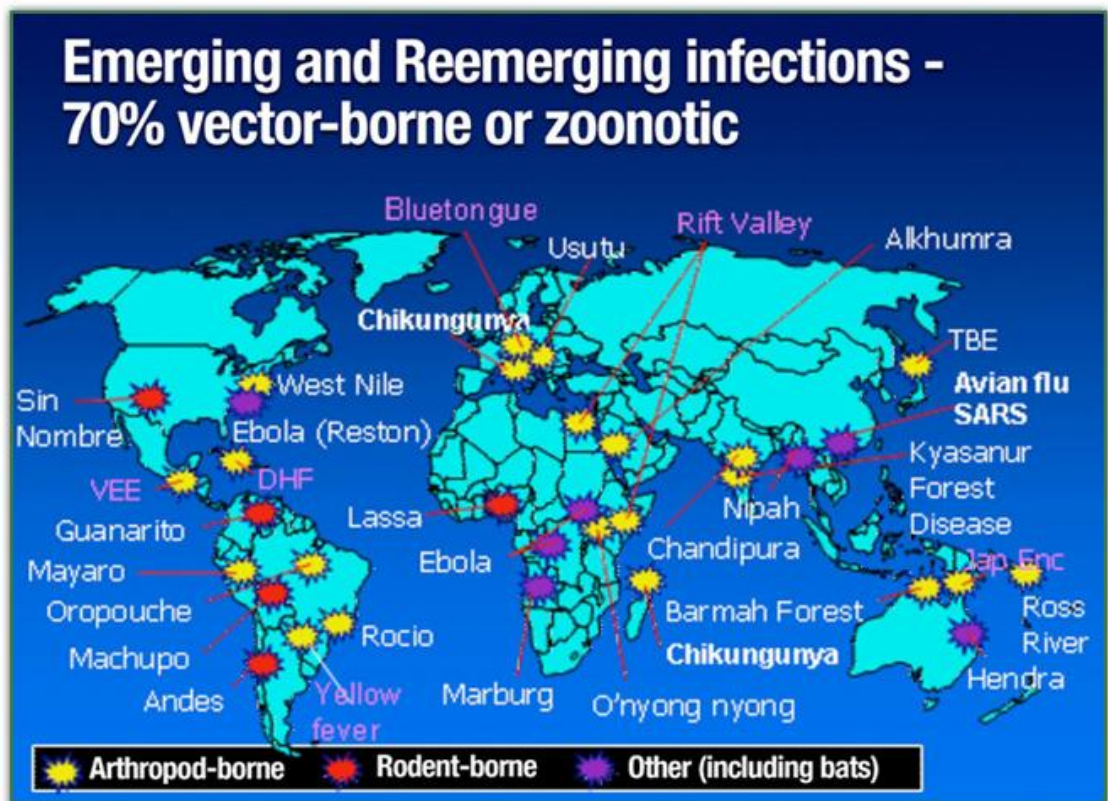


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nting animal-borne diseases from affecting humans

Source: <http://www.homelandsecuritynewswire.com/dr20141219-preventing-animalborne-diseases-from-affecting-humans>



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Researchers are trying better to understand how animal-borne illnesses can jump to humans, hoping to prevent animal-to-human transmission as much as possible through better medical and veterinary practices.

As the *Atlantic* reports, **roughly 75 percent of newly emerging diseases are zoonotic**, which means that they can spread from animals to humans. Incredibly damaging, these diseases usually wreak havoc on humans, who rarely have natural defenses to protect them against such strains. **About 2.7 million people die each year from zoonotic diseases.** It is estimated that between 1997 and 2009, the cost of dealing with and treating **these types of diseases around the world amounted roughly \$80 billion.**

These diseases — which include Ebola, Rabies, and MERS — catch many off guard.

“Once outbreaks originate, like we are seeing with Ebola, often it is too late. [But] often, infectious disease circulate in animals for a long time before they cause outbreaks in

humans,” said Wondwossen Gebreyes, the director of Global-Health Programs at Ohio State University.

Because of that, researchers are taking a new approach toward finding and isolating zoonotic diseases before they come into contact with humans. Working with veterinarians, they are now attempting to look for the disease in the wild, or as they affect animals.

“There is very little research going on in animal diseases,” said Laura Kahn, a Princeton professor. She cites a case in 1999 in which Tracey McNamara identified the first outbreak of the West Nile virus in North America by studying the die-offs of certain bird populations. “The veterinarian cracked the case, and no one was interested in talking with her because she was a veterinarian.”

This broader concept — connecting human medical and veterinary science — is called “One Health.” By organizing and establishing different medical



professionals along a spectrum of disease detection, scientists hope to thwart the

outbreak of another zoonotic disease.

Improved protective suit for Ebola caregivers

Source: <http://www.homelandsecuritynewswire.com/dr20141219-improved-protective-suit-for-ebola-caregivers>

Dec 19, 2014 – **An advanced protective suit for health care workers who treat Ebola patients, devised by a Johns Hopkins University team, is one of the first five awardees in a federal funding contest aimed at quickly devising new tools to combat the deadly disease.**

that focuses on international health programs. The precise amount of funding and other support that the USAID will award to this project is still under review. The agency is pleased with the early results of its competition, which led to the submission, in just two months, of more than 1,500 ideas from



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The Johns Hopkins prototype is designed to do a better job than current garments in keeping health care workers from coming in contact with Ebola patients' contagious body fluids, both during treatment and while removing a soiled suit. In addition, it is expected to keep the wearer cooler — an important benefit in hot, humid regions such as West Africa.

innovators around the world. "The 'Fighting Ebola Grand Challenge' embodies our new model of development — bringing together the world's brightest minds to solve our biggest global challenges," USAID administrator Rajiv Shah said.

The first projects selected for the federal funding were announced last week by the U.S. Agency for International Development (USAID) through its new program, launched in October, called "Fighting Ebola: A Grand Challenge for Development."

Watch the video of the prototype at:
<http://hub.jhu.edu/2014/12/12/ebola-suit-design-funding>

A JHU release reports that the improved protective suit is being developed by a team of medical experts, engineers, students, and other volunteers under the supervision of Johns Hopkins University's Center for Bioengineering Innovation and Design (CBID) and Jhpiego, a nonprofit Johns Hopkins affiliate

Johns Hopkins's improved health care protective suit grew out of a weekend-long design brainstorming event hosted in October by CBID on the university's Homewood campus in Baltimore. The sixty-five participants represented a wide range of Johns Hopkins students; medical,



public health, and engineering experts; and even a few community volunteers with valuable skills and perspectives, including a wedding gown designer and an architect.

The organizers also took advantage of CBID's close, ongoing partnership with Jhpiego, which has extensive experience in addressing global health challenges. For example, the organization has developed deep expertise in infection prevention and control. The group also has amassed twenty years of field experience, working with health providers and in health facilities in Liberia and Guinea, two Ebola-affected countries.

"If ever there was a public health crisis that merits the finest science, medicine, and innovation the world has to offer, it is this one," said Leslie Mancuso, Jhpiego president and CEO. "The personal protection suit we are developing with our partners at the Center for Bioengineering Innovation and Design is purposefully designed to address safety and climate issues now putting health workers at risk."

Some of these enhancements include a large, clear visor in the hood, which is integrated into the suit; air vents in the hood; a rear zipper to reduce infection risks while removing the garment; a cocoon-style doffing process that requires far fewer steps than existing garments; and a small battery-powered, dry air source to cool the user by blowing air into the hood.

The cooling technology used in the garment was originally developed for cooling patients in cardiac arrest by Johns Hopkins cardiologist Harikrishna Tandri, under the auspices of a NIH SBIR grant.

With the basic improvements identified, a small group of core of team members, supervised by CBID and Jhpiego, will fine-tune the prototype protective suit with a goal of getting some elements of the design ready for mass production perhaps as early as April.

"The funding from USAID will support moving our concepts into fully functional prototypes," said Youseph Yazdi, executive director of CBID. "This will allow the team to do more detailed evaluations of our concepts and quickly move to evaluations in the field. By the end of the funded timeline, we will have a product design that is ready to be taken up by a major manufacturer, or several, for large-scale production and distribution. Our goal is to follow the fastest path to get these concepts into the field and having an impact."

The release notes that CBID operates within the Johns Hopkins Department of Biomedical Engineering. The Department is shared by the university's School of Medicine and its Whiting School of Engineering. The GE Foundation and Clinvue provided support for the protective suit project. Clinvue, based in Maryland, is a medical device innovation consulting company specializing in identifying and understanding unmet needs and linking these to a creative problem-solving process.

Additional funding for development of the prototype suit was provided by the BioMaryland Center, the office within Maryland's Department of Business and Economic Development that connects life sciences companies, academic and federal researchers with each other and with potential capital sources, partners, and clients.

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Ebola Outbreak Highlights Gaps in US Preparedness for Public Health Emergencies

By Amanda Vicinanzo (Senior Editor HSToday.com)

Source: <http://www.hstoday.us/single-article/ebola-outbreak-highlights-gaps-in-us-preparedness-for-public-health-emergencies/96b33cb57848e82750070f957ce9a2fd.html>

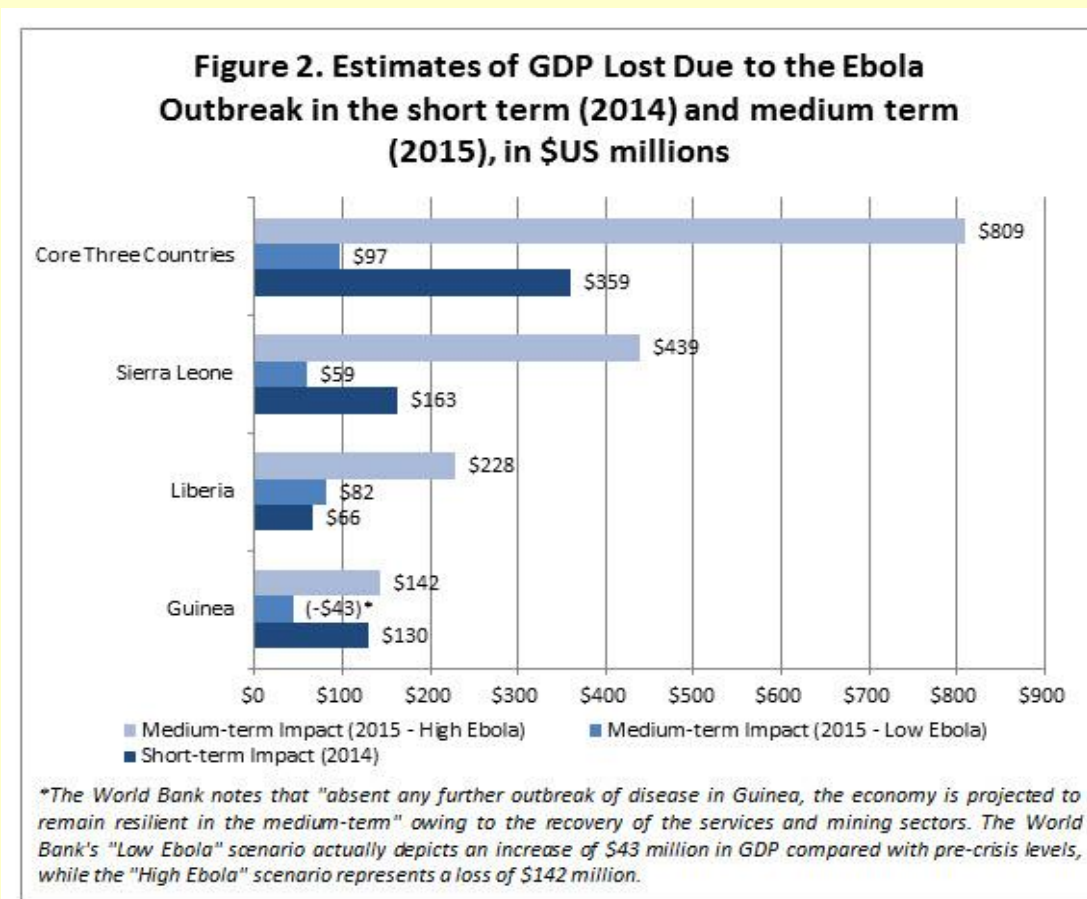
More than a decade after the tragic September 11, 2001 terrorist attacks, the US continues to struggle to prepare for public health emergencies, with the Ebola outbreak highlighting serious underlying gaps in the country's ability to handle severe infectious disease threats and control their spread.

Released Thursday by the Trust for America's Health (TFAH) and the Robert Wood Johnson Foundation (RWJF), the 2014 *Outbreaks: Protecting Americans from Infectious Diseases* report examined the country's policies for responding to ongoing and



emerging infectious disease threats. Although the country has made significant strides in preparing for public health emergencies since 9/11, competing priorities and initiatives, as well as fewer dollars, significantly challenge national public health preparedness. Previous TFAH/RWJF reports have noted a decline in emergency and public health

strengths and vulnerabilities across the health system. The report said half of the states and Washington, DC scored five or lower on the 10-point scale. No state scored higher than an 8. "Over the last decade, we have seen dramatic improvements in state and local capacity to respond to outbreaks and emergencies," said TFAH Executive Director Jeffrey Levi. "But we



Source: World Bank

preparedness since 9/11. "Quite simply, after the series of emerging infectious disease threats that the county has faced in the last 10 years, it is unacceptable that we don't have adequate, dedicated and consistent funding to support the development pipeline," said Dr. Tom Inglesby, chief executive officer and director of the University of Pittsburgh Medical Center's Center for Health Security. The report scored US states based on a measure of 10 indicators related to preventing, detecting, diagnosing and responding to outbreaks. The scores offer a snapshot of

also saw during the recent Ebola outbreak that some of the most basic infectious disease controls failed when tested." "The Ebola outbreak is a reminder that we cannot afford to let our guard down," Levi added. In the event of a widespread catastrophic natural or man-made disaster in the US, not only will hospitals and other public health facilities be overwhelmed, but infections and infectious diseases could become rampant; made worse by antibiotics that some infectious diseases are resistant to. There also will be shortages of both



antibiotics and antivirals, as well as regular medications people must take daily.

“We’re looking at a little known and largely ignored health crisis secondary to a pandemic or large-scale terrorist bombing like a nuke or something,” a source involved in federal emergency medical preparedness planning told *Homeland Security Today* in October 2007 on background.

Ebola

The Ebola outbreak highlighted a number of vulnerabilities in the nation’s public health system. According to the World Health Organization, as of December 2014, West Africa has experienced more than 17,000 cases of the Ebola virus and more than 6,000 deaths, as well as two fatalities on US soil.

“The Ebola outbreak demonstrated that the nation’s ability to contain a novel emerging infectious disease threat is fundamentally flawed — and makes the case for fundamental change,” the report stated.

First discovered in 1976 in what is now the Democratic Republic of the Congo, the virus is rare but deadly with a mortality rate of up to 90 percent. The Centers for Disease Control and Prevention (CDC) said early symptoms can include fever, headache, joint and muscle aches, sore throat and weakness, followed by diarrhea, vomiting and stomach pain.

With no cure and a mortality rate as high as 90 percent, the Ebola epidemic serves as a grim reminder that even with the advent of modern medicine, the spread of deadly infectious diseases is not relegated to history.

While the TFAH report noted the US must avoid the tendency to focus all its attention and resources on the latest infectious disease getting the most media coverage, Ebola warrants the attention.

“Ebola has the potential to substantially degrade a healthcare system,” Inglesby said. “It even has the potential to destabilize countries. So, while at times, the specific nature of the media coverage of Ebola has been extreme, the level of attention it has received has been well deserved.”

Continuing, he added, “We know what happens when Ebola gets out of control — entire countries and regions are ground to a halt with serious ramifications from disrupted or destructed trade to extreme starvation and

stigma to restricted travel. For those reasons, Ebola must be stopped at its source, otherwise it can spread to other nations and wreak havoc on a broader scale with the world’s health, economy, commerce and travel.”

In public health emergencies, whether it be a major outbreak of a disease or a bioterrorist attack, hospitals and healthcare facilities are the frontline of defense. The Ebola outbreak, however, highlighted significant gaps in US health system preparedness and the need for rigorous infection control in hospitals.

Two nurses who treated an Ebola patient in Dallas contracted the virus, which could have been prevented with the implementation of basic infection control safety procedures.

“It is clear that the unlucky Dallas hospital that treated that first US-diagnosed Ebola patient was not well prepared for such a disease,” said Dr. Eric Toner, senior associate, UPMC Center for Health Security. “It is also reasonable to assume that most US hospitals were also not optimally prepared then to take care of a patient with Ebola or another highly contagious and lethal disease.”

Complacency is one of the major contributing factors to the declining commitment to public health preparedness. Although the US public healthcare system has achieved great success in squelching infectious disease, that success can lead to complacency.

“As evidenced by West Africa, we know what happens when a frail healthcare system is tested,” said Dr. Robert Kadlec, Master of Tropical Medicine and Hygiene and former Special Assistant to the President and Senior Director for Biodefense Policy at the White House Homeland Security Council. “But, unfortunately, we saw that it might not take much to poke holes in our own health system.”

Antimicrobial resistance

According to TFAH’s report, “Antimicrobial resistance presents one of the greatest threats to human health around the world.” More than two million Americans fall ill from antibiotic-resistant bacteria and more than 23,000 die from those infections each year.

In its 2014 report, *Antimicrobial Resistance: Global Report on Surveillance*, the WHO argued that the “post antibiotic-era, in which common infections and



minor injuries can kill, far from being an apocalyptic fantasy, is instead a very real possibility of the 21st century.”

One of the leading causes of antibiotic resistance is overuse. As *Homeland Security Today* previously reported, unless the world changes the way it deals with antibiotics by preventing overuse and developing new antibiotics, the number of antibiotic-resistant infections will continue to rise.

Although resistance rates continue to rise, there are a decreasing number of antibiotics in the pipeline. The report said, “Many pharmaceutical companies have abandoned antibiotic research and development because they are less profitable than drugs to treat chronic conditions.”

In 2014, the White House released *The National Strategy for Combating Antibiotic Resistant Bacteria* and a related executive order to slow the development of resistant bacteria, strengthen surveillance, advance the development of diagnostic tests, accelerate research of new antibiotics and vaccines and improve international collaboration.

The executive order will also allow the Biomedical Advanced Research and Development Authority (BARDA), within the Office of the Assistant Secretary for Preparedness and Response in the Department of Health and Human Services to expand its efforts and incentivize the development of new antibacterial drugs.

The report recommended the executive order be “fully and rapidly implemented.”

Other infectious diseases

“Beyond Ebola, there are many other emerging diseases of concern that health officials are monitoring —MERS-CoV, pandemic flu, Marburg, dengue fever and Enterovirus D68—all of which illustrate infectious disease threats can arise without notice,” the report stated.

Infectious diseases cost the nation more than \$120 billion each year. Worldwide, they are the leading cause of death of people under the age 60. However, inadequate and fluctuating resources have left gaps in the US’ ability to quickly detect, diagnose, treat and prevent the spread of disease.

For example:

- From mid-August to December 4, 2014, more than 1,100 people in 47 states and Washington, DC had confirmed respiratory illness caused by Enterovirus-D68;
- More than 48 million Americans suffer from foodborne illnesses each year. These illnesses result in 128,000 hospitalizations and around 3,000 deaths;
- Approximately one out of every 25 people who are hospitalized each year contracts a Hospital Acquired Infection. *Homeland Security Today* reported nearly 9 years ago that the CDC estimated nearly 2 million hospitalized patients acquire these preventable infections each year, and that nearly 90,000 die from them, which is as many as AIDS, breast cancer and auto accidents combined, and up from 13,300 patient deaths in 1992. These deaths contribute at least \$4.5 billion in additional medical costs and lost productivity.
- Currently, there are more than 780,000 suspected and 15,000 confirmed cases of Chikungunya in the Americas and Caribbean — including at least 11 cases in the United States;
- Since 2012, global health officials have been tracking a new strain of the flu — H7N9, first reported in China — which has led to 175 deaths globally, primarily in East Asia (as of October 2014);
- As of October 2014, there have been more than 850 laboratory-confirmed cases (including more than 300 deaths) worldwide of a new MERS-CoV reported to the WHO;
- In the past few years, the US has experienced the largest outbreak of West Nile Virus in a decade and the highest number of cases of malaria since 1970;
- Annually, more than a quarter of a million people are hospitalized and between 3,000 and 49,000 die from the flu, depending on the severity of that year’s strain, leading to economic losses of more than \$10 billion in direct medical expenses and more than \$16 billion in lost earnings;
- Around 5 million Americans have hepatitis B virus or hepatitis C virus, but between 65 and 75 percent do not know they have it;
- An estimated 11 million Americans — 4 percent of the



population— have “latent” TB infections; and

- More than 1.2 million Americans are living with HIV/AIDS, and almost one in six do not know they have it.

“Infectious disease control requires constant vigilance. This requires having systems in place and conducting continuous training and practice exercises,” the report said, adding, “The Ebola outbreak is a reminder that we cannot afford to let our guard down or grow complacent when it comes to infectious disease threats.”

Moving forward

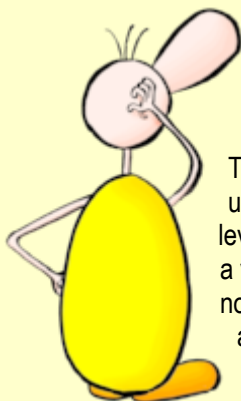
To ensure emerging infectious disease threats do not outpace public health preparedness efforts, it is essential that the US modernize the current health system.

“Unless public health preparedness is consistent and maintained, it can quickly devolve into a flawed and reactionary endeavor

that leaves Americans unnecessarily at risk,” the report warned.

Improving public health preparedness requires a baseline of core capabilities that every state must meet, as well as the funding to support these capabilities. Moreover, stronger leadership and accountability will be the key to creating a government-wide approach to handling health threats at the federal, state and local levels.

“The best offense to fighting infectious diseases is a strong and steady defense,” said Paul Kuehnert, a RWJF director. “Infectious disease control requires having systems in place, continuous training and practice and sustained, sufficient funding. As we work with communities across the nation to build a culture of health, we recognize that promoting and protecting health, and readiness to respond to wide-scale health threats are essential.”



Cyber and 4th Generation Warfare - Biological Patterns

By Fara Barnes

Source: <https://www.linkedin.com/pulse/cyber-4th-generation-warfare-fara-barnes>

This is relatively new in science (what used to be known on solely an esoteric level with multiple aspects separated into a variety of fields), and technology is just now reflecting our understanding and application of this truth as well as converging the right information at the right time to be understood at a collective level.

Very recently, it became known to myself and my peers that brain, mind and nervous system dysregulation seems to be the singular pattern within the following: (1) Cyber/digital Warfare; (2) Ineffective treatment and misdirection regarding TBI, PTSD, neuro- trauma and development in civilian and military training and hospitals; and (3) the "pattern" of terrorism and 4th generation warfare (battlefield patterns are digital/cyber engineered, small inputs achieve huge impact, and targets are key populations/citizens brain/biological functions and development). This exponentially impacts our national and global economy, infrastructure, medical, defense, emergency response, intelligence and communication.

Neuro-trauma/brain specialists and medical professionals have found the damage done to me to have inflicted traumatic brain injury, post traumatic stress, facial and non verbal recognition damage, asthma, sleep deprivation, isolation and brain dysregulation which corresponds with multi-tour combat veterans. Aside from that trauma, collateral damage including trauma to my children, major loss of work and income, my life's belongings being auctioned off, and various other peoples and businesses in multiple states negatively impacted through retaliation against me. I deeply understand the exponential impact, both negative and positive of brain and mind dysregulation and regulation.

The pattern in my experience was initiated and reinforced via digital warfare with covert intention and attacks designed to perpetuate this pattern indefinitely so that other trauma and warfare (economic, psychological, emotional and sexual) would blind, deafen and debilitate me. Though different in the intention and mechanism of injury inflicted, this pattern is not different in the



case of anyone facing TBI, PTSD, neurotrauma and varying levels of dysregulation that have a spectrum of trauma from horrifying to disruptive.

The brain's primary role and evolution is to get the right information and energy to process and interact with itself, others and the external world. What I'm sharing with you is the right energy and information to prevent, intervene, and stop the pattern. The reason that effective treatment and processes are not executed is not actually about red tape as much as it is a byproduct of the pattern itself.

The pattern I've mentioned is not invisible, though it is the catalyst of the "War Within" and has resulted in our current suicide rate of 23 veterans a day, as well as countless damage and loss of both civilian and military life.

The pattern is the essence of terrorism. Being Western-minded to the nth degree, we have not recognized or addressed it effectively. As a result, America has become a catalyst for amplifying and perpetuating the very pattern which originates from and achieves the results that support and empowers the goals of terrorists/anti-American players - to damage infrastructure, to plant and develop cultural fear and reactivity, to cause generational trauma and damage which leads to anti-American thoughts and actions by its citizens and allies, and to disable effective communication and relationships between government, law enforcement, emergency response systems, federal agencies, and military/defense.

The Western response to the failures and issues revealed by our blind spot and lack of

development in respect to our national strengths, weaknesses and dysregulation, have made it very difficult for anyone or group to internally change the pattern from within the very organizations and infrastructure created to protect and defend as well as lead our country.

There are two options we are faced with; (1) let our country downward spiral into an economic, infrastructure, emergency response and defense/military collapse and remain a tool that terrorists and anti-American entities can puppet to perpetuate the pattern of terror and trauma; (2) synchronize our efforts and energy to offer the most effective avenues which redirect dysregulation involving neurofeedback, science and technology that has been proven to achieve immediate and long-lasting results.

The work that Valor Performance Research is focused on covers the entire spectrum of optimal learning, healing and recovery, and peak performance. This includes the application and development of current and future neurofeedback processes and tools; 3D virtual, holographic and augmented reality interface music concerts/athletic and technology events; wilderness resilience training and rehabilitation; and biotechnologies (brain, mind and body self-regulation wearables and a bullet- and trauma/shock-proof helmet and bodysuit with neurofeedback brainwave and activity self-regulation which can be utilized by tactical/defense/emergency response/intel professionals and sports athletes vulnerable to neurotrauma).

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Fara Barnes is CEO at Valor Performance Research

Anthrax: Agency Approaches to Validation and Statistical Analyses Could Be Improved

GAO-15-80: Published: Dec 19, 2014. Publicly Released: Dec 19, 2014.

Source: <http://www.gao.gov/assets/670/667671.pdf>

After the 2001 Anthrax attacks, the genetic tests that were conducted by the Federal Bureau of Investigation's (FBI) four contractors were generally scientifically verified and validated, and met the FBI's criteria. However, GAO found that the FBI lacked a comprehensive approach—or framework—that could have ensured standardization of the

testing process. As a result, each of the contractors developed their tests differently, and one contractor did not conduct verification testing, a key step in determining whether a test will meet a user's requirements, such as for sensitivity or accuracy. Also, GAO found that the contractors did not



develop the level of statistical confidence for interpreting the testing results for the validation tests they performed. Responses to future incidents could be improved by using a standardized framework for achieving minimum performance standards during verification and validation, and by incorporating statistical analyses when interpreting validation testing results.

GAO identified six characteristics of a statistical framework that can be applied for analyzing scientific evidence. When GAO compared the approach the FBI used to this framework, it found that that the FBI's approach could have been improved in three of six areas. First, the FBI's research did not provide a full

uncertainty to strengthen the interpretation of the scientific evidence. GAO found that since 2001 the FBI has taken some steps to build formal forensic statistical expertise. The FBI's approach to future incidents could benefit from including such expertise early in an investigation.

The lack of an understanding of how bacteria change (mutate) in their natural environment and in a laboratory is a key scientific gap that remains and could affect testing conducted in future incidents.

Specifically, the significance of using such mutations as genetic markers for analyzing evidentiary samples to determine their origins is not clear. This gap affects both the

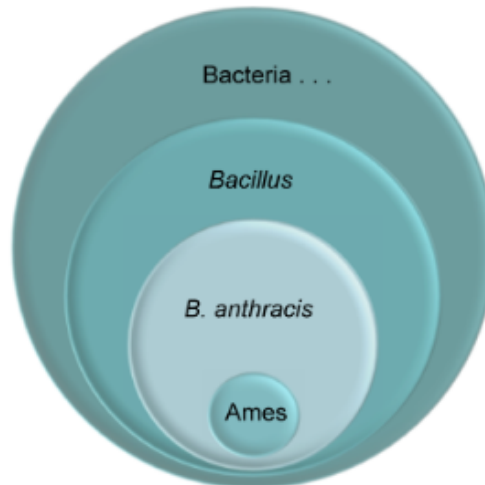
Figure 1: The Classification and Reduction of Possible Sources of Spores in the 2001 Anthrax Attack Letters

Bacteria: Found worldwide: numerous species.

Bacillus: Found on 6 of the 7 continents, in both nature and laboratories: several species.

B. anthracis: Found on 6 of the 7 continents, in both nature and laboratories.

Ames B. anthracis: Found rarely in nature. The FBI collected a repository of samples from more than 1,000 laboratory isolates.



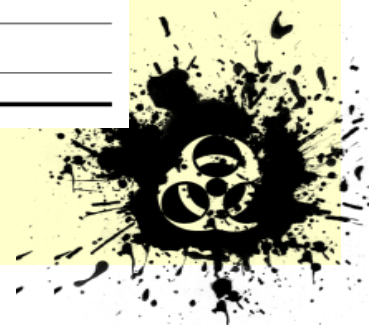
understanding of the methods and conditions that give rise to genetic mutations used to differentiate between samples of *B. anthracis*. Second, the FBI did not institute rigorous controls over the sampling procedures it used to build the repository of *B. anthracis* samples. Third, the FBI did not include measures of

development of genetic tests targeting such mutations and statistical analyses of the results of their use on evidentiary samples. The Department of Homeland Security is currently funding some research on genetic changes in bacteria and genome sequencing methods, among others. Such research is a step in the

Table 5: Six General Characteristics of a Framework for Statistically Comparing Attack Material to Repository Samples

Characteristic	Definition
1	The genetic signature used to determine a match or exclusion should be clearly defined and understood
2	A relevant source population should be clearly defined and understood
3	A database that accurately and completely represents the genetics of the relevant source population should be created
4	The limitations of measurement tools (or assays) should be known
5	The statistical methods should be appropriate for the data and should properly account for the mode of inheritance of the genetic markers
6	The interpretation of results should include quantifications of uncertainty

Source: GAO. | GAO-15-80



right direction since the FBI is planning to use genome sequencing methods in future investigations. However, because this research may not be complete for several more years, the extent to which it will close this gap is not known.

Why GAO Did This Study

In 2001, the FBI investigated an intentional release of *B. anthracis*, a bacterium that causes anthrax, which was identified as the Ames strain. Subsequently, FBI contractors developed and validated several genetic tests to analyze *B. anthracis* samples for the presence of certain genetic mutations. The FBI had previously collected and maintained these samples in a repository.

GAO was asked to review the FBI's genetic test development process and statistical analyses. This report addresses (1) the extent to which these genetic tests were scientifically verified and validated; (2) the characteristics of an adequate statistical approach for analyzing

samples, whether the approach used was adequate, and how it could be improved for future efforts; and (3) whether any remaining scientific concerns regarding the validation of genetic tests and statistical approaches need to be addressed for future analyses. GAO reviewed agency and contractor documentation, conducted literature reviews, and conducted statistical analyses of the repository data. GAO's review focused solely on two aspects of the FBI's scientific evidence: the validation of the genetic tests and the statistical approach for the analyses of the results. GAO did not review and is not taking a position on the conclusions the FBI reached when it closed its investigation in 2010.

What GAO Recommends

GAO recommends that the FBI develop a framework for validation and statistical approaches for future investigations. The FBI agreed with our recommendations.

► Read the full report at source's URL.

Fear of terrorism increases basal (resting) heart rate, risk of death

Source: <http://www.homelandsecuritynewswire.com/dr20141223-fear-of-terrorism-increases-basal-resting-heart-rate-risk-of-death>

A new study of over 17,000 Israelis has found that long-term exposure to the threat of terrorism can elevate people's resting heart rates and increase their risk of dying.

This is the first statistics-based study, and the largest of its kind, which indicates that fear induced by consistent exposure to the threat of terror can lead to negative health consequences and increase the risk of mortality.

Whether long-term exposure to the threat of terror can lead to physical health risks in the exposed population, however, has until now remained unknown.

A Hebrew University of Jerusalem release reports that better to understand the health risks associated with the fear of terror, researchers from the HUJ examined the factors affecting basal

It is well-documented that international terror outbreaks involve mass psychological trauma, leading to long-term mental health risks to the exposed population. Previous studies have also shown that in the short term, sudden stressful situations such as earthquakes can increase a person's heart rate and their risk of having a heart attack.

(resting) heart rates, and studied how these rates changed over the years during annual checkups of healthy Israeli subjects. Israel has been exposed to the repeated stress of multiple wars and terror attacks for over sixty years, with a major impact on the entire society.



The research was conducted by Prof. Hermona Soreq, the Charlotte Slesinger Professor of Molecular Neuroscience at the Hebrew University's Edmond and Lily Safra Center for Brain Sciences (ELSC) and a member of Israel's National I-Core Center of Excellence for Mass Trauma Research; and postdoctoral fellow Dr. Shani Shenhar-Tsarfaty, a recipient of ELSC and the Israel Ministry of Science's Eshkol Fellowship.

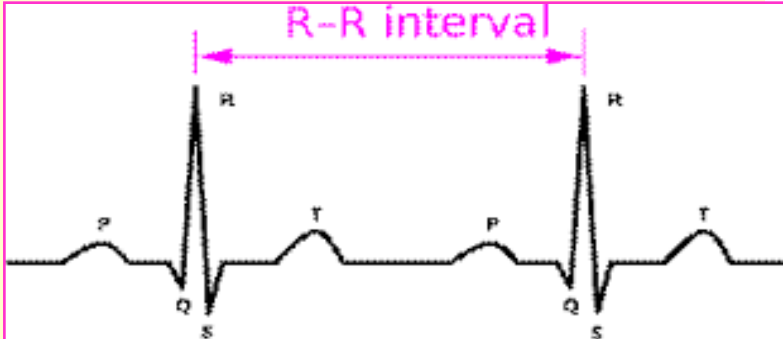
Together with Prof. Yaacov Ritov at the Hebrew University's Department of Statistics and Center for the Study of Rationality, they **studied 17,300 healthy subjects** who underwent an annual general medical exam including blood tests, heart rate and stress tests at the Tel Aviv Medical Center each year. The 10,972 men and 6,408 women in the study were apparently healthy employees attending periodic routine health examinations during the years 2002-2013. The data were collected as part of the 'TAMCIS: Tel Aviv Medical Center Inflammation Survey.'

The questionnaire covered a wide range of occupational, psychological, and physical factors, including body mass index, blood pressure, fitness, smoking, psychological well-being, anxiety, and fear of terror.

"We wanted to test whether fear of terrorism can predict an increase in pulse rate and increased risk of death," explains Prof. Soreq. By combining the medical exam data with the questionnaire responses, the researchers found that basal heart rate was affected by physiological characteristics, such as level of physical fitness and inflammation index reflecting the activity of the immune system.

In contrast, an ongoing increase in heart rate was also influenced by psychological characteristics such as fear of terrorism. Through a statistical analysis of 325 different parameters, the researchers found that fear of terror was a major contributor to annual increases in resting heart rate, with 4.1 percent of study participants suffering from an elevated fear of terror that predicted an increase in their resting heart rates.

While a heartbeat of 60 beat per minute is normal, an increase of up to 70-80 beats per minute was observed in subjects who exhibited an increased fear of terrorism. In



other words, for people with an elevated fear of terror, the heart beats faster and the associated risk of heart disease is higher.

Elevated resting heart rate is a predictor of death from cardiovascular disease and death across all causes. As people age, the resting heart

rate typically decreases from year to year, and people whose heart rate actually increases annually are more susceptible than others to heart attacks and strokes.

The researchers also examined how the brain alerts the body to the expectation of danger. They administered a blood test to examine the function of acetylcholine, a neurotransmitter involved in responses to stress and which acts as a brake to the inflammatory response.

Basal heart rate

The results showed that the fear of terror leads to a decline in the function of acetylcholine, and thus reduces the body's ability to defend itself from a heart attack, leading to a greater chance of dying.

"We found that fear of terrorism and existential anxiety may disrupt the control processes using acetylcholine, causing a chronic accelerated heart rate. Together with inflammation, these changes are associated with increased risk of heart attack and stroke," Prof. Soreq said.

The researchers also found that levels of C-reactive protein (CRP), a biomarker for inflammation, were elevated in those volunteers who fear terror and show escalated pulse. This finding further suggests that long-term exposure to terror threats may combine with inflammation to elevate resting heart rates and thus increase the risk of mortality.

The researchers suggest that since information on heart rate and its time-related changes is easy to follow, the findings may be useful in identifying



asymptomatic people who could benefit from primary prevention measures designed to limit increases in cardiovascular mortality risk.

— Read more in Shani Shenhar-Tsarfaty et al., “Fear and C-reactive protein co-synergize annual pulse increases in healthy adults,” Proceedings of the National Academy of Sciences (22 December 2014)

These could include vagal stimulation, anti-inflammatory or anti-cholinesterase medications or physical activity.

Ebola: new study is first to report vaccine success in Africa

Source: <http://www.medicalnewstoday.com/articles/287371.php?tw>

Dec 23, 2014 – To date, almost 7,000 deaths have been reported as a result of the 2014 Ebola outbreak, with the majority occurring in West Africa. Now, a new study published in *The Lancet* is the first to reveal the success of an Ebola vaccine in an African population, as well as the success of a vaccine for the closely related Marburg virus.

in 108 healthy participants aged 18-50 from Kamapala, Uganda, between November 2009 and April 2010.

The vaccines, created by researchers from the NIAID, are made up of protein structures on the outer surface of the viruses. These generate an immune response in the body but do not allow viral replication.

This latest study is the first to report promising findings for an Ebola vaccine in an African population, according to the researchers.

Effectiveness and safety of vaccines 'particularly encouraging'

At study baseline and at 4 and 8 weeks later, participants were randomly assigned to receive an injection of either the EBO vaccine, the MAR vaccine, both vaccines or a placebo.

The team found that the EBO and MAR vaccine - when administered separately and together - effectively triggered an immune response in participants by neutralizing antibodies and T cells against the proteins of the viruses.

Among participants who received the EBO vaccine, 17 of 30 displayed an antibody response to the Ebola Zaire protein 4 weeks after the last injection, while 14 of 30 participants who received both the EBO and MAR vaccine

showed an antibody response against the protein. The researchers note, however, that these antibodies were at undetectable levels within the following 11 months.

Both of the vaccines were well tolerated by participants, the researchers say, with only one adverse reaction - a low white blood cell count - reported in one participant who received the MAR vaccine only. This case, however, was not believed to be triggered by the vaccine.

Commenting on the team's findings, Dr. Ledgerwood says:



Both Ebola and Marburg belong to a family of viruses called *Filoviridae*, or filoviruses, which are known to cause severe hemorrhagic fever in both humans and nonprimates. There are five species of Ebola virus; the Zaire (EBOV) and Sudan (SUDV) strains are behind the 2014 outbreak. Marburg is a single-strain virus.

In their phase 1 clinical trial, led by Dr. Julie Ledgerwood of the National Institutes of Allergy and Infectious Diseases (NIAID), the team tested the effectiveness of two vaccines - one for the EBOV and SUDV strains of Ebola (EBO vaccine) and one for Marburg (MAR vaccine) -



"This is the first study to show comparable safety and immune response of an experimental Ebola vaccine in an African population. This is particularly encouraging because those at greatest risk of Ebola live primarily in Africa, and diminished vaccine protection in African populations has been seen for other diseases."

Results have already boosted clinical testing of another Ebola vaccine

Dr. Ledgerwood notes that the results of this study have already "formed the basis" and boosted clinical testing of another Ebola vaccine, known as cAd3-EBO, which is delivered using a chimpanzee "cold" virus. Reported by *Medical News Today* in September, the vaccine was revealed to have induced long-term immunity against Ebola in monkeys, which led the National Institutes of Health to announce the vaccine would be entering phase 1 clinical trials in the US. It is also entering expanded trials in Europe and Africa.

In an editorial linked to this latest study, Dr. Saranya Sridhar, of the Jenner Institute at the University of Oxford in the UK, says the

findings should be a "focal point" for Ebola vaccine development.

"With the uncharitable benefit of hindsight in view of the evolving 2014 Ebola outbreak, we must ask ourselves whether a filovirus vaccine should have been in more advanced clinical development," she says, adding:

"The international response to the present Ebola outbreak is an exemplar of the speed and purpose with which clinical vaccine development can progress and has set the benchmark against which future vaccine development must be judged.

This study is the first step on the aspirational road toward the deployment of filovirus vaccines in Africa and must serve to shake the metaphorical cobwebs that can stall our advance toward this destination."

A recent report, also published in *The Lancet*, reveals how a doctor who contracted Ebola in Sierra Leone was successfully treated with a drug called FX06, which is currently undergoing testing for use against vascular leakage syndrome.



UK must act to guard against pandemics, says scientist who discovered Ebola virus

Source: <http://www.independent.co.uk/news/uk/home-news/exclusive-uk-must-act-to-guard-against-pandemics-says-scientist-who-discovered-ebola-virus-9945151.html?origin=internalSearch>

The UK must create a new health security agency to guard against future pandemics, according to the scientist who discovered the Ebola virus.



Professor Peter Piot (photo) said Britain and Europe lacked "an epidemic intelligence service" with global reach, leaving them "vulnerable" and less able to intervene in overseas health crises such as the Ebola outbreak, which has killed thousands of people in West Africa.

Having returned from his first visit to the country, he told *The Independent* that the world had lessons to learn from the outbreak, and that many deaths could have been avoided if the international response had come earlier. "The lesson for the future is: act early, act immediately," he said. "I also think it's time the UK and Europe had a well-trained corps of people who

are specialists in outbreak control but underpinned by strong research and science. We don't have that and that makes us vulnerable."

Professor Piot added that while America's Centres for Disease Control was a "formidable force", neither Public Health England nor the European Centre for Disease Prevention and Control placed enough focus on infectious disease as a "national security issue".



“We don’t have this ‘epidemic intelligence service’,” he said. “You don’t want to depend on information coming from the US. CDC is a great organisation, but we need that capacity ourselves as a nation. That’s a national security issue.”

Klain defends CDC protocols after lab technician’s potential exposure to Ebola

Source: <http://www.homelandsecuritynewswire.com/dr20141229-klain-defends-cdc-protocols-after-lab-technician-s-potential-exposure-to-ebola>

Dec 29, 2014 – The Obama administration’s Ebola czar, Ron Klain, yesterday (Sunday) defended the security procedures of the Centers for Disease Control and Prevention (CDC), after a technician at one of the agency’s labs in Atlanta was potentially exposed to the deadly disease.

Klain told CBS: “It’s obviously unacceptable to have any mishandling of Ebola materials; [CDC director] Dr. [Tom] Frieden will present a full review and report within four weeks. But I also think it’s important to keep this in context.

“First of all, thanks to the other protocols and procedures in place, there was no risk to the public, to the CDC staff generally. Only one technician was exposed and so far she’s showing no signs of having the disease. She’ll be monitored every day.”

The *Guardian* reports that the unnamed technician’s potential exposure, which happened on Monday, was discovered on Tuesday and announced by CDC on

Wednesday, Christmas Eve. The lab technician has been placed under close observation for twenty-one days. About a dozen other lab employees are also being watched.

The CDC has been criticized earlier this year not only for its response to the Ebola outbreak and Ebola cases within the United States. Numerous safety violations and lax procedures have been reported in the CDC’s labs and in the manner the agency’s technicians transport lethal pathogens, including anthrax and botulism bacteria, from one lab to another.

“I visited this lab in October,” Klain said of the CDC’s Atlanta facility, “and they’ve been studying Ebola for twenty years without one single incident. They’ve processed more than 10,000 Ebola samples during this current crisis and they’ve saved thousands of lives.

“The CDC is a national treasure — and people around look to us for leadership in the Ebola response. The American people should be very proud of Dr. Frieden’s team at the CDC.”

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IS’s threat of biological terrorism

By Musa Khan Jalalzai

Source: <http://www.dailytimes.com.pk/opinion/30-Dec-2014/is-s-threat-of-biological-terrorism>

With the establishment of Islamic State (IS) in Syria and Iraq, and its secret networks and propaganda campaign in Pakistan and Afghanistan, the international community has now focused on the proliferation and smuggling of chemical and biological weapons in the region. The recent debate in Europe-based think tanks suggests that, as the group retrieved nuclear and biological material from the Mosul University in Iraq, it can possibly make nuclear explosive devices with less than eight kilogrammes plutonium. The debate about bioterrorism and bio-defence is not entirely new in the military circles of South Asia; the involvement of IS in using biological weapons against the Kurdish army in Kobane is a lesson for Pakistan and Afghanistan to deeply concentrate on the proliferation of these weapons in the region.

A document from Pakistan’s Internal Security Policy (2014-2018) categorically stated that the country’s security faces the threat of nuclear terrorism. The threat, according to the document’s contents, is in addition to the possibility of chemical and biological terrorism. As the fatal war against terrorism has entered a crucial phase, another powerful extremist militant group (IS) has emerged with a strong and well-trained army in Afghanistan and parts of Pakistan to establish an Islamic state. The massacre of 100 innocent civilians, including an Afghan national army soldier in the Ajristan district of Ghazni province, Afghanistan by IS



forces, and the brutal killings of children in the army school in Peshawar have raised serious questions about the future of security and stability in South Asia. The Tehreek-e-Taliban Pakistan (TTP) claimed responsibility and called it a revenge attack for the Pakistan army's Operation Zarb-e-Azb in North Waziristan and FATA regions.

As Islamic State (IS) now controls parts of Iraq and Syria and has carried out successful attacks in Pakistan and Afghanistan, the group now wants to expand its terror networks from Afghanistan to Kashmir. According to some confirmed reports, hundreds of Pakistanis have joined the army of IS in Syria and Iraq. In October 2014, six leaders of the TTP announced their allegiance to IS. IS propaganda material has begun to crop up in various parts of Pakistan. Secret networks of IS are in contact with different sectarian and political groups in Khyber Pakhtunkhwa province and receive financial assistance from business communities. The TTP commanders of Orakzai Agency, Kurram Agency, Khyber Agency, Peshawar and Hangu district have announced their allegiance to the IS military command.

The problem of nuclear and biological terrorism deserves special attention from the governments of Pakistan and Afghanistan because **the army of IS can develop a dirty bomb in which explosives can be combined with a radioactive source like those commonly used in hospitals or extractive industries.** The use of this weapon might have severe health effects, causing more disruption than destruction. Political and military circles in Pakistan fear that, as IS has already seized chemical weapons in Al Muthanna, in northern Iraq, some disgruntled retired military officers or experts in nuclear explosive devices might help the Pakistan chapter of the group deploy biological and chemical weapons. A letter by the Iraqi government to the UN warned that the militant-captured chemical weapons site contains 2,500 chemical rockets filled with the nerve agent Sarin.

In Europe, there is the general perception that IS has already used some dangerous gases in Iraq. Therefore, it could use biological weapons against civilian populations in Pakistan. If control over these weapons is weak, or if their components are available in the open market, there would be huge destruction in the region. In July 2014, the government of Iraq notified that nuclear material had been seized by the IS army from Mosul University. IS has a 19-page document in Arabic on how to develop biological weapons, and a 26-page religious fatwa that allows the use of weapons of mass destruction. "If Muslims cannot defeat the kafir (non-believers) in a different way, it is permissible to use weapons of mass destruction," warns the fatwa.

The effects of chemical weapons are worse as they cause death or incapacitation, while biological weapons cause death or disease in humans, animals or plants. We have two international treaties that ban the use of such weapons. Notwithstanding all these preventive measures, the threat of chemical or biological warfare persists. In 2011 and 2013, there were complaints and allegations that some states wanted to target Pakistan with biological weapons. The country has been trying to counter biological attacks but has failed due to limited funds and medical knowledge. As Pakistan noted in its statement to the Meeting of States Parties in December 2013: "Pakistan ratified the Biological and Toxic Weapons Convention (BTWC) in 1974 as a non-possessor state and remains fully committed to implementing all provisions of the convention."

The fatalities of dengue and ebola viruses in Pakistan and West Africa are the worst forms of bioterrorism. In 2011, the Pakistan Medical Association called on the ISI to investigate fears of the deliberate spread of the deadly disease in Punjab. There are speculations that, in future, measles, dengue, polio and the ebola viruses can be used as weapons of bioterrorism in Pakistan. Some states might use drones for the purposes of bio-war against their rival states. In 2013, writing in the Global Policy journal, Amanda M Teckman warned that IS might possibly use ebola as a weapon against the civilian population: "It remains to be seen if a terrorist group like IS, which has demonstrated a willingness to engage in large scale mass murder, including the uninhibited murder of civilians, has the capability to produce a weaponised version of ebola." The University of Birmingham Policy Commission Report warned that terrorists could also turn remotely piloted aircraft into flying bombs by hooking them up to improvised explosive devices. Sir David, a former British intelligence researcher, warned that drones had gained a reputation as unaccountable killing machines because of their widespread use in the US's controversial anti-terrorist campaigns in Pakistan, Yemen and Somalia.



Musa Khan Jalalzai is the author of Punjabi Taliban

Progress made in slowing Ebola spread in West Africa – but it is still spreading

Source: <http://www.homelandsecuritynewswire.com/dr20141230-progress-made-in-slowing-ebola-spread-in-west-africa-but-it-is-still-spreading>

Dec 30, 2014 – **Nearly 20,000 people have been infected with the Ebola virus since December 2013, and about 7,700 of them have died. Over 90 percent of patients live in West Africa, where poor public healthcare systems have accelerated the spread of the disease.**

Global health officials believe that the current epidemic began in a village near the border towns that link Liberia, Sierra Leone, and Guinea. There a two-year-old boy developed a mysterious illness and died. Other family members and a guest also fell ill and soon the virus spread to neighboring villages. By the time the virus was identified in March, it had reached Conakry, Guinea’s capital.

It was not until August that the World Health Organization declared an international public health emergency, but by then thousands of West Africans had fallen ill. In September, President Barack Obama announced that the U.S. military would send medical supplies and some military personnel to Liberia to help build medical tents and testing facilities so healthcare workers could properly treat patients who might have contracted the virus. Britain, France, China, and other countries also contributed to Ebola relief efforts through their public health agencies and non-governmental organizations. The *Los Angeles Times* reports that as 2015 approaches, healthcare officials in West Africa are seeing progress in eradication efforts. Ebola-infected dead bodies are being picked up from the streets of major towns and properly buried by government workers, and more patients are being admitted to hospitals due to an increase in the number of hospital beds

available. Yet, despite the progress made in recent weeks, Ebola is still spreading in remote villages.

“It is encouraging to see that when we get to a place where Ebola is spreading quickly, we can end that cluster within a month or two,” said Dr. Thomas Frieden, director of the U.S. Centers for Disease Control and Prevention (CDC). “But the problem is, there are clusters all over, and new ones popping up all the time.”

Grand Cape Mount County in western Liberia has reported at least fifty new cases this month, said Tolbert Nyensuwah, assistant minister for preventive services and the head of Liberia’s Ebola response. Liberian healthcare officials had set a 31 December target for recording no new Ebola infections, but some remote areas still lack treatment centers and efforts to educate residents. “This is a

serious situation and we are going to Cape Mount today along with our international partners and UN agencies,” Nyensuwah told a news conference late Sunday in Monrovia. “We are going there to open an Ebola Treatment Unit.”

The Ebola epidemic has collapsed not just the healthcare systems in West Africa; it has also left schools unattended, business in many major towns in Liberia, Sierra Leone, and Guinea have halted, and even countries hundreds of miles away from affected countries have suffered. Tourism officials in Kenya and South Africa have reported that scores of American tourists have canceled their holiday trips due to the epidemic, despite the fact that neither country has experienced a



case of Ebola. "This is going to be a long, hard fight," said Frieden. going to be a long, hard fight," said Frieden.

Hospitals Asked to Limit Ebola Gear With Supplies Tight

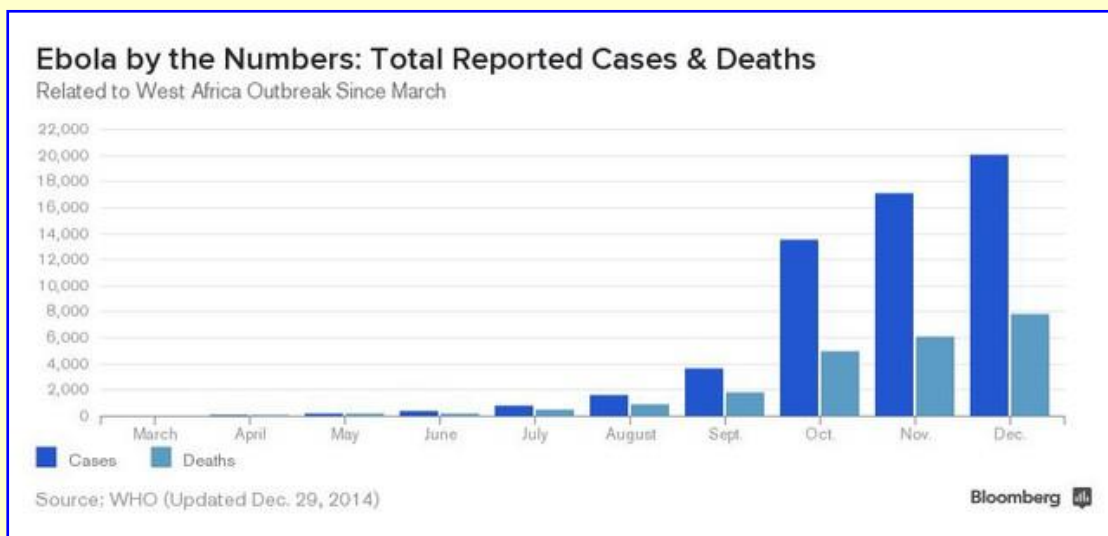
Source: <http://www.bloomberg.com/news/2014-12-31/hospitals-asked-to-limit-ebola-gear-with-supplies-tight.html>



Nurses hold signs as they march to a demonstration to bring attention to the lack of training and protective equipment for health care workers who could be exposed to the Ebola virus outside of the Dellums Federal Building on November 12, 2014 in Oakland, California. Photographer: Justin Sullivan/Getty Images

Jan 01 – Hospitals should limit their purchases of sterile Ebola equipment to make sure health workers in West Africa have enough gear, the U.S. Centers for Disease Control and Prevention said.

Most hospitals need enough equipment -- like face shields and impermeable gowns -- for a day or two of patient care in case a person shows up to the emergency room without warning, the CDC said today



in a statement. Medical facilities that have been designated for assessing and treating Ebola patients need more gear, the agency said.



“Hospitals should have the minimum amount of PPE on hand to match their role,” the CDC wrote, referring to personal protective equipment. “All hospitals do not need the same amount of PPE.”

The Ebola Scourge

Medical facilities have been pushing to prepare themselves for potential Ebola cases after two nurses in Texas were infected by a patient earlier this year, prompting the CDC to recommend greater safety protections in October. Earlier this month, Congress allocated more than \$800 million to prepare and compensate states for readying for Ebola in the U.S.

Panic about the disease has diminished in the U.S., where a verified case of the virus hasn’t been diagnosed since November. A patient who was exposed to the virus in West Africa and was transported Dec. 4 to Emory University Hospital in Atlanta doesn’t have Ebola, Nancy Nydam, a spokeswoman for the Georgia Department of Public Health, said in an e-mail. Nor does a similar patient who was treated this month at the National Institutes of Health Clinical Center in Bethesda, Maryland. A CDC worker who was mistakenly exposed last week to the virus in a lab has shown no symptoms of the disease and is still being monitored.

Protected Resource

The CDC is trying to preserve supplies for West Africa, where the virus continues to ravage communities, according to Abigail Tumpey, a spokeswoman for the agency.

“I wouldn’t say that any hospitals have too much for their current needs, but you can imagine that with the outbreak going on in western Africa that PPE is a resource that needs to be protected,” Tumpey said in a phone interview.

Ebola continues to devastate West Africa. More than 20,170 cases have been diagnosed in Sierra Leone, Liberia and Guinea, where 7,890 people have died of the virus, the World Health Organization said today.



Anthrax – the next attack is only a matter of time

Source: <http://i-hls.com/2014/12/anthrax-next-attack-matter-time/>

The GAO (Government Accountability Office) is calling for the FBI to develop a comprehensive framework for future anthrax investigations. After the 2001 anthrax attacks, FBI called in contractors to develop and validate several genetic tests to analyze samples of a strain of anthrax for the presence of certain genetic mutation. The genetic tests conducted by the FBI’s four contractors were generally scientifically verified and validated, and met the FBI’s criteria, according to a new GAO report. However, the report also found that the FBI lacked a comprehensive approach, or framework, that could have ensured standardization of the testing process. As a result, all the contractors developed their tests differently, and the contractors could not ensure a level of statistical confidence for interpreting test results. Thus, GAO recommended that the FBI develop a framework for validation and statistical approaches for future anthrax investigations. The FBI agreed with the GAO’s recommendations.

United States Intelligence Agencies have briefed the President and the Congress that the chances of another terrorist attack on the United States is almost 100 percent.

Because there is a possibility that such attack may include the use of biological weapons (most likely anthrax), many individuals are concerned. What is anthrax?

According to the Center for Disease Control, anthrax is an acute infectious disease caused by the spore-forming bacterium *Bacillus anthracis* (industrial anthrax). Anthrax most commonly occurs in wild and domestic lower vertebrates (cattle, sheep, goats, camels, antelopes, and other herbivores), but it can also occur in humans when they are exposed to infected animals or tissue from infected animals.

The Department of Defense considers anthrax to be highly dangerous because it is:

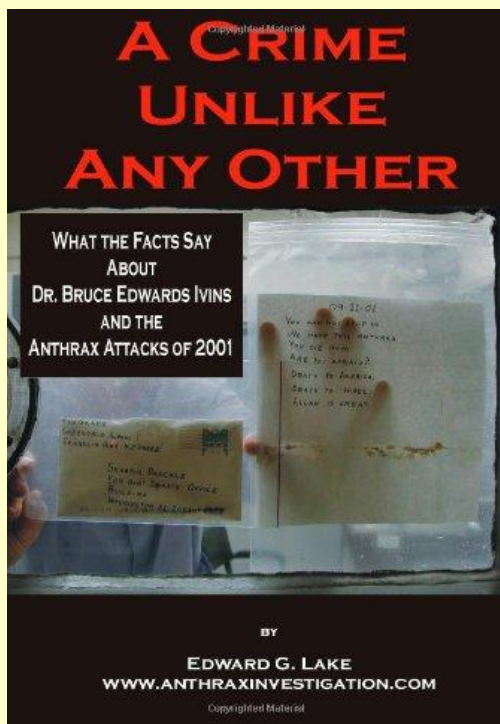
- One of the easiest biological agents to manufacture



- Relatively easy to develop as a weapon easily spread in the air over a large area
- Easily stored and dangerous for a long period

Anthrax is most common in agricultural regions where it occurs in animals. These include South and Central America, Southern and Eastern Europe, Asia, Africa, the Caribbean,

and the Middle East. When anthrax affects humans, it is usually due to an occupational exposure to infected animals or their products. Workers who are exposed to dead animals and animal products from other countries where anthrax is more common may become infected with *Bacillus anthracis*. Anthrax in wild livestock has occurred in the United States.



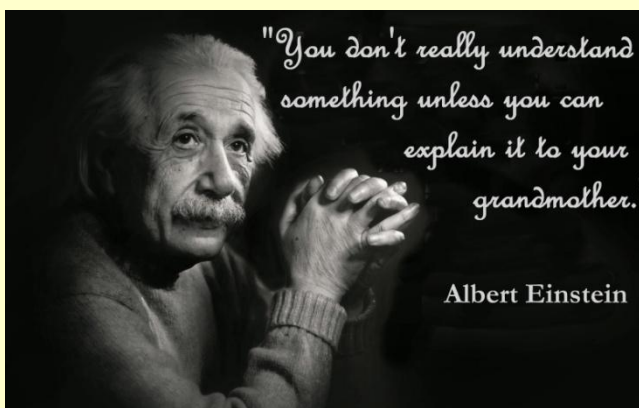
A Crime Unlike Any Other: What the Facts Say About Dr. Bruce Edwards Ivins and The Anthrax Attacks of 2001

By Edward G Lake (Author)

Source: <http://www.amazon.com/Crime-Unlike-Any-Other-Edwards/dp/0976616343/>

The anthrax letter attacks of 2001 resulted in a seven year investigation that the FBI described as "one of the largest and most complex in the history of law enforcement." However, because nearly seven years passed before the public was made aware of who the FBI had determined was the lone perpetrator, the public's view of the case was muddled by wildly inaccurate news reporting, by a constant barrage of conspiracy theories, and by wild distortions of the actual facts of the case by people who had their own beliefs about who sent the letters and why. "A Crime Unlike Any Other" is a narrative non-fiction true-crime

book that chronologically describes the crime as it was committed by Dr. Ivins, it describes the investigation and the science of the case, and it also "fills in the blanks" by examining and fitting together the known facts as found in the many thousands of pages of official documents that have been released since the case was closed in 2010. Actions by Ivins which respected scientists with strong opinions but no direct knowledge of the case say were "impossible" are shown to be actually very simple and routine. Example: The making of the anthrax powders. Distortions and incorrect information routinely printed by the media are shown to be what they are: distortions of the facts and incorrect information. Example: How Dr. Steven Hatfill became a "person of interest." The book describes what the facts show to be the way the crime was committed, why it was committed, how the public was misled by conspiracy theorists and the media, and how the FBI gradually determined that Dr. Bruce Edwards Ivins was the sole perpetrator of the biological attack upon the United States in 2001 that killed 5 innocent Americans, injured 17 others, and resulted in BILLIONS of dollars of damages, while also playing a role in starting a war with Iraq. Because the story is told chronologically, "A Crime Unlike Any Other" may read like a



suspense thriller. But it's just "What the Facts Say About Dr. Bruce Edwards Ivins" and the Anthrax Attacks of 2001."

► Visit also the related website at: <http://www.anthraxinvestigation.com/>

Cyprus – Israeli Ebola watchlist man returns to Austria

Source: <http://www.thelocal.at/20150105/israeli-ebola-suspect-returns-to-austria>

Jan 05 – An Israeli man who has been placed on a special monitoring program after spending time in a certain West African country left Austria on Sunday for Cyprus, but decided to immediately return to Vienna to avoid quarantine.



According to a report from the InCyprus news site philenews.com, the Israeli citizen was told that he would be quarantined upon his arrival in Cyprus, due to the fact that he had visited a country in the last 21 days which was a major source of Ebola infection.

After being informed of this fact, the man decided not to leave the Austrian Airlines plane, but instead elected to fly back to his origin city of Vienna.

Cyprus health minister Philippos Patsalis assured all passengers on the flight in question that the man was examined upon his arrival in Larnaca, and was found not to have a fever, meaning he was at a very low risk for harbouring the virus.

According to one of the passengers on the plane, no one informed them regarding the possible threat, which they only discovered when told by Cypriot media.

"We were not even informed while at the airport, waiting for our luggage. The plane parked far away and someone came and brought us some forms to fill our data. We were even told that it is a procedural matter. After half an hour, we were released to go get our luggage. Again, no one informed us," a passenger told the Cypriot news network "Signalive."

Since 2014, there have been several suspected Ebola cases in Cyprus, although none of those examined resulted positive for the disease.

EDITOR'S COMMENT: Just another story of daily madness! First of all: the passenger was known to Austrian health authorities but his name was not given to Vienna's airport authority. Passengers were unaware of his presence in the plane. Cyprus authorities fail to apply a simple communications crisis management plan. Were the passengers from Cyprus to Austria informed that one their co-passengers' was the Israeli that caused all this mess? It is tragic when "problems identified" stubbornly are not transformed to "lessons learned".

The Apocalypse Sperm Bank

Source: <http://modernfarmer.com/2013/08/apocalypse-sperm-bank/>



No one's saying it's going to happen, but what if all the cows died? And the pigs. And the chickens. And (please God, no) the goats. All of them. Is there a plan? Breathe easy, livestock lovers. Housed in a vast storehouse in Fort Collins, Colorado, the USDA



has 700,000 straws of liquid nitrogen-preserved sperm, from 18 different species. They're ready. "Let's say another foot-and-mouth disease comes along, killing off our cows," says Dr. Harvey Blackburn, repository coordinator. "We have the ability to repopulate entire breeds."



The National Animal Germplasm Program (NAGP) started in 1999. Its facility stores a huge mishmash of semen — rare and vintage samples, combined with the most common breeds on the market. Blackburn says the everyday strains are just as important as the heirloom semen, if not more so.

Dr. Harvey Blackburn and technician Ginny Schmit storing samples in liquid nitrogen. Credits: Steve Ausmus

The repository stores samples from sheep, turkeys, goats, bison, pigs, elk, chickens, fish and cows. Every straw has a story. There are 30,000 salmon milt samples, obtained from the Nez Perce tribe in Idaho. There's rare sheep semen from Kazakhstan, near sheep's center of domestication. There's even a full backup of 20,000 exclusively bred cows on the Island of Jersey, progenitors for Jersey cattle all over the globe.

So where does it all come from? Universities, companies and private collectors often donate semen to the NAGP. Other samples are tracked

down by Blackburn and his colleagues. One woman in Broken Bow, Nebraska, had a rare breed of cattle dating back to the 1940s. "We called this farmer, asking for semen from her bulls," Blackburn says. "She picked up the phone and said, 'I thought you'd never call.'"

By Congressional decree, the NAGP will never charge you for the use of their samples, whether you're a scientist, breeder or farmer. The only catch: You have to show it's something you couldn't obtain elsewhere (i.e., a private company).

Cows, Chickens, Pigs and ... Screwworms?
 The NAGP facility keeps genes from the screwworm, a fly that burrows under animal skin and feasts on live flesh. Why? To help eradicate the little buggers. Genes from the NAGP are used to make sterile male screwworms, who are released into the wild. Female screwworms only mate once for life, so when they hook up with a sterilized male, it prevents them from ever reproducing. Currently these sterilized screwworms are being released in the Isthmus of Panama, as part of a USDA.

For instance, the owner of a herd of milking cows recently contacted the agency. The farmer was looking to inseminate his cows with an otherwise unavailable shorthorn breed from Utah. The NAGP provided the sample — it was over 50 years old. "It's amazing, isn't it," laughs Blackburn.

Purdue University recently provided a glimpse, in miniature, of the vast collection's utility. Purdue had built an exclusive breed of pig, then completely phased it out. Two years later, researchers realized that breed could be highly valuable for studying disease in humans. They approached the NAGP; the pigs were recreated from scratch.

The NAGP's 700,000 samples may be the largest semen repository in the world (it's uncertain if China's collection is bigger.) Security is tight, and contingency plans have been made for tornadoes, earthquakes, and virtually any manner of earth-altering disaster. But what are those plans?





"I'd rather not discuss that," Blackburn says, after a pause. "It's taken care of."

ISIS fighters have contracted Ebola

Source: <http://www.dailymail.co.uk/news/article-2894154/ISIS-fighters-contracted-Ebola-World-Health-Organisation-investigating-reports-Islamist-militants-disease-showed-Iraqi-hospital.html>

Jan 02 – **The World Health Organisation is investigating reports that ISIS militants have been showing up at an Iraqi hospital with Ebola.**



According to three media outlets an undisclosed number of militants displaying signs of the disease attended a hospital in the ISIS-held city of Mosul, 250 miles north of Baghdad.

While the reports, from Kurdish and pro-Iraqi sources, remain unconfirmed, WHO spokesman Christy Feig said the group are trying to reach out to officials in ISIS-held areas to offer help.

UN workers are currently banned from entering ISIS-controlled areas in both Iraq and Syria so it is unlikely an operation in the region could be carried out.

Ms Feig told Mashable: 'We have no official notification from [the Iraqi government] that it is Ebola.'

Mosul has been under control of ISIS since June 2014 and over the past few weeks militants have reportedly executed more than a dozen doctors for refusing to treat injured fighters.

According to a report in Iraq's pro-government newspaper, al Sabaah, the disease was brought to Mosul by 'terrorists' arriving 'from several countries' and Africa.

The symptoms of Ebola, which include nausea and vomiting, diarrhea, bleeding and bruising, are similar to those of other diseases including malaria and yellow fever meaning it could easily have been misdiagnosed.

In addition, very few ISIS fighters are believed to have travelled up from West Africa where the Ebola outbreak originated with most coming from areas where there have been no reports of the disease.

The reports have appeared in pro-government and Kurdish media but if true it could have catastrophic implications for people in ISIS-held areas as the group is against western science and medicine.

It is not known if any of the surviving doctors in Mosul are equipped to test for Ebola or trained to treat patients and prevent the spread of the disease.

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2014 saw potentially serious safety mishaps at U.S. biolabs

Source: <http://www.homelandsecuritynewswire.com/dr20150106-2014-saw-potentially-serious-safety-mishaps-at-u-s-biolabs>

U.S. government laboratories working with potentially deadly biological agents have had to deal with several lab incidents in the past two years. The *Homeland Security News Wire* has reported on the mishaps at the Centers for Disease Control and Prevention (CDC), where vials of deadly pathogens, including anthrax, were mishandled.

Similar lab incidents occurred in 2012 and 2013, according to a report from the *Frederick News-Post*. Copies of occupational hazard reports, obtained through the Freedom of Information Act from the U.S. Army Medical Research Institute of Infectious Diseases

(USAMRIID), the National Institute of Allergy and Infectious Diseases' Integrated Research Facility (NIAID-IRF), and the National Biodefense Analysis and Countermeasures Center at Fort Detrick, Maryland, reveal the details behind accidents at some of the nation's most secured labs.

Congress and federal officials have called for better enforcement of safe operating procedures at U.S. government labs. "There is a continued lack of national standards for designing, constructing, commissioning and overseeing" these labs, said



Nancy Kingsbury, managing director of applied research and methods at the Government Accountability Office.

On 19 September 2013, a plastic tube storing *Burkholderia mallei* popped open as it sat in a boiling water bath in a Fort Detrick lab. As steam rose from the bath, two microbiologists walked into the lab and discussed what to do while the steam was spreading across the room. In all, six people were potentially exposed to the bacteria that causes glanders, an infectious disease that can be spread via aerosol, contaminated food, and water. It was used as a biological weapon during the Second World War. The individuals involved in the incident were given antibiotics and further training to deal with future accidents

“We have made sure (through) both our suite specific training and our annual training for personnel that all personnel maintain situational awareness of what is happening in our suites,” said Dr. David Harbourt, USAMRIID biosafety officer.

In May 2014 two separate safety incidents occurred at USAMRIID. One involved a research technician dropping a bottle of acetic

acid, the main ingredient in vinegar and not considered toxic, while putting it away in storage. Three lab employees were exposed to the fumes, with one of them experiencing mildly irritated eyes. “This was an accident,” a supervisor wrote on the 2 May occupational hazard report. “No fault of personal methods or procedure.”

On 23 May 2014 tubes of TC-83, a virus derived from Venezuelan equine encephalitis — a potential biological weapon, broke and released the substance while spinning inside a centrifuge. The USAMRIID microbiologist working with the virus used the wrong tubes, according to the incident report. Three lab staff, including the microbiologist, were potentially exposed to the virus, but were instructed to return to work after the incident. They later received trained on safety procedures.

“Every mishap is handled on a case-by-case basis,” Harbourt said, noting that safety procedures may have guidelines, but not instructions for dealing with every potential scenario. “No single response will be the same to every mishap because it depends on the root cause.”

Ft. Detrick Labs Address Forgotten Vials Containing Toxic Substances

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Source: <http://www.military.com/daily-news/2015/01/05/ft-detrick-labs-address-forgotten-vials-containing-toxic.html?ESRC=eb.nl>



The vial wasn't supposed to exist.

Employees conducting an inventory check of toxins at a Fort Detrick lab had already marked the vial as destroyed when someone found it underneath a liquid nitrogen tank freezer.

Two months earlier, two employees found a petri dish holding a potentially dangerous substance upside down on the floor.

The Department of Homeland Security did not release the names of the substances the petri dish and vial contained, but they are on the federal list of Biological Select Agents and Toxins, and are considered as potentially severe threats to public health.

The two containers were found

at the National Biodefense Analysis and Countermeasures Center in 2012.

The Frederick News-Post obtained copies of the mishap



and occupational hazard reports from NBACC, the National Institute of Allergy and Infectious Diseases' Integrated Research Facility and the U.S. Army Medical Research Institute of Infectious Diseases at Fort Detrick through Freedom of Information Act requests filed in 2014.

The names of the people involved in reporting the incidents, some locations and names of toxins were redacted by the agencies that provided the documents.

According to a "lessons learned" report from NBACC about the discovered vial, safety personnel emphasized that staff who witness inventory actions should actually witness those actions.

"Staff members functioning as a witness to an activity are performing an important function and need to be vigilant in their verification activities," an NBACC report states.

In September 2013, NBACC employees found that a bag of unsterilized lab waste was left in an autoclave for 25 days. The contents of the bag leaked out into the autoclave chamber.

"This failure was the result of three independent failures: an overfull waste bag, waste placed in autoclave without a secondary container, and the autoclave sterilization cycle not being initiated," a report about the incident stated.

Staff reminded the person responsible for managing lab space that infectious waste should be sterilized as soon as possible.

Last August, the White House distributed a memo urging infectious disease researchers to review their biosafety and biosecurity protocols, inventory their culture collections and "increase attentiveness."

The memo came about a month after a box of more than 300 vials was found in a Food and Drug Administration storage room in Bethesda. Some of the vials contained the smallpox virus. The World Health Organization allows research on live smallpox in only two locations: the Centers for Disease Control and Prevention in Atlanta, Georgia and the State Research Center of Virology and Biotechnology in Koltsovo, Russia.

During the lab sweep at the National Institutes of Health in late July and early August, five vials of biological select agents and toxins were found outside a registered space, but were stored safely.

Some of those vials contained botulinum neurotoxin and ricin. Each of the samples was destroyed.

NBACC and NIAID-IRF also participated in the stand-down.

"We did a comprehensive walk-through of all the labs that have select agents," which they also do annually, according to Dr. Pat Fitch, director of NBACC.

NBACC staff members print out lists of materials that should exist in certain locations, and go to those locations to ensure the records are correct, he said.

"Here's this freezer, and on this shelf, in this box, there should be these eight things. ... If there's nine, you already know you have a problem," Fitch said. "Even if that ninth thing should have been on the shelf below it."

NBACC found no inconsistencies between its records and its select agents and toxins during the stand-down, he said.

The Vaccine Pilot Plant in Frederick, run by the Frederick National Laboratory for Cancer Research, was also inspected for biological select agents and toxins that may have been left behind or unaccounted for.

The plant helped manufacture a vaccine for Ebola in 2014 and continues work on a therapeutic for HIV.

After the inspection, green stickers were left behind on every doorway, signifying that each space, including the clean rooms and offices, had been inspected for unauthorized material. Nationwide, the lab sweeps conducted during the fall of 2014 revealed 27 instances where biological select agents and toxins were not properly registered with a federal program. None of those 27 instances occurred at Fort Detrick.

In 2009, 9,000 vials were found in excess of inventoried material at USAMRIID, according to the National Research Council.

"Many of these 'newly found' vials contained small volumes of working stocks left behind in freezers by departing scientists," their report states.

USAMRIID spokeswoman Caree Vander-Linden said the Army lab has made changes since the 2009 incident:

- When a principal investigator leaves his or her position at USAMRIID, an inventory check is conducted and



materials are transferred to another principal investigator.

- Long-term biological select agents and toxins are verified by two people and wrapped in "tamper-evident materials."
- Periodic inventory audits are performed to monitor biological select agent and toxin usage.

The 2010 National Research Council report indicated USAMRIID was considering a centralized storage facility for biological select agents and toxins, but Vander-Linden said that did not come to fruition.

Those materials are stored in registered labs and suites with restricted access.

Upon reviewing USAMRIID's inventory control improvements, Beth Willis said the labs had not been as open about their processes before.

Willis heads Frederick's Containment Lab Community Advisory Committee, which focuses on fostering communication between Fort Detrick's labs and the local community.

"They are providing some sunlight on what has happened, which I think is healthy," she said.

"They have always spoken about the need for continuous improvement."

A combination ricin/anthrax vaccine shows promise



Source: <http://www.homelandsecuritynewswire.com/dr20150106-a-combination-ricin-anthrax-vaccine-shows-promise>

Jan 06 – Soligenix, Inc. last month announced the publication of data demonstrating that the combination of RiVax and VeloThrax induces protective immunity to both ricin toxin and anthrax toxin exposure.

RiVax is the company's candidate vaccine for the prevention of exposure to ricin toxin using an antigen which is completely devoid of the toxic activity of ricin. VeloThrax is the company's candidate vaccine which employs a derivative of recombinant protective antigen, termed Dominant Negative Inhibitor (DNI), which is a candidate for inclusion in a next generation anthrax vaccine. Princeton, New Jersey-based Soligenix, Inc. last month announced the publication of data demonstrating that the combination of RiVax and VeloThrax induces protective immunity to both ricin toxin and anthrax toxin exposure. RiVax is the company's candidate vaccine for the prevention of exposure to ricin toxin using an antigen which is completely devoid of the toxic activity of ricin. VeloThrax is the company's candidate vaccine which employs a derivative of recombinant protective antigen, termed Dominant Negative Inhibitor (DNI), which is a candidate for inclusion in a next generation anthrax vaccine. The results were published online in [Vaccine](#).

The combination treatment of RiVax plus VeloThrax was compared to treatment with either RiVax alone or VeloThrax alone. The combination treatment was able to provide

protection against subsequent challenge with both ricin and anthrax toxin in animal studies. In contrast, mice administered the RiVax vaccine were protected from ricin challenge but not anthrax toxin challenge and mice administered VeloThrax were protected from anthrax toxin challenge but not ricin challenge. These challenges were given at least six months after vaccination and titer levels from the combination were evaluated up to 200 days post vaccination.

Soligenix performed these studies in collaboration with the Wadsworth Center, New York State Department of Health, with Dr. Nicolas J. Mantis, Dr. David Vance, and collaborators under the aegis of a \$9.4 million cooperative grant from the National Institute of Allergy and Infectious Diseases (NIAID).

"We are pleased that we have been able to show that a multivalent vaccine for both anthrax and ricin is feasible. The demonstration of simultaneous immunity to ricin and anthrax toxin is a step towards vaccines that can be used in the event of a national emergency," said Christopher J. Schaber, Ph.D., president and chief executive officer of Soligenix. "We are continuing to develop RiVax using ThermoVax, our proprietary vaccine thermostabilization technology for the stockpiling and distribution of vaccines outside of normal cold chain requirements, under a recent NIAID contract award of up



to \$24.7 million over five years. Ultimately, we intend to develop the combination vaccine

using this same technology.”

— *Read more in David J. Vance et al., “Combination of two candidate subunit vaccine antigens elicits protective immunity to ricin and anthrax toxin in mice,” Vaccine 33, no. 3 (9 January 2015): 417-21 (doi:10.1016/j.vaccine.2014.11.036); see also “Combo Ricin-Anthrax Vaccine Shows Protective Immunity,” Global Biodefense (29 December 2014)*

About RiVax

RiVax is Soligenix’s proprietary vaccine candidate being developed to protect against exposure to ricin toxin, and if approved would be the first ricin vaccine. RiVax has demonstrated statistically significant ($p < 0.002$) preclinical survival results in a lethal aerosol exposure non-human primate model, and has also been shown to be well tolerated and immunogenic in two Phase 1 clinical trials in healthy volunteers. A Phase 1A clinical trial was conducted with a formulation of RiVax that did not contain an adjuvant. This trial revealed dose dependent seroconversion as well as lack of toxicity of the molecule when administered intramuscularly to human volunteers. The adjuvant-free formulation of RiVax induced toxin neutralizing antibodies that lasted up to 127 days after the third vaccination in several individuals. To increase the longevity and magnitude of toxin neutralizing antibodies, RiVax was formulated with an adjuvant of aluminum salts (known colloquially as Alum) for a Phase 1B clinical trial. Alum is an adjuvant that is used in many human vaccines, including most vaccines used in infants. The results of the Phase 1B study indicated that Alum-adjuvanted RiVax was safe and well tolerated, and induced greater ricin neutralizing antibody levels in humans than adjuvant-free RiVax. In preclinical animal studies, the Alum formulation of RiVax also induced higher titers and longer lasting antibodies than the adjuvant-free vaccine.

The development of RiVax has been sponsored through a series of overlapping grants from both NIAID and the US Food and Drug Administration (FDA), which were granted to Soligenix and to Dr. Ellen Vitetta and colleagues at the University of Texas Southwestern (UTSW) where the vaccine originated. Most recently, Soligenix was awarded a contract valued at up to \$24.7 million by the U.S. Department of Health and Human Service’s National Institutes of Health (NIH) (specifically funded by the National Institute of Allergy and Infectious Diseases or NIAID) to advance the development of Soligenix’s thermostabilization technology, ThermoVax, combined with the company’s ricin toxin vaccine, Rivax as a medical countermeasure (MCM) to prevent the effects of ricin exposure.

RiVax has been granted orphan drug designation by the FDA for the prevention of ricin intoxication.

About ThermoVax

ThermoVax is a technology that is designed to eliminate the standard cold chain production, distribution and storage logistics required for most vaccines. Cold chain requirements add considerable cost to the production and storage of current conventional vaccines. According to the Biopharma Cold Chain Sourcebook of 2010, 98 percent of all vaccines (with a total value of \$20.6 billion) require shipment through cold chain. Elimination of the cold chain would also enhance the utility of these vaccines for emerging markets and for other applications requiring but lacking reliable cold chain capabilities. Further, the World Health Organization (WHO) reports that 50 percent of all global vaccine doses are wasted because they are not kept within required temperature ranges. NIAID has also highlighted the priority of technologies for biodefense vaccines that focus on broad spectrum approaches including vaccine adjuvants and temperature stabilization for long shelf life, rapid onset of immunity, and surge capacity for production. For vaccines that are intended for long-term stockpiling, such as for use in biodefense or in pandemic situations, the utilization of ThermoVax has the potential to facilitate easier storage and distribution of strategic national stockpile vaccines in emergency situations.

The technology utilizes precise lyophilization of protein immunogens with conventional aluminum adjuvants in combination with secondary adjuvants for rapid onset of protective immunity with the fewest number of vaccinations. RiVax and VeloThrax are extremely labile in their liquid form requiring careful management under refrigerated conditions at 4 degrees Celsius (39 degrees Fahrenheit). By employing ThermoVax during their final



formulation, it is possible to produce stable and potent vaccines that are capable of withstanding temperatures at least as high as 40 degrees Celsius (104 degrees Fahrenheit) for up to one year. The underlying technology has been developed by Drs. John Carpenter and Theodore Randolph at the University of Colorado. The vaccine technology has been developed to date in collaboration with SRI International, the University of Kansas, the Wadsworth Center of the New York State Department of Health, and the Tulane National Primate Research Center under the sponsorship of a cooperative grant from NIAID.

High security Australian laboratory advancing Ebola research

Source: <http://www.homelandsecuritynewswire.com/dr20150108-high-security-australian-laboratory-advancing-ebola-research>



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Jan 08 – With the Ebola epidemic still a threat, many in the international disease research community are searching for a cure.

One such laboratory (photos) is a high-security facility in Geelong, Australia. It focuses exclusively on Ebola research and testing, particularly the Zaire strain of the virus, which has ravaged Guinea, Liberia, and Sierra Leone.

As SBS reports, a small team of scientists work in a specially constructed, maze-like building with top security and training, seeing as if just one specimen made it out of the lab, the consequences could be deadly. **Coordinated through the Commonwealth Scientific and Industrial Research Organization (CSIRO), the lab is the latest hope in finding a cure.**

Led by Dr. Glenn Marsh and his small team of five scientists, they are using live specimens — a rare occurrence — in order better to understand and treat Ebola illness.

“We’re the only laboratory in the country that have the live virus and can work with the live virus,” said Marsh, “And, it’s a truly special capability that Australia has to contribute to the global effort to prevent and to understand these disease and I’m not sure that’s always understood. This facility is unique, globally.”

As for focusing on the Zaire strain, that decision was made even before the latest outbreak, just pure luck.

“We didn’t predict the current outbreak but we do know the Zaire strain, there’s also the Sudan strain and the Bundibugyo strain in Africa that have all caused outbreaks. So, it is known that Ebola can cause large outbreaks, just not on the scale we’re seeing this year,” he added.

Additionally, the team is investing in new ways to track and



understand their subject, including using bats.

number of outbreaks of the disease throughout

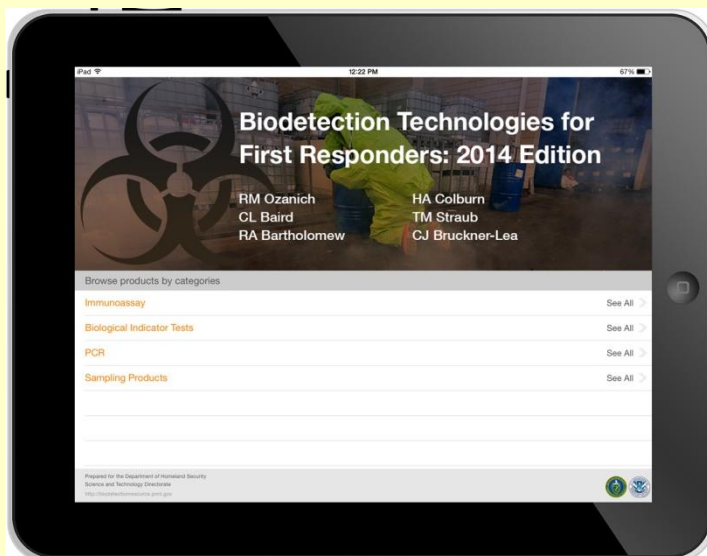


“I think the last count was over 100 different viruses were identified in bats so many of the viruses that are carried by bats we probably don’t even know about yet,” said Dr. Michelle Baker, a senior researcher at the laboratory, “And, there might be a potential virus that will have an impact in the future and if you can understand how bats are controlling these viruses, I think there’s potential...not just [for] Ebola, down the track.” Still, despite the horrific consequences of Ebola, Marsh adds that the overall limited

the world has made vaccine development difficult due to a lack of commercial potential. So, the team is also looking at ways to construct a cheap vaccine. “If we can find easier ones to manufacture or ones that are more stable at higher temperatures [that would be good],” added Marsh, “If you think about a vaccine being deployed in Africa, transporting that vaccine frozen, large distances may be difficult so somebody could develop a vaccine that ...may be more suited for that area of the world.”

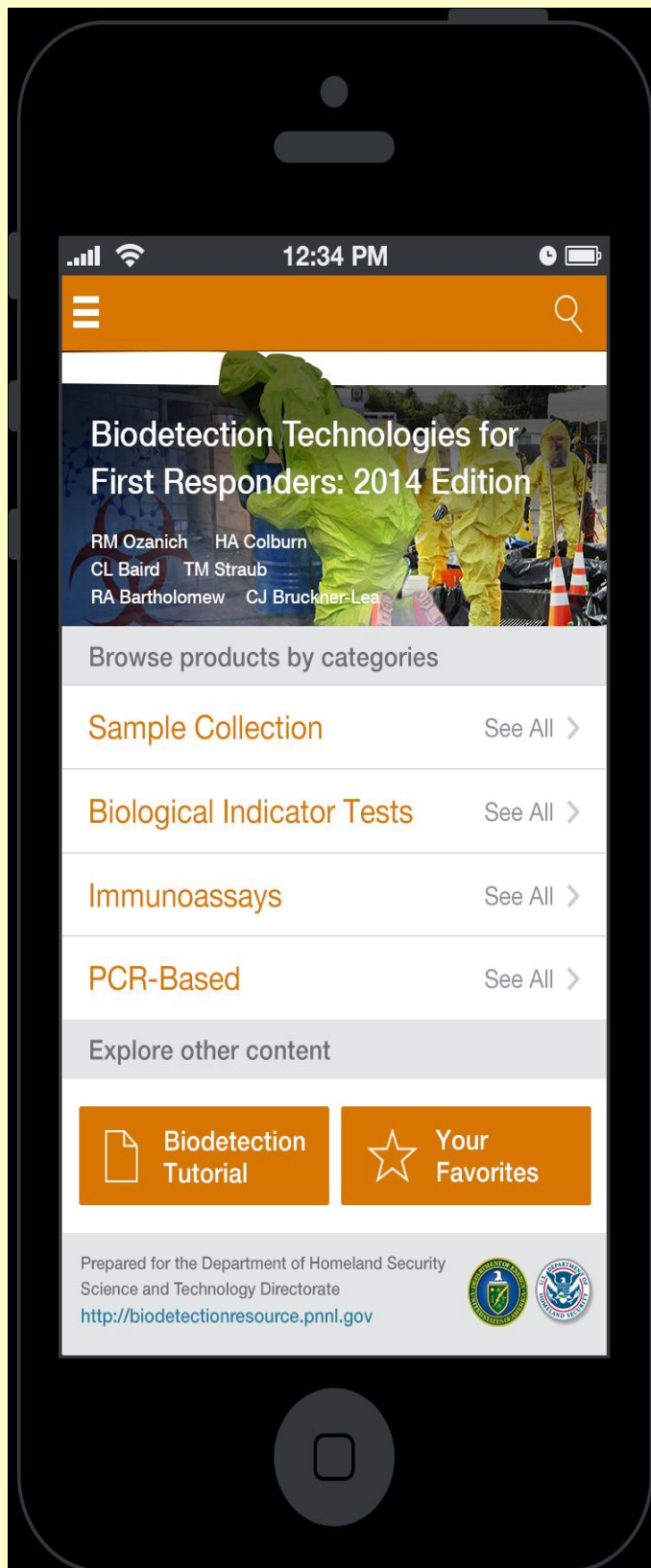
Mobile app helps first responders choose the right biodetection technology

Source: <http://www.homelandsecuritynewswire.com/dr20150113-mobile-app-helps-first-responders-choose-the-right-biodetection-technology>



First responders have downloaded more than 10,000 copies of a guide to commercially available, hand-portable biodetection technologies created to help them determine what they might be up against in the field. Since many first responders do not always have immediate access to a computer, a mobile version of the guide is now available for cell phones and tablets.





A PNNL release reports that the Department of Energy's Pacific Northwest National Laboratory (PNNL) created the updated Biodetection Technologies for First Responders: 2014

← Back

PCR-Based Detection Systems

PCR-based assays detect specific organisms based on their DNA sequence. During PCR, short pieces of DNA from the biothreat organism are amplified, creating millions of DNA copies from just a few hundred starting molecules. The assay is designed to recognize regions of DNA that are unique to the biothreat organism(s).

Illustration of a bacterial cell. All cells and viruses contain DNA or RNA that can be used to detect and identify them.

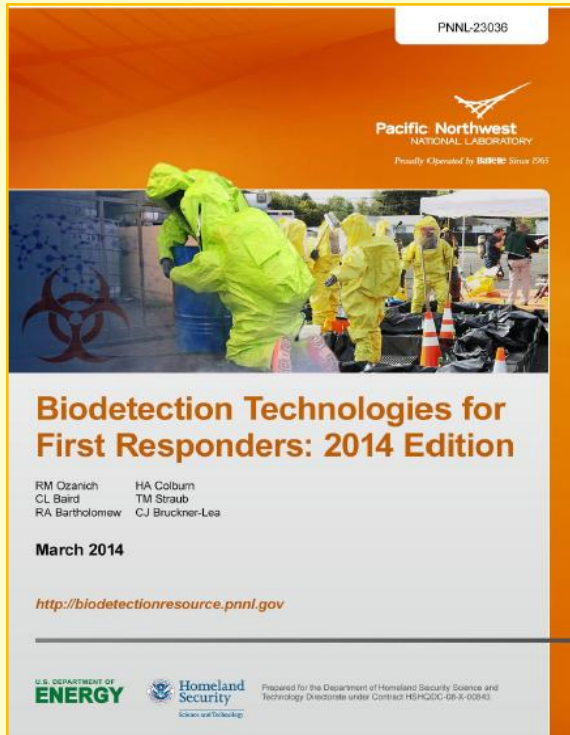
Most field-based PCR systems consist of a disposable assay cartridge containing all of the consumable reagents (including the required polymerase), an instrument that integrates the thermal components to perform the heat/cool cycles required for PCR, and the optical components required to quantify the amplified DNA products. PCR assays are performed on liquid samples and require a sampling kit (sometimes included) to swab a suspicious powder and solubilize or suspend the white powder in a compatible buffer. Depending on the system, various degrees of sample preparation or cartridge manipulation may be required including pipetting, manual mixing, or centrifugation. In the instrument, the sample/reagent mixture is cycled between high and low temperatures to amplify the biothreat agent DNA. Many PCR assay formats result in a final dye-labeled product DNA, which is measured by integrated optical components (usually fluorescence-based). Most assays contain an internal positive control to ensure the system components and reagent cartridges are performing as specified. Failure of an internal positive control can indicate problems with the system hardware/software, cartridge reagent issues, or presence of

product guide for the Department of Homeland Security's Science and Technology Directorate to help response organizations make informed decisions when procuring the right technology for their particular needs and circumstances.

"The new app will provide easier access to the updated report which is a valuable product-buying guide for first responders and purchasing specialists," said Cindy Bruckner-Lea, PNNL principal investigator. "With dozens of companies, technologies and sampling products listed, the guide provides a convenient and useful resource to fire fighters, law enforcement and hazardous materials response teams."

First responders know that white powder scenarios — or suspected biological threats — require quick and decisive action. Having the right field equipment available to identify suspicious substances





can be complicated, challenging and expensive. The report summarizes and compares an extensive list of commercially available, hand-portable technologies.

The mobile app Biodetection Guide for First Responders can be downloaded free of charge from the iTunes store, but is only available for Apple mobile devices.

The release of the mobile app is one part of a larger effort at PNNL to assess hand-portable, commercial, off-the-shelf biodetection technology. PNNL is evaluating a wide range of technologies from general protein tests for biological material to agent-specific tests such as immunoassay and polymerase chain reaction assays.

PNNL notes that its “ground-up approach” involves first responders and stakeholders early in the process and culminates in the transition of information and knowledge in an effort to improve in-field detection of biological agents and toxins in suspicious powders.

► Download the report (right column) from: <http://biodetectionresource.pnnl.gov/Default.aspx>

Revealed: 100 safety breaches at UK labs handling potentially deadly diseases

Source: <http://www.theguardian.com/science/2014/dec/04/-sp-100-safety-breaches-uk-labs-potentially-deadly-diseases>

High-security laboratories that handle the most dangerous viruses and bacteria have reported more than 100 accidents or near-misses to safety regulators in the past five years, official reports reveal.



One blunder led to live anthrax being sent from a government facility to unsuspecting labs across the UK, a mistake that exposed other scientists to the disease. Another caused the failure of an air handling system that helped contain foot and mouth disease at a large animal lab.

Wear and tear also caused problems and potentially put researchers in danger. At a top security Ministry of Defence lab, tears were found in isolation suits at a facility handling animals infected with the Ebola virus.

Reports obtained by the Guardian from the Health and Safety Executive (HSE) reveal that more than 70 incidents at government, university and hospital labs were serious enough to investigate. Many led to enforcement letters, or crown prohibition notices (CPN), ordering labs to shut until improvements were made. Some were so serious they ended in legal action.

Prof Richard Ebright, a US biosafety expert at Rutgers University in New Jersey, who reviewed the reports for the Guardian, said that, taken together, they revealed failures in procedures, infrastructure, training and safety culture at some British labs.

Advertisement



Alarmed at a run of incidents at facilities that work on animal diseases, Ebright asked: "Does British agriculture have a death wish?"

The figures amount to one investigation every three weeks at secure laboratories that are designed to carry out research on pathogens that can cause serious illness and spread into the community. Some of the organisms are lethal and have no vaccines or treatments.

Many of the incidents were one-off, almost inevitable human mistakes, such as spillages of infectious bugs. Others were down to old equipment and safety clothing. The most serious accidents arose from chains of mistakes that happened one after the other, and were often only discovered later.

The reports compiled by the HSE describe at least 116 incidents and 75 completed investigations since April 2010 at laboratories where the most dangerous organisms are handled. Other investigations are under way, but the HSE cannot disclose details of those in case they lead to legal action. All of the investigations were prompted by reports from lab managers who are obliged by law to tell the HSE when an accident or near-miss happens at their facility.

Backstory

Some of the most worrisome incidents happened at the Surrey-based Animal Health and Veterinary Laboratories Agency (AHVLA), renamed the Animal and Plant Health Agency (APHA) in October 2014. In one case,



scientists were handling anthrax when something went badly wrong. They meant to send harmless samples, killed by heat, to nearby AHVLA labs and others in York and Belfast. But somehow the tubes got mixed up. Instead of sending out dead material, the anthrax they sent was live and dangerous.

The staff that made the mistake were safe enough. They worked in a high-security lab

built to contain lethal agents. But some of those who received the bugs did not. In Belfast, the anthrax was handled in a higher containment lab, meaning those staff was safe. In York, the samples were never opened. But at another AHVLA site, scientists opened the tubes in a less secure lab and got to work on the open bench. The incident at the AHVLA is one of the more serious biological accidents that has happened in the UK in recent years. But it was far from being the only one.

Human error

The HSE documents cast light on the endless ways that safety can be undermined at UK high-containment labs, where crucial research takes place into dangerous infections. Poor management, inadequate training, inappropriate procedures, equipment failures, human error and plain bad luck all come into play. Some incidents cannot be avoided. Humans will always make mistakes. Equipment will always break. But others are more troubling and result from multiple safety breaches, rather than single mistakes.

The anthrax incident at the AHVLA happened in May 2012 and drew an immediate CPN. That shut the lab so no more live anthrax could be sent out. The timing was ironic. The government had spent months stockpiling anthrax vaccines in case terrorists released the bug at the London Olympics. Now one of their own labs had put people at risk.

The HSE investigation found that two unsuspecting staff at the AHVLA were exposed to the deadly bug, though both had been vaccinated and neither fell ill. The incident received little attention. In the agency's 2012-13 annual report, one line refers to the clampdown. It states: "CPN – labelling and tracking of biological materials inadequate – now resolved".

American blunder

The AHVLA incident bears a close similarity to a blunder in June that received global attention. Scientists in a high-security lab at the US Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia, failed to kill batches of anthrax bacteria properly and sent them to other labs. Tom Frieden, the head of the CDC, told a House oversight



committee that the incident was a “wake-up call”. Tim Murphy, the Republican chair, was unimpressed: “It was a potentially very dangerous failure,” he said.

The AHVLA has made dangerous slips before. Last year, the lab received a crown censure for nine safety lapses that exposed staff to live *Mycobacterium bovis*, an organism that causes TB in cattle but can cause serious illness and even death in humans.

Over a two-year period, from 2009 to 2011, 3,700 samples were sent from one AHVLA lab to another without managers knowing the organisms were still viable. Minutes of the crown censure hearing reveal an alarming picture. Staff had been given the wrong equipment to destroy the bacteria and were not trained in the right procedure. Management had failed to act when staff raised concerns. One person later tested positive for the infection.

Health Protection Agency's Centre for Infections (Viral Zoonosis Unit)	United Kingdom, Colindale
National Institute for Medical Research	United Kingdom, London
Institute for Animal Health	United Kingdom, Pirbright
Microbiological Research Facility, University of Warwick	United Kingdom, Warwick
Institute for Animal Health Compton Laboratory	United Kingdom, Compton
Defence Science and Technology Laboratory	United Kingdom, Porton Down
Health Protection Agency (Special Pathogens Reference Unit)	United Kingdom, Porton Down
Health Protection Agency (Botulism)	United Kingdom, Porton Down
Francis Crick Institute	United Kingdom, London

Expert analysis

Ebright, who testified to the House committee over the CDC anthrax incident, was struck by the similar failings at labs in the UK and the US. “The incidents at the AHVLA should really not occur. They involved not one error, but a whole chain of errors, and they are all essentially unforgiveable,” he said. “They

reflect the most elementary lapses and they are potentially very serious. To see them happening like that suggests there is a deep problem.”

Prof Brian Spratt, an infectious disease specialist at Imperial College, London, echoed Ebright's concerns. Sending out bovine TB, an organism that can infect people, posed a clear risk of infection, he said. “Sending anthrax to other labs incorrectly, believing it to be inactivated, is also clearly very serious with a real possibility of infection of recipient laboratory workers,” he told the Guardian. “What strikes me is that accidents do happen even in the best facilities, often due to operator error, or unrecognised breakdowns in containment measures.”

UK labs that study infectious organisms are rated by their containment level (CL). The higher the level, the more barriers there are to prevent the escape of pathogens. If one fails, the next should ensure there is no danger. **CL1 and CL2 labs** work on fairly benign bugs. More dangerous pathogens, such as those that cause anthrax, the plague and rabies, can be handled in secure **CL3 labs**. The most dangerous and often exotic organisms, such as Ebola, Marburg and Lassa viruses must be handled in **CL4 labs**. These bugs can kill, spread easily, and are often untreatable. **The reports obtained from the HSE deal with incidents at CL3 and CL4 labs.**

British labs

Britain has about 600 CL3 labs. Nine sites, all in south-east England, are home to CL4 labs, including the National Institute for Medical Research, which studies pandemic and avian flu, and the Ministry of Defence's Porton Down lab, which studies Ebola and other pathogens that could be used as biological weapons.

The HSE documents reveal that one high-security lab, the Pirbright Institute (formerly the Institute for Animal Health), has been handed eight enforcement letters since April 2010. The Surrey lab is a world-class centre for animal virus surveillance. It studies foot and mouth disease, bluetongue, rinderpest and other infections. But it has a tainted reputation: the 2007 foot and mouth outbreak was traced to a leak from Pirbright's drains.



Scientists at the lab worked on the outbreak strain, but the virus was made in huge volumes by Merial, a vaccine manufacturer at the site.

In the wake of the outbreak, the Commons science and technology committee held an inquiry into biosecurity at UK research labs. Their report, published in 2008, stated: "It is critical such an incident does not happen again." But near-misses are common at Pirbright.

In April, Pirbright managers pleaded guilty to eight breaches of safety legislation around foot and mouth experiments. The incidents happened in November 2012 and January 2013 when a ventilation system used to keep the lab at negative pressure – to prevent viruses escaping – was modified. The system failed, as did an alarm that should have warned staff of the danger. No virus escaped in the incident.

More incidents followed. The HSE investigated at least four more times at Pirbright since the lapses that led to their prosecution. Some were fairly minor, including the spillage of foot and mouth virus outside a safety cabinet. But in February, the lab had another problem with air circulation in a facility for cattle with foot and mouth disease. This time, high winds knocked the system out for two-and-a-half hours.

Spratt, who in 2007 wrote an independent review for government on biosafety at UK labs that handle foot and mouth, said the malfunctioning of the ventilation system could have been dangerous. "The air handling incident in the large-animal facility at Pirbright is potentially serious as, if foot and mouth disease virus from infected livestock was released outside the facility, exposure of livestock on neighbouring farms is a real possibility," he said.

In January, scientists at Pirbright will move into new labs, the result of more than £100m refurbishment at the site. That could solve many of the problems the facility has had with failing equipment. But Ebright still has concerns. Some Pirbright incidents point to bad practice and moving labs will not change that, he said. More seriously, he questions whether Pirbright should still be allowed to work on the foot and mouth disease virus. "Is there an economic case that offsets the risk posed by their work, particularly with their sorry record of safety? To my mind, the answer is no," he said.

Pirbright argues that major benefits come from its research. A statement from the lab said it played a crucial role in controlling and eliminating viral diseases of farm animals and viruses that can spread from animals to humans. Scientists there played a major role in eradicating rinderpest, saving African countries £1bn a year. Its work will lead to safer and cheaper foot and mouth vaccines, and greater understanding of bluetongue virus, which it helped eradicate from the UK in 2007, saving £500m a year, the statement said.

On Pirbright's prosecution, the statement conceded that the lab "acknowledged its weaknesses in the area of activity involved and has reviewed and reformed its operational processes to ensure an incident such as this could not happen again".

It continued: "The institute operates in a highly regulated and complex environment. Staff are actively encouraged to report incidents internally to allow us to learn lessons and improve. Any spills or leaks, or issues affecting the multiple and layered biosecurity systems, are reported to the regulators and classified by them as a dangerous occurrence. The reporting of such an incident does not mean there is any risk of release of virus to the environment as there are multiple layers of containment to ensure this does not happen."

Solutions

The problems at the AHVLA, now the APHA, may be tougher to solve though. "As long as the management remains, the same problems will recur," Ebright said. "You either close the facility, redirect it or rebuild it, starting with new management. It's not the managers who send out putatively inactivated anthrax, but they have allowed that to happen. There has to be accountability all the way to the top."

Labs that report the most incidents may not be the most lax. One factor that affects the number of reports – and investigations – is how professional staff is at reporting near-misses. A culture of blame makes people hide their mistakes and crucial lessons go unlearned.

Tom Inglesby, director of health security at the University of Pittsburgh Medical Center, said: "It's very important that scientists are not punished for reporting accidents or near-accidents. That kind of punitive



response will create pressures to not report. In other safety cultures, like airline safety, pilots are punished if they do not report near-misses, but not when they do report.”

The HSE investigated two incidents at the MoD’s Porton Down lab near Salisbury last year. They both involved splits in isolation suits. One was at a facility housing marmosets infected with Ebola virus. The tears were reported and the damaged parts replaced. “You will get tears in safety suits. People will spill things. Those kinds of accidents are unavoidable. If they are immediately corrected and reported, the people should be rewarded. They certainly shouldn’t be punished,” said Ebright. “That’s how the system should work.”

Richard Daniels, head of the HSE’s biological agents unit, said the safety of UK labs was good, if not perfect. He said the regulator urged lab directors to focus on their vulnerabilities and to improve safety by bringing in fresh measures to assess how well their staff was trained, and how well their equipment was maintained. “With the likes of large organisations, Pirbright, APHA and others, we expect leadership to come from the top, because that sets the culture and the expectations below it. The danger is that if you don’t look at these things proactively, complacency can perhaps affect an organisation, because you haven’t got anything to tell you that things are going awry,” he said.

Inglesby said: “Every lab system, whether university, government or private sector, should make it absolutely clear to its scientists that laboratory safety is a top priority and should be built in to every practice, not an add on, or a checkbox.”

A BIS spokesperson said: “We take any breach of security and safety procedures in animal disease testing facilities very seriously. In these instances, there was no risk to the public and no viruses were released. Health and safety procedures at Pirbright have been strengthened and the BBSRC [Biotechnology and Biological Sciences Research Council] have invested millions of pounds into facilities including the National Virology Centre, which boasts a brand new state-of-the-art high laboratory facility. An independent review was commissioned to promote the development of robust, effective systems and work practices at Pirbright and ensure public safety”.

A spokesperson for the Department for Environment, Food and Rural Affairs, which funded the AHVLA and now the APHA, said on Thursday afternoon: “UK animal disease laboratories are nationally and internationally recognised for their expertise, playing a crucial role in the swift diagnosis of notifiable disease, as shown in the recent avian flu outbreak. As with any laboratory, improvements in procedures are continually made and we always follow HSE advice.”

Middle East respiratory syndrome coronavirus (MERS-CoV) – Saudi Arabia

Source: <http://www.who.int/csr/don/17-december-2014-mers/en/>

Between 20 November and 7 December 2014, the National IHR Focal Point for the Kingdom of Saudi Arabia (KSA) notified WHO of 11 additional cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection, including 4 deaths.

Details of the cases are as follows:

1. A 70-year-old female from Taif city who developed symptoms on 27 November. She was admitted to hospital on 2 December. She had no history of contact with camels but her household contacts had frequent contact with

animals. The patient has comorbidities but has no history of exposure to other known risk factors in the 14 days prior to the onset of symptoms. Currently, she is in critical condition in an intensive care unit (ICU).

2. A 71-year-old male from Riyadh city who developed symptoms on 26 November. He was admitted to hospital on 28 November. The patient has no history of exposure to any known risk factors in the 14 days prior to the onset of symptoms. Currently, he is in ICU in critical condition.

3. A 52-year-old male from Buridah city who developed symptoms on 24 November. He



was admitted to hospital on 26 November. The patient had comorbidities but had no history of exposure to known risk factors in the 14 days prior to the onset of symptoms. The patient was admitted to ICU but passed away on 29 November.

4. **A 28-year-old, non-national male** from Najran city who developed symptoms on 27 November. He was admitted to hospital on 30 November. The patient has no comorbidities but has frequent contact with animals. He lives in an area with heavy presence of camels, although he has no history of contact with them. The patient had no exposure to other known risk factors in the 14 days prior to the onset of symptoms. Currently, he is in critical condition in ICU.

5. **A 62-year-old male** from Rafha city who developed symptoms on 22 November. He was admitted to hospital on 25 November. The patient has no comorbidities but has frequent contact with camels and sheep and consumes their products. The patient had no history of exposure to other known risk factors in the 14 days prior to the onset of symptoms. Currently, he is in stable condition in an isolation ward.

6. **A 34-year-old, non-national male** from Skaka city who developed symptoms on 18 November. He was admitted to hospital on 23 November. The patient has no comorbidities but is a contact of a previously-reported MERS-CoV case. The patient has no history of exposure to other known risk factors in the 14 days prior to the onset of symptoms. Currently, he is in stable condition in ICU.

7. **A 40-year-old male** from Taif city who developed symptoms on 26 November. He was admitted to hospital on 27 November. The patient has no comorbidities and has no history of exposure to known risk factors in the 14 days prior to the onset of symptoms. The patient works in a health care facility, although the facility has not treated laboratory-confirmed MERS-CoV cases. Currently, the patient is in stable condition in an isolation ward.

8. **A 79-year-old, female** from Alkharj city who developed symptoms on 20 November. The patient was admitted to hospital on 31 October for a chronic renal condition. Whilst hospitalized, she shared a room with a laboratory-confirmed MERS-CoV case on 9 November. The patient had no history of exposure to other known risk factors in the 14

days prior to the onset of symptoms. She was admitted to ICU but passed away on 1 December.

9. **A 42-year-old, non-national male** from Taif city who developed symptoms on 17 November. He was admitted to hospital on 20 November. The patient visited a health care facility for a chronic medical condition on 8 November. He had no history of exposure to known risk factors in the 14 days prior to the onset of symptoms. The patient was admitted to ICU but passed away on 28 November.

10. **A 58-year-old male** from Taif city who developed symptoms on 15 November. He was admitted to hospital on 20 November. The patient had comorbidities but had no history of exposure to known risk factors in the 14 days prior to the onset of symptoms. The patient was admitted to an isolation ward but passed away on 7 December.

11. **A 48-year-old female** from Alkharj city who developed symptoms on 18 November. She is a household contact of a previously-reported MERS-CoV case. The patient had no history of exposure to other known risk factors in the 14 days prior to the onset of symptoms. Currently, the patient is in stable condition in ICU.

Contact tracing of household contacts and healthcare contacts is ongoing for these cases. The National IHR Focal Point for the Kingdom of Saudi Arabia also notified WHO of the death of 1 previously reported MERS-CoV case.

Globally, the WHO has been notified of 938 laboratory-confirmed cases of infection with MERS-CoV, including at least 343 related deaths.

WHO advice

Based on the current situation and available information, WHO encourages all Member States to continue their surveillance for acute respiratory infections and to carefully review any unusual patterns.

Infection prevention and control measures are critical to prevent the possible spread of MERS-CoV in health care facilities. It is not always possible to identify patients with MERS-CoV early because like other respiratory infections, the early symptoms of MERS-CoV are non-specific. Therefore, health-care workers should always apply standard precautions consistently with all



patients, regardless of their diagnosis. Droplet precautions should be added to the standard precautions when providing care to patients with symptoms of acute respiratory infection; contact precautions and eye protection should be added when caring for probable or confirmed cases of MERS-CoV infection; airborne precautions should be applied when performing aerosol generating procedures. Until more is understood about MERS-CoV, people with diabetes, renal failure, chronic lung disease, and immunocompromised persons are considered to be at high risk of severe disease from MERS-CoV infection. Therefore, these people should avoid close contact with

animals, particularly camels, when visiting farms, markets, or barn areas where the virus is known to be potentially circulating. General hygiene measures, such as regular hand washing before and after touching animals and avoiding contact with sick animals, should be adhered to.

Food hygiene practices should be observed. People should avoid drinking raw camel milk or camel urine, or eating meat that has not been properly cooked.

WHO does not advise special screening at points of entry with regard to this event nor does it currently recommend the application of any travel or trade restrictions.



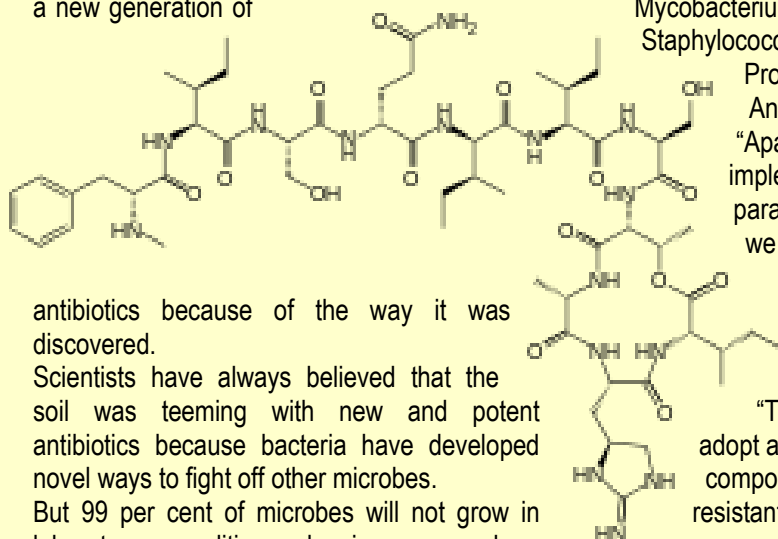
First new antibiotic in 30 years discovered in major breakthrough

Source: <http://www.telegraph.co.uk/news/science/science-news/11331174/First-new-antibiotic-in-30-years-discovered-in-major-breakthrough.html>

Jan 07 – The first new antibiotic to be discovered in nearly 30 years has been hailed as a ‘paradigm shift’ in the fight against the growing resistance to drugs.

Teixobactin has been found to treat many common bacterial infections such as tuberculosis, septicaemia and C. diff, and could be available within five years.

But more importantly it could pave the way for a new generation of



antibiotics because of the way it was discovered.

Scientists have always believed that the soil was teeming with new and potent antibiotics because bacteria have developed novel ways to fight off other microbes.

But 99 per cent of microbes will not grow in laboratory conditions leaving researchers frustrated that they could not get to the life-saving natural drugs.

Now a team from Northeastern University in Boston, Massachusetts, have discovered a

way of using an electronic chip to grow the microbes in the soil and then isolate their antibiotic chemical compounds.

They discovered that one compound, Teixobactin, is highly effective against common bacterial infections Clostridium difficile, Mycobacterium tuberculosis and Staphylococcus aureus.

Professor Kim Lewis, Director of the Antimicrobial Discovery Centre said: “Apart from the immediate implementation, there is also I think a paradigm shift in our minds because we have been operating on the basis that resistance development is inevitable and that we have to focus on introducing drugs faster than resistance

“Teixobactin shows how we can adopt an alternative strategy and develop compounds to which bacteria are not resistant.”

The first antibiotic Penicillin, was discovered by Alexander Fleming in 1928 and more than 100 compounds have been



found since, but no new class has been found since 1987.

The lack of new drugs coupled with over-prescribing has led to bacteria becoming increasingly resistant to modern medicines.

Dame Sally Davies, the government's Chief Medical Officer, said antibiotic resistant was 'as big a risk of terrorism; and warned that Britain faced returning to a 19th century world where the smallest infection or operation could kill.

The World Health Organisation has also classified antimicrobial resistance as a "serious threat' to every region of the world which 'has the potential to affect anyone, of any age, in any country"

However the new discovery offers hope that many new antibiotics could be found to fight bacterial infections.

Crucially, the scientists believe that bacteria will not become resistant to Teixobactin for at least 30 years because of its multiple methods of attack.

Testing on mice has already shown that the antibiotic works well at clearing infections, without side-effects. The team is now concentrating on upscaling production so that it could be tested in humans.

"Right now we can deliver a dose that cures mice and a variety of models of infection and we can deliver 10 mg per kg so it correlates well with human usage," added Professor Lewis.

The breakthrough was heralded by scientists who said it could prove a 'game-changer' in the struggle against antimicrobial resistance.

Prof Laura Piddock, Professor of Microbiology at the University of Birmingham, said: "The screening tool developed by these researchers could be a 'game changer' for discovering new

antibiotics as it allows compounds to be isolated from soil producing micro-organisms that do not grow under normal laboratory conditions."

Prof Mark Woolhouse, Professor of Infectious Disease Epidemiology, from the University of Edinburgh added: "Any report of a new antibiotic is auspicious, but what most excites me about the paper is the tantalising prospect that this discovery is just the tip of the iceberg.

"Most antibiotics are natural products derived from microbes in the soil. The ones we have discovered so far come from a tiny subset of the rich diversity of microbes that live there.

"Lewis et al. have found a way to look for antibiotics in other kinds of microbe, part of the so-called microbial "dark matter" that is very difficult to study."

Dr Angelika Gründling, Reader in Molecular Microbiology, Imperial College London said the discovery , 'raises our hopes that new antibiotics can be brought to the clinics in the not too distant future.'

"The great hope is now that many more new antibiotics can be uncovered in a similar manner."

Public Health England also welcomed the breakthrough.

"The rise in antibiotic resistance is a threat to modern healthcare as we know it so this discovery could potentially help to bridge the ever increasing gap between infections and the medicines we have available to treat them," said Prof Neil Woodford, Head of Public Health England's Antimicrobial Resistance and Healthcare Associated Infections Reference Unit.

The research was published in the journal Nature.



Speeding up Ebola drug production

Source: <http://www.homelandsecuritynewswire.com/dr20150115-speeding-up-ebola-drug-production>

Jan 15 – Researchers at the University of California, Davis, will explore ways to speed production of the Ebola drug Zmapp with a \$200,000 rapid-response grant from the National Science Foundation.

Developed by Mapp Biopharmaceutical Inc. of San Diego, in collaboration with the U.S. government and partners in Canada, Zmapp is a cocktail of antibodies produced in and extracted from whole tobacco plants. The UC

Davis team, including plant scientists, molecular biologists and chemical engineers, will attempt to produce the antibodies from plant cells grown in bioreactors instead of in whole plants.

Extracting the drug from whole plants is a proven process but production capacity is limited at this time, said Karen McDonald, professor of chemical



engineering and materials science. "Whereas if we can produce it in a bioreactor, a lot of biotech companies and contract manufacturers can do that, and it would allow for much more rapid production," McDonald said.

A UC Davis release reports that Mapp's technology uses a type of bacteria to transiently transfer the monoclonal antibodies' DNA into plants. The plants do not permanently carry the new DNA or pass it on to the next generation. A week or so after the transfer, the plants are ground up to extract the monoclonal antibodies.

The UC Davis team will use the same type of bacteria to infect plant cells, then attempt to grow them in the laboratory, starting with volumes of a few liters and scaling up to a 100-liter bioreactor. Biotech companies use

similar methods to produce drugs and vaccines from cultures of animal cells, bacteria and yeast.

"This is about proof of concept," said Somen Nandi, managing director of the Global HealthShare Initiative at UC Davis, which aims to speed development of low-cost health-care solutions for developing countries, including a rabies vaccine grown in tobacco plants. If successful, the technique could potentially be applied to other antibodies used as drugs or vaccines.

Other team members are Ray Rodriguez, UC Davis professor of molecular cell biology and director of the Global HealthShare Initiative; Abhaya Dandekar, UC Davis professor of plant sciences; and Professor Kazuhito Fujiyama, Osaka University, Japan.

— See also "UC Davis Working to Help Speed Ebola Drug Production," [Global Biodefense](#) (8 January 2015)

Bioterrorism exists in Indonesia: researcher

Source: <http://www.antaraneews.com/en/news/97387/bioterrorism-exists-in-indonesia-researcher>

A professor of Airlangga University in Surabaya, East Java province, believes that bioterrorism is prevalent in Indonesia, which is clear from incidents that mark the spread of viruses and disease-causing microbes.

Nidom is a researcher of avian influenza, MERS, Ebola, and vaccines at Airlangga University.

Bioterrorism needs to be prevented by the government in the wake of global and regional economic competition, Nidom remarked.

"Bioterrorism is different from the traditional forms of terrorist acts, which involve direct impacts such as explosions and casualties. Bioterrorism utilizes bacteria, viruses and other disease-causing microbes that have indirect impacts, but trigger economic downfall nevertheless," the professor explained.

There have been several incidents related to bioterrorism in Indonesia, such as the spread of bird flu, which was

discovered in 2003 and continues to be prevalent in 2015, and the occurrence of swine flu in 2009. Both viruses have unnatural structures.

"As a researcher, I discovered weird characteristics in the structure of disease-causing bacteria. The motive (behind these incidents) and their impacts are unclear," Professor Dr DRH Chairul Anwar Nidom said here on Thursday.



"The avian influenza virus that attacked ducks in 2012 has a different structure as compared to the one discovered during the previous outbreak. It is rather similar to the virus found in China. It is weird that it was found in Indonesia, except in places where there were duck imports from China," Nidom observed.

The researcher also discovered a virus similar to the Ebola virus in Orangutan in 2012. "Strangely, the Ebola virus we

discovered is similar to the one in Africa but different from the one found in the Philippines," the researcher noted.

The university will establish an Anti-Bioterrorism Research Center to study the incidents. "We have an array of equipment, including a bio-defense or a research facility that can modify a negative virus into a positive one," the professor affirmed.

EDITOR'S COMMENT: Reality or just a good reasoning for the new research center?

Ebola PPE Q&A with DuPont

By Steve Melito

Source: <http://globalbiodefense.com/2015/01/15/ebola-ppe-qa-dupont/#sthash.hnjQ9iwB.dpuf>



Jan 15 – Personal protective equipment (PPE) is an important part of the worldwide fight against Ebola. Recently, Global Biodefense interviewed David Domnisch, Global Marketing Manager, Protective Apparel, DuPont Protection Technologies to learn more about Ebola PPE from DuPont.

Q: What would you like readers at DHS and DoD to know about DuPont's PPE for Ebola?

A: DuPont is deeply concerned for those impacted by the Ebola outbreak and we have been working since its onset to assist in the response effort. As a global category leader for protective apparel, DuPont Protection Technologies has been collaborating with Médecins Sans Frontières (MSF), the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), the U.S. Military and other organizations involved in the response to address the demand for our personal protection garments in the impacted region.

We have already increased production significantly and we continue to take actions to increase the availability of our garments to those organizations involved in the response. We have also provided information on biological protection to assist in the proper selection and use of our personal protection garments. When selected and used properly, our protective apparel can provide a high level of protection against hazards for which it is intended.

Q: You're in a competitive marketplace with some other big names – Honeywell and Draeger just to name a few. What makes DuPont's Ebola suits better? As a followup, why should government buyers do business with you?

A: For information on our protective apparel, [please refer to our technical bulletin](#). Beyond their experience with, and trust in, the DuPont portfolio of personal protective apparel, government buyers look to DuPont because of our ability to scale up in emergency response. DuPont has decades of experience responding to epidemics, natural disasters and industrial accidents around the globe.

The DuPont global collaborative approach enables us to work with academics, governments, customers and non-governmental organizations and apply our vast range of scientific expertise and knowledge to complex problems around the world. That, coupled with our legacy of safety in protecting people and critical processes, is what makes DuPont a valuable partner. As an example, the Ebola crisis is leading to discussions with



government agencies such as DLA and CDC on future innovations and options to increase levels of preparedness.

Q: Back in October, there were media reports about a shortage of Ebola suits. Was that information accurate and, if so, is there still a shortage?

A: While we have more than tripled production of our most relevant products to address the unprecedented level of demand, that demand is now exceeding our supply for specific products and we are prioritizing orders to be filled as more product becomes available. We are working through our distribution channels to best preserve business continuity for our existing industrial customers while we are prioritizing the global humanitarian cause.

Q: DuPont is a global company, but ramping up suit production to meet global demand is a huge task. How are you strengthening your supply chain to make this happen?

A: DuPont has taken steps to triple the production of our most relevant products for the treatment of infected patients including working with our supply chain partners and authorizing the addition of shifts, supplemental workers and specialized manufacturing equipment to augment our existing capacity.

Steve Melito is an award-winning content developer specializing in manufacturing, material science, and homeland security.

Potential Ebola treatments may be hindered by genetic changes in virus in West African outbreak

Source: <http://www.medicalnewstoday.com/releases/288260.php?tw>

Jan 20 – Researchers have tracked the genetic mutations that have occurred in the Ebola virus during the last four decades. Their findings, published in *mBio*®, the online open-access journal of the American Society for Microbiology, **identified changes in the current West African outbreak strain that could potentially interfere with experimental, sequence-based therapeutics.**

"We wanted to highlight an area where genomic drift, the natural process of evolution on this RNA virus genome, could affect the development of therapeutic countermeasures," says Gustavo Palacios, senior author of the study and director of the Center for Genome Sciences at the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) in Frederick, Maryland.

Many of the most promising drugs being developed to fight Ebola are therapeutics that bind to and target a piece of the virus's genetic sequence or a protein sequence derived from that genetic sequence. If that sequence changes due to genetic drift, the natural evolution of the virus over time, then the drugs may not work effectively.

"Our work highlights the genetic changes that could affect these sequence-based drugs that were originally designed in the early 2000's based on virus strains from outbreaks in 1976 and 1995," says Palacios.

The team compared the entire genomic sequence of the current outbreak strain, called EBOV/Mak, with two other Ebola virus variants—one from an outbreak in Yambuku, Zaire (now the Democratic Republic of the Congo) in 1976 called EBOV/Yam-May, and one from an outbreak in Kikwit, Zaire in 1995 called EBOV/Kik-9510621. **They found changes, called single nucleotide polymorphisms, or SNPs, in more than 600 spots, or about 3% of the genome.**

The sequence-based drugs currently offer the best hope for future treatment of Ebola outbreaks, but have not yet been approved by the US Food and Drug Administration or any other regulatory agency. Because the World Health Organization adopted emergency containment measures for the ongoing West African outbreak, these drugs are currently being used to treat a few handfuls of patients in experimental testing. A clinical trial for one of the therapies will



begin in Sierra Leone in the coming months. The team, which included researchers from USAMRIID and Harvard University and the Massachusetts Institute of Technology, both in Cambridge, Massachusetts, then narrowed their search to only those mutations that changed the genetic sequences targeted by the various drugs. Of those, they found 10 new mutations that might interfere with the actions of monoclonal antibody, siRNA (small-interfering RNA), or PMO (phosphorodiamidate morpholino oligomer) drugs currently being tested.

The authors conclude that drug developers should check whether these mutations affect the efficacy of the therapeutic drug.

"The virus has not only changed since these therapies were designed, but it's continuing to change," says US Army

Captain Jeffrey Kugelman, lead author and a viral geneticist at USAMRIID. Three of the mutations the team found appeared during the ongoing West African epidemic. "Ebola researchers need to assess drug efficacy in a timely manner to make sure that valuable resources are not spent developing therapies that no longer work."

Kugelman is currently in Charlesville, Liberia at the Liberian Institute for Biomedical Research, working with the local government to set up onsite genomics sequencing of Ebola patient samples to get a real-time picture of how the virus changes as it is transmitted from human to human. He'll be analyzing whether the virus's genetic sequences that are key for diagnostic tests and drug interventions change over time. "The virus mutates rapidly and it's an ongoing concern."

Bioterrorism and the People: How to Vaccinate a City against Panic

By Thomas A. Glass¹ and Monica Schoch-Spana²

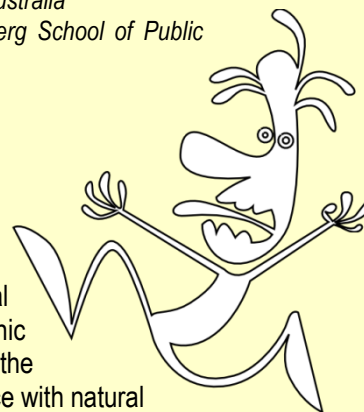
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Source: <http://cid.oxfordjournals.org/content/34/2/217.full>

Abstract

Bioterrorism policy discussions and response planning efforts have tended to discount the capacity of the public to participate in the response to an act of bioterrorism, or they have assumed that local populations would impede an effective response. Fears of mass panic and social disorder underlie this bias. Although it is not known how the population will react to an unprecedented act of bioterrorism, experience with natural and technological disasters and disease outbreaks indicates a pattern of generally effective and adaptive collective action. Failure to involve the public as a key partner in the medical and public-health response could hamper effective management of an epidemic and increase the likelihood of social disruption. Ultimately, actions taken by nonprofessional individuals and groups could have the greatest influence on the outcome of a bioterrorism event. Five guidelines for integrating the public into bioterrorism response planning are proposed: (1) treat the public as a capable ally in the response to an epidemic, (2) enlist civic organizations in practical public health activities, (3) anticipate the need for home-based patient care and infection control, (4) invest in public outreach and communication strategies, and (5) ensure that planning reflects the values and priorities of affected populations.



► Read the full (2001) article at source's URL.





Use of **Telemedicine** Technologies in the Management of Infectious Diseases: A Review

By Ellie J. C. Goldstein (Section Editor), Parmvir Parmar¹, David Mackie², Sunil Varghese² and Curtis Cooper^{1,2,3}

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Source:http://cid.oxfordjournals.org/content/early/2015/01/06/cid.ciu1143.abstract?utm_source=01%2F23%2F2015%3A+Telemedicine%3A+A+Force+Multiplier+for+the+ID+Physician&utm_campaign=ptyson%40upmc.edu&utm_medium=email

Abstract

Telemedicine technologies are rapidly being integrated into infectious diseases programs with the aim of increasing access to infectious diseases specialty care for isolated populations and reducing costs. We summarize the utility and effectiveness of telemedicine in the evaluation and treatment of infectious diseases patients. The use of telemedicine in the management of acute infectious diseases, chronic hepatitis C, human immunodeficiency virus, and active pulmonary tuberculosis is considered. We recapitulate and evaluate the advantages of telemedicine described in other studies, present challenges to adopting telemedicine, and identify future opportunities for the use of telemedicine within the realm of clinical infectious diseases.



EDITOR'S COMMENT: Telemedicine is increasingly being recognized as a transformative technology that has the capacity to improve medical care delivery. Many specialties have availed themselves of this technology, and major medical centers are investing in the development of telemedicine programs. Radiology, pathology, dermatology, allergology – because of the nature of the care these specialties provide – have been early adopters of this technology, but almost all of medicine could effectively utilize telemedicine. **In the CBRN sector**, telemedicine might also be applicable and connecting EDs with a consulting experts' group might speed up/facilitate differential diagnosis capabilities of front-line health professionals. It could also provide tremendous assistance to laboratory diagnosis thus eliminating the dangerous transports between BSL labs or between a BSL-2 and a BSL-3/4 lab (initial phase of an outbreak).

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