

October 2015

# CBRNE NEWSLETTER TERRORISM

E-Journal for CBRNE & CT First Responders



**PART A**



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**CBRNE-Terrorism Newsletter – 2015©**

October 2015

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## Editorial

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

*Editor-in-Chief*  
CBRNE-Terrorism Newsletter

*Dear Colleagues,*

October was a month full of activities – not good ones of course!

First it was the scandals of VW and FIFA Cup in Germany. One of the strongest economies in the planet proved to be not the result of collective hard working but froggery and industrial manipulation. You might sense a small satisfaction from my side but this means nothing to us and our tragic situation. On the other hand it seems that rest of Europe is either neutral or secretly supportive of Germany's industry actions and the overall case is not frontline news anymore. We still are for our ongoing financial crisis and the huge immigraton flows that even extreme weather in Aegen Sea cannot stop or at least postpone. All EU countries are caring only for themselves but this cannot be done in Greece since our sea borders are extensive and very easy to be invated. You follow the news on this issue so there is no point to write about it or to describe the conditions these poor people are experiencing on daily basis. The only thing that worries me is the fact that jihadis infiltration is a fact and nobody is willing to understand its future potential.

How are things in Greece? Same as always – looking to stabilize the post-elections political forces and interpolitical fights and accuisations. The people? Unfortunately we are still alive!

Then we had the Russian military involvement in the Syria's war theater. But the West speaks only for the fact that they did it first instead of waiting the results of coalition's bombings that proved to be a well planned joke with a lot of ashes for our stupid eyes. Perhaps now, the new East Coalition will speed up things and a more permanent solution could be applied in the area if Islamic State is totally defeated or seriously confined. On the other hand there is growing concern for the ongoing CBRN ambitions of the Islamic State. We have to remember what is the cat's reaction when cornered without an escape possibility. Existing jihadist network all over Europe and elsewhere might strike back even if this is the last thing to do before total extinction...

An unfortunate event happened in Saudi Arabia where Haj turned to be a massive stampede with ecatmbs of dead pilgrims. It was God will some local leaders claim – I am sure the familites of the casualties do not totally agree with that!

In the United States, school shootings are becming a part of daily life. No 45 shooting for 2015 happened in a community college in Oregon... Again new debates about protection measures, teachers bearing guns, gun control regulations and another an fry tear from the President – OK now we wait for some real actions and decisions to be taken before No 46 incident. A similar school incident in Sweden that now is official the No2 rape country on the world (only after S. Africa). Why is this happening? You guess because the Newsletter is trying to be politically correct (joke).

Only ten months for the Rio Olympic Military/Security Games 2016! Approximately 85,000 people will be involved in security operations compared to 45,000 during London 2014. CBRNE readiness? Email me if you read something about this on the Internet!

Another case of nuclear material smuggling was revealed in Moldova's capiptal Chisinau. This time was about radioactive cesium with a price of 2.5 mil euro for most probably stolen meterials from Russian hospitals.

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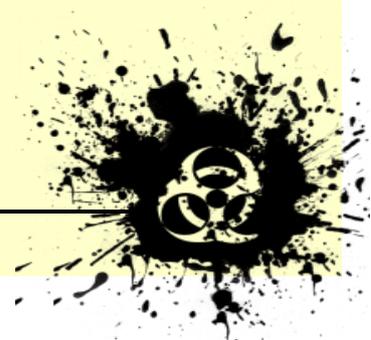
Capabilities of 3-D printing should also alert us. Practically in a few years we will be able to print almost everything we need and do not need! From skulls to nuclear weapons – read the related article in Part B. 3-D printing is like commercial drones – they expand grammicaly and fast – very fast!

Finally it seems that there many things that we still do not know about Ebola virus. It seems that recovery and survival is not the end of the story. It seems that there is "pos-Ebola syndrome" that enables "clever" virus to attack back – rare but real!

What to expect for November? For sure Syrian theater will change – hopefully without initiating a WWII and immigration crisis will become more intensive – especially in the Balkans if EU countries decide to fence their borders trapping thousands between Greece and Turkey. The latter will continue to play the bazaar thing that they know best – get tons of money both from EU but also from their extremely prosperous smuggling industry.

The Newsletter's Team is thanking all First Responders for their support and especially for their kind comments that make us feel that we are still in active duty!

*The Editor-in-Chief*



## Putting the Brakes on Volkswagen

By Patrick Chappatte

Source: <http://www.nytimes.com/2015/09/26/opinion/putting-the-brakes-on-volkswagen.html>



Patrick Chappatte is an editorial cartoonist for *The International New York Times*.

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## Should public schools close for Muslim holidays?

Source: <http://www.csmonitor.com/USA/USA-Update/2015/0922/Should-public-schools-close-for-Muslim-holidays>

Set 22 – Public schools in the US close in observance of Christian holidays including Christmas and Easter, and now other religious denominations are asking for their holidays to be respected, too.



This Thursday is Eid al-Adha, or Feast of the Sacrifice, one of the biggest holidays of the year for Muslims, and school administrators

must decide whether or not to close school for the day.

In New Jersey, where almost 2 percent of the population identifies as Muslim, several school districts have recognized Islam's holidays for years, reports NorthJersey.com. But some are holding back.

The Jersey City school board voted last week not to name Eid al-Adha a public holiday, saying that it was "too short notice for parents to make arrangements if school was closed," though students will be excused if they are not in school on Thursday.

"Despite the outcome, I believe the discussion reaffirmed our commitment to recognizing and honoring the rich cultural and religious diversity of the Jersey City community," said Jersey City Schools



Superintendent Marcia Lyles in an interview with NJ.com. "We will continue to engage the entire Jersey City community in this important conversation."

Clifton, N.J. public schools discussed adding Islamic holidays to the school calendar in 2010. "We have 67 different languages spoken in Clifton homes and we have many different ethnic groups," said James Daly, president of Clifton's Board of Education. "Once you start making accommodations for one group, where do you draw the line?" he asked.

While the school district closes in observance of Jewish holidays Rosh Hashanah and Yom Kippur, it still has not added any Muslim holidays to its calendar.

**Public schools in Illinois and Virginia, the two states with the largest per capita Muslim populations, have shown less responsiveness.**

Illinois's largest school district, Chicago, does not recognize any religious holidays, while the second largest district notes Jewish holidays but does not close for them, and does not note Muslim holidays.

In March, New York City Mayor Bill de Blasio announced that, for the first time, New York City public schools would close in observance of Eid al-Adha and Eid al-Fitr during the 2015-2016 school year.

"We made a pledge to families that we would change our school calendar to reflect the strength and diversity of our city," he said in a press release. "Hundreds of thousands of Muslim families will no longer have to choose between honoring the most sacred days on

their calendar or attending school. This is a common sense change, and one that recognizes our growing Muslim community and honors its contributions to our City."

For Muslims, it signals acceptance. "When these holidays are recognized, it's a sign that Muslims have a role in the political and social fabric of America," said Ibrahim Hooper, a spokesman for the Council on American-Islamic Relations, to the New York Times.

As a nation that prides itself on religious freedom, "There is no reason to categorically reject Muslims' requests for these sorts of accommodations when Jews' and Christians' requests are often accepted," argues the Washington Post's Eugene Volokh.

Other groups have requested recognition in official school calendars, too, increasing the pressure on school administrators to balance a celebration of diversity with the need to keep students in the classroom a set number of days each year.

"Asian-Americans have long requested the observance of the Lunar New Year (mid-February), and Hindu populations push for their major festival, Diwali, to be recognized," noted the Christian Science Monitor's Samantha Laine earlier this year.

"We are committed to having a school calendar that reflects and honors the extraordinary diversity of our students," said New York Department of Education spokeswoman Yuridia Peña in a statement. "Adding new holidays to the calendar is a goal that poses some logistical challenges and we are actively working toward overcoming them."

## A look at the most terrifying U.S.-made weapon of mass destruction ever created

Source: <http://www.examiner.com/article/a-look-at-the-most-terrifying-u-s-made-weapon-of-mass-destruction-ever-created>

With the current global climate, the chance of a major conflict occurring is a very real possibility.

War is frightening on its own but it is the weapons of war that make it absolutely terrifying. Since the first disease-infected animal was thrown into a well to poison its drinking water, to the present, humanity's capacity to wage war has expanded exponentially and so has its skill at creating

weapons of war. Weapons of mass destruction (WMDs) are the most feared in man's arsenal of destruction, mainly due to the incredible amount of carnage a single weapon can cause. WMDs are generally divided into four classes; chemical, biological, radiological and nuclear, however, there is one so-called "conventional" weapon that should certainly be added to the list of WMDs.



The devastation of Hiroshima and Nagasaki introduced the world to the most frightening and destructive weapon ever known but now there is a contender for that title and its already being used in combat! They are called thermobaric weapons or fuel-air explosive munitions. The thermobaric weapon, “thermo” meaning heat and “baric” meaning pressure, combines high-explosives with the hellish power of a low-yield nuclear weapon, without the radiation, and the horrific effects of a chemical weapon, without the backlash from the international community, into one nightmarish instrument of mass slaughter.



The GBU-43/B bomb, or Massive Ordnance Air Blast (MOAB) bomb, is launched November 21, 2003 at Eglin Air Force Base, Florida. Photo by U.S. Air Force/Getty Images

The first thermobaric devices developed during the Vietnam War were used for deforestation of heavily wooded areas. Eventually, its destructive potential became realized as an offensive weapon of mass destruction. The “daisy cutters” as they were called, saw service as a weapon to kill enemies who were entrenched beyond the reach of conventional bombs.

This later evolved into the development of devices created specifically to destroy heavily fortified structures as well as kill personnel. One such device is the United States-built **M.O.A.B. or Massive Ordnance Air Blast munition**. Fielded on 2003, The “Mother of all Bombs” as it is called, is considered a high-yield “conventional” weapon but there is nothing conventional about it.

**The M.O.A.B. contains a fuel that utilizes the surrounding atmosphere to produce explosions comparable to low-yield nuclear detonations. In theory, there is no upper limit to the explosive energy these devices can release however, there is an upper practical limit to the size that such a weapon can be built, with the M.O.A.B. having a yield equivalent to 49 tons of TNT. What makes the M.O.A.B. and similar weapons so frightening is the numerous and terrible ways they maim and kill.**

According to Wikipedia, a 2001 report from Human Rights Watch quotes a study from the US Defense Intelligence Agency that said, “The [blast] kill mechanism against living targets is unique—and unpleasant.... What kills is the pressure wave, and more importantly, the subsequent rarefaction [vacuum], which ruptures the lungs.... If the fuel deflagrates but does not detonate, victims will be severely burned and will probably also inhale the burning fuel. Since the most common [F]uel [A]ir [E]xplosive fuels, ethylene oxide and propylene oxide, are highly toxic, undetonated FAE should prove as lethal to personnel caught within the cloud as most chemical agents.”

Another study conducted by the U.S. Central Intelligence Agency states, “the effect of an FAE explosion within confined spaces is immense. Those near the ignition point are obliterated. Those at the fringe are likely to suffer many internal, and thus invisible injuries, including burst eardrums and crushed inner ear organs, severe concussions, ruptured lungs and internal organs, and possibly blindness.” Another Defense Intelligence Agency document speculates that because the “shock and pressure waves cause minimal damage to brain tissue...it is possible that victims of FAEs are not rendered unconscious by the blast, but instead suffer for several seconds or minutes while they suffocate.” (emphasis added)

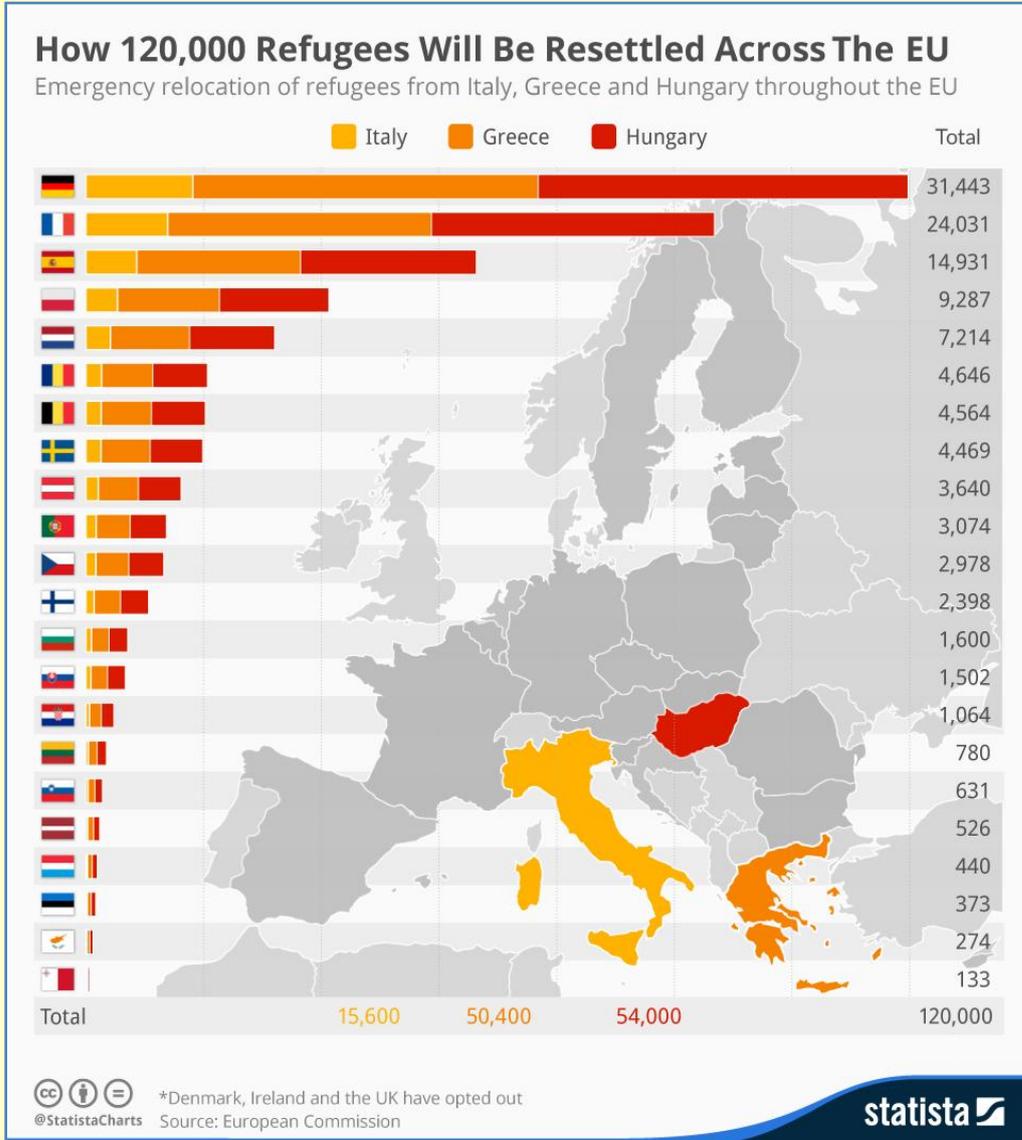
Another fearful thing about thermobaric weapons is their portability. The United States and Russia have deployed portable thermobaric weapons in various theaters of combat against enemy troops. With chemical and biological weapons banned and nations' reluctance to use nuclear weapons, this makes the thermobaric munition the most



terrifying weapon a soldier might face on the battlefield.

## How 120,000 Refugees Will Be Resettled Across the EU

Source: <http://jewishbusinessnews.com/2015/09/24/how-120000-refugees-will-be-resettled-across-the-eu/>



On Tuesday, a majority of interior ministers voted to relocate 120,000 refugees across the European Union over a two-year timespan. The divisive plan is dwarfed by the reality of the situation with 438,000 refugees applying for asylum in the EU between January and July of this year alone compared to 571,000 for the whole of last year. Nine countries in central and eastern Europe have been asked to take about 15,000 refugees with Germany and France being allocated significantly more. Denmark, the UK and Ireland have not been included in the list as they have an opt out.

This chart shows emergency relocation of refugees from Italy, Greece and Hungary throughout the EU.

## Stampede at Haj in Saudi Arabia kills at least 717 people

Source: <http://www.thenational.ae/world/middle-east/stampede-at-haj-in-saudi-arabia-kills-at-least-717-people>

Sept 22 – **The death toll from a crush of pilgrims on Thursday during the Haj has risen to 717 people of various nationalities**, the Saudi civil defence said.

Civil defence teams were still trying to deal with the disaster, caused by large numbers of people pushing at Mina, outside Mecca. Another 805 pilgrims were wounded, it said. The pilgrimage, the world's largest annual gathering of people, has been the scene of deadly disasters in the past, including stampedes, tent fires and riots.



The last major incident in Haj took place in 2006, when at least 346 pilgrims were killed as they attempted to perform the stoning of the devil at Jamarat. However, massive infrastructure upgrades and extensive spending on crowd control technology over the past two decades had made such events far less common.

**Worst Haj stampede**

At least 717 pilgrims were killed in a crush at Mina, near the holy city of Mecca, where some two million Muslims are performing the annual Haj pilgrimage



**Haj pilgrimage**

- 1 Day 1: Pilgrims walk to Mina where they spend the night
- 2 Day 2: Waqfa. Pilgrims climb Mount Arafat, where Prophet Mohammed gave his final sermon
- 3 Day 3: Eid Al Adha (Feast of Sacrifice): Stoning of three pillars at Jamarat, representing temptations of Satan  
Slaughter of animal to give away meat to the poor
- 4 Day 4: Return to Mecca for final tawaf - circling Kaaba at centre of Grand Mosque

Source: Graphics News

Street 204 is one of the two main arteries leading through the camp at Mina to Jamarat, where pilgrims ritually stone the devil by hurling pebbles at three large pillars.

Photographs published on the civil defence Twitter feed showed pilgrims lying on stretchers while emergency workers in high-visibility jackets lifted them into an ambulance.

It said **more than 220 ambulances and 4,000 rescue workers had been sent to the stampede's location** to help the wounded. Saudi Arabia-owned Al Arabiya television channel showed a convoy of ambulances driving through the Mina camp. "Work is underway to separate large groups of people and direct pilgrims to alternative routes," the Saudi Civil Defence said on its Twitter account.

Thursday is also Eid Al Adha. It has traditionally been the most dangerous day of Haj because

vast numbers of pilgrims attempt to perform rituals at the same time in a single location. Two weeks ago 110 people died in Mecca's Grand Mosque when a crane working on an expansion project collapsed during a storm and toppled off the roof into the main courtyard, crushing pilgrims underneath.



**Syrian Civil War Prompts First Withdrawal From Doomsday Seed Vault In The Arctic**

Source: <http://www.npr.org/sections/thetwo-way/2015/09/23/442858657/syrian-civil-war-prompts-first-withdrawal-from-doomsday-seed-vault-in-the-arctic>

Sept 23 - A tall rectangular building juts out of a mountainside on a Norwegian island just 800 miles from the North Pole.



Narrow and sharply edged, the facility cuts an intimidating figure against the barren Arctic background. But the gray building holds the key to the earth's biodiversity.

The Svalbard Global Seed Vault, built in 2008, stores more than 850,000 seed samples from nations all over the world. Extending nearly 500 feet into the mountain, it's intended to safeguard the planet's food supply and biodiversity in the event a doomsday catastrophe like nuclear war or crippling disease wipes out varieties of plants. Crop Trust, the company that runs the seed vault, says on its website that the vault is "the final backup":



"The purpose of the Vault is to store duplicates (backups) of seed samples from the world's crop collections. It will secure, for centuries, millions of seeds representing every important crop variety available in the world today. It is the final back up."

But now, less than 10 years after the opening, officials are preparing to withdraw seeds for the first time. What apocalyptic event prompted the removal of some of humanity's food backups?

**The Syrian civil war**

"We did not expect a retrieval this early," Crop Trust spokesman Brian Lainoff told NPR. "But [we] knew in 2008 that Syria was in for an interesting couple of years. This is why we urged them to deposit so early on."



More than 250,000 people have been killed in the ongoing Syrian civil war and millions of others have been forced from their homes. But the human toll isn't the only cost of the violence.

Reuters reports that the seeds requested by researchers include "samples of wheat, barley and grasses suited to dry regions" to replace "seeds in a gene bank near the Syrian city of Aleppo that has been damaged by the war."

"Grethe Evjen, an expert at the Norwegian Agriculture Ministry, said the seeds had been requested by the International Center for Agricultural Research in Dry Areas (ICARDA). ICARDA moved its headquarters to Beirut from Aleppo in 2012 because of the war.

"ICARDA wants almost 130 boxes out of 325 it had deposited in the vault, containing a total of 116,000 samples, she told Reuters. They will be sent once paperwork is

completed, she said."

According to Crop Trust, there are some 1,700 seed banks in the world, but many of them are vulnerable to natural disasters, war and even mundane hazards like insufficient funding or a broken freezer.



The Svalbard vault, however, is protected by its remote and very chilly location. The company says being inside a mountain increases security, while the permafrost offers a "fail-safe" seed conservation method.



## What can science tell us about human 'stampedes'?

Source: <https://www.washingtonpost.com/news/speaking-of-science/wp/2015/09/24/what-can-science-tell-us-about-human-stampedes/>



Sept 23 – Saudi Arabian authorities say a stampede among Muslim worshippers killed more than 700 people at the height of the hajj pilgrimage in the holy city of Mecca. (Jenny Starr/The Washington Post)

On Thursday, a stampede near the holy city of Mecca left more than 700 people dead, with hundreds more injured and the death toll still rising. The stampede, which occurred during the peak of the annual hajj pilgrimage, is just the latest in a regular string of such events at the site — but it's the deadliest one in 25 years. It's hard to imagine how a crowd — especially one gathered for a peaceful religious rite — can turn so deadly. But the phenomenon is so common that experts in crowd management are consulted for most highly trafficked events. While many researchers focus on how to prevent these so-called stampedes by keeping spaces from getting over-crowded ([read more about that here](#)), **there's been very little research on what happens once a stampede starts — or why, exactly, they begin.**

Deadly stampedes have marred political rallies, music festivals, sports games and religious events all over the world.

In 1989, in one of the worst tragedies in soccer history, nearly 100 people died in Sheffield, England as crowds pressed into Hillsborough Stadium for a match.

In 2005, a stampede on a bridge across the Tigris River in Baghdad killed more than 960 people when rumors about a coming suicide bomb attack caused panic among pilgrims heading toward a shrine. At the time, it was the greatest single-day casualty toll since the U.S.-led invasion of Iraq two years earlier.

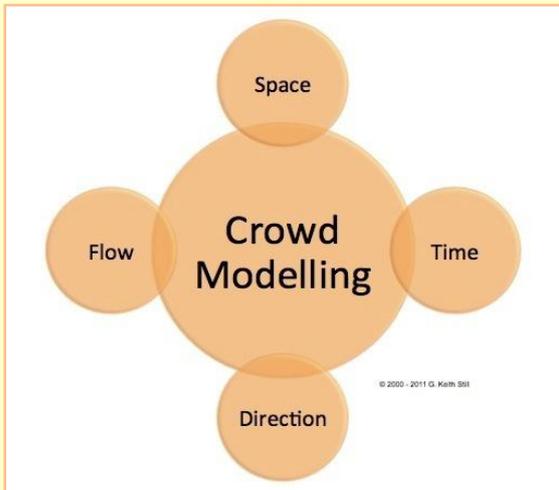
And in 2010, a holiday celebration in Phnom Penh, Cambodia left at least 353 trampled to death after a suspension bridge began swaying and thousands of revelers tried to flee.

That same year, a review of all available literature on stampedes found that, despite efforts, these incidents are on the rise. But the researchers noted that little was known about the actual triggers for these events. First responders, they noted, were rightly focused on finding and treating the injured, not on taking detailed notes of their observations of the stampede.



"International health organizations have to recognize that this is an important type of disaster," Edbert Hsu, associate professor of emergency medicine at Johns Hopkins, said in a statement at the time. "If they made it a protocol to send someone to a trampling disaster quickly to see what happened, we would have detailed reports we could use to compare and contrast. Without [those reports], we won't really understand what we're dealing with."

In an email to The Post, crowd safety and risk analysis specialist G. Keith Still explained that



actual human "stampedes" are rarely observed. The incidents that members of the public refer to as stampedes are quite different from the animal equivalent, and most could be more accurately referred to as crowd crushes.

"What this appears to be is a crowd crush as a result of two way flow in confined space," Still explained. A compression -- not a stampede.

**Mechanically, these crowd crushes are tragically simplistic:** Once people are pushed tightly against one another ([about 7 people per 10 square feet of space, according to one study](#)) it's vital that those in the front keep moving as quickly as those behind them. Otherwise, the people in the back — unable to see the front of the crowd — will move forward seeking more space, assuming that those in the front will continue to move to make way for them. If for some reason the paces become mismatched — because something is blocking the front of the group, or a rumor is spreading in the back that people are being crushed, causing folks to speed up — the front of the group gets squeezed, sometimes producing

enough force to crush people where they stand.

**"The image I use in a workshop is of an egg being pushed back into a chicken,"** Still said.

It's likely that the most deadly crowd crushes begin with one or a handful of deaths, caused by the sheer force of the tightly-packed group, that then cause mass panic. Smaller crushes may not be fueled by "panic" at all — people can be crushed by the weight of those around them without anyone consciously surging forward. In fact, experts have argued that blaming the behavior of "the crowd" is a mistake, since most crushes can probably be boiled down to the physical limits of their location. Even crushes or stampedes that occur at rowdier events, like soccer games, Black Friday sales or music festivals, are more likely due to physical strain than they are to any specific human behavior.

Still, who previously studied the specific crowd movements during the pilgrimage to Mecca in order to provide crowd management guidance, said that it was difficult to identify what exactly happened to the crowd on Thursday. But he doesn't think there was necessarily a great panic.

**"[This incident] sounds like a compression from two opposing flows rates exceeding the safe capacity of the system,"** Still explained. **"Once that starts, it's already too late to stop the incident escalating."**

But when people do get panicked, it certainly doesn't help. In a tightly packed crowd, we're victims of our own biology. [The typical "fight or flight" response](#), where one feels a surge of adrenaline, is anything but helpful. If the thousands of people vying for space could be calm and collected, crowd crushes at this magnitude simply wouldn't occur. But faced with death, most will be slave to a racing heartbeat and hyperventilation — and an urge to run for safety at any cost.

To prevent crushes like the one that happened on Thursday, Still and researchers like him work on predicting the movement that a crowd will want to take. "It's all about math, management and psychology," he told The Post in an earlier interview on crowd management. When individuals are participating in a religious ceremony, crowd



managers need to bear in mind the speed and direction that they're likely to move in, based on the goal of the gathering.

"Unless you can facilitate that, you end up creating behaviors that are frustrated," he said. And those frustrated behaviors can send shock waves through a tightly packed crowd.

In the modern world, it's more possible than ever for massive crowds to gather. People can fly in from all over the world to join in a religious ceremony or catch a glimpse of a leader. And for now, crowd crushes remain a horrifying possibility at every such gathering.

## Syrian refugees carry beloved pets hundreds of miles

Source: <http://www.care2.com/causes/syrian-refugees-carry-beloved-pets-hundreds-of-miles.html>

Sept 26 – Among the refugees who have survived the treacherous journey from Syria to Greece are at least two dogs and a cat, thanks to their devoted owners.

he brought along his puppy, a Husky named Rose.

"I love this dog," he says in a video interview posted Sept. 19 on the United Nations High Commissioner for Refugees (UNHCR) Facebook page. "I need [her]."

He was even able to obtain a pet passport for Rose from the European Union.

Before fleeing Damascus, Al Hakim and his friends stuffed their most treasured belongings into backpacks, along with plenty of food and water for Rose.

Three days after the UNHCR video was posted, Rose and her friends had made their way north to Tovarnik, Croatia, by train, according to the Associated Press. Their ultimate destination is Germany.



Seventeen-year-old Aslan Al Hakim traveled about 300 miles from his home in Damascus to the Greek island of Lesbos. In a small carrier,

Zaytouna (Arabic for "olive"), who was carried by her unidentified family in an inflatable raft across the Mediterranean Sea to Lesbos.

"Olive" – the kitten!

"We've seen many like him carrying their animals with them on the long journey from Syria, across the Mediterranean Sea and through Europe," the UNHCR wrote. "When forced to flee home because of war, many people would never dream of leaving their pets behind."

Another pet who survived the journey is a kitten named



Zaytouna's family packed few belongings and never considered leaving their beloved pet behind. In photos posted on the Greek news site Protothema, a smiling man is carrying Zaytouna in a sling close to his body.

Last month, 20-year-old Maya Narlband carried her dog, Poopy, from her home in Syria all the way to Hungary. Although Narlband has been

unable to get a passport, Poopy, like Rose, was issued one from the European Union that allows the dog to freely enter any EU country, Sky News reports.

Perhaps all the viral, heartwarming photos of these fortunate pets will help raise awareness of and more concern for the plight of the migrants.

## The Evolution of Planning for Animals in Disasters

By Elizabeth Serca-Dominguez & Richard Green

Source: DomPrep Journal (April 2015); 11:4; pp.16-18.

**A man runs into an evacuation zone to rescue his dog. A woman refuses to leave her home in the face of danger because she cannot find her cat. A family is turned away from a shelter because they do not want to leave their pets behind. In all of these cases, people are willing to sacrifice themselves and, in some cases, endanger responders for the good of their pets, so related emergency plans must be in place.**

Animals are a large part of daily life in the United States, whether kept for livelihood or companionship. In many households, they are considered part of the family, no different than children. In the 2013 Black Forest fire outside Colorado Springs, CNN interviewed a man that went back into the evacuation zone to rescue his dogs. When asked why he would put his own life in danger, he quickly responded that they were part of the family. People willing to intentionally endanger themselves also endanger responders and compromise the management of an emergency or disaster. Through collaboration and communication, emergency management professionals can reduce or eliminate such situations that endanger their community members, animals, and first responders.

### The Human-Animal Bond

The American Veterinary Medical Association (AVMA) defines the human-animal bond as, "a mutually beneficial and dynamic relationship between people and other animals that is influenced by behaviors that are essential to the health and well-being of both. This includes, but is not limited to, emotional, psychological, and physical interactions of people, other animals, and the environment." In an article (2006) entitled, "Placing the Human-Animal Bond in Context in the Face of Disasters," AVMA noted that, due to a lack of more traditional support systems in modern

society, companion animals for many people are the sole source of emotional and social support, providing significant psychological and physical health benefits, especially to children, the elderly, the disabled, the mentally and physically ill, and the incarcerated. Given this bond, they believe that, "When disasters strike, saving animals means saving people."

Since the passage of two key animal-related pieces of legislation shortly after Hurricane Katrina in 2005, the human-animal bond and the critical importance of planning for human and animal needs in emergencies and disasters is more at the forefront of emergency management than ever before. The Pet Evacuation and Transportation Standards (PETS) Act was signed into law in October of 2006 to amend the Stafford Disaster Relief and Emergency Assistance Act to, "ensure that state and local emergency preparedness operational plans address the needs of individuals with household pets and service animals following a major disaster or emergency." The Post-Katrina Emergency Management Reform Act (PKEMRA), also passed in 2006, strengthened Federal Emergency Management Agency's (FEMA) preparedness and response capabilities and identified new responsibilities for the U.S. Department of Homeland Security/FEMA in coordinating implementation of the PETS Act.



### Post-Katrina Initiatives

Pre-Hurricane Katrina, there was very little effective communication, collaboration, or partnership between the groups involved in animal rescue and sheltering – let alone in combination with the emergency management community. In those days, very few communities were actively addressing animal issues. Typically, those who arrived at the disaster area first declared themselves as the lead agency and assumed “command.” Self-deployment occurred too frequently and teams were not adequately trained in incident management or command. Times have certainly changed. Communication and collaboration are at the core of these changes. It became widely accepted that no one group could do it all (and do it well) by working in a vacuum but, by communicating with one another and working together, more animal lives were saved. Two national post-Katrina initiatives that have affected all levels of animal emergency planning were the formation of the National Animal Rescue and Sheltering Coalition (NARSC) and the National Alliance of State Animal and Agricultural Emergency Programs (NASAAEP).

NARSC has developed and grown into a strong coalition of 14 national, nongovernmental organizations representing millions of animal welfare, animal care, and animal control professionals, volunteers, and pet owners. Participants in the coalition include the most experienced, qualified animal rescue and sheltering management professionals in the country, including the American Society for the Prevention of Cruelty to Animals® (ASPCA®). This collaborative approach among the groups offers opportunities for emergency management to have one-stop shopping when considering back-up resources to what they have locally. It also offers a wide variety of subject matter expertise and opportunities for training.

NASAAEP continues to foster and construct a national network of state-level stakeholders to promote effective, all-hazards animal and agricultural emergency management; nearly all states have participated in the monthly calls or summits since its inception. In addition to enhancing communication and collaboration among states, NASAAEP has published best practices for key animal issues that occur

during emergencies such as sheltering, transportation, and even zoo preparedness, among others. The best practices working groups are an assembly of the best and brightest in animal and agricultural issues in emergency management today. NASAAEP state representatives often reside within the state department of agriculture or board of animal health, and agencies should connect with them and keep abreast of state planning efforts and resources.

### Organizing Community Animal Response Teams

Although there have been significant national strides, it is imperative for local communities to have the capability and plans to respond to animals during disasters. Many communities have formed animal coalitions tasked with planning and responding to animals in disasters. The group or committee may eventually earn the name of Community Animal Response Team (CART) and be an integral piece of community planning and response. If there is no CART, there are many resources available now to help initiate and sustain a CART's development, whether by simply asking a successful neighboring community to borrow their paperwork for reference or turning to a group like the ASPCA, which can help assist with the process as well. The ASPCA not only funds disaster-related grants, but also has a special Midwestern Disaster Resiliency Program geared toward helping states and communities create animal response teams, providing training, and funding disaster equipment. Since launching the program a few months ago, the ASPCA has given more than \$50,000 to communities in disaster-prone areas to enhance their ability to respond to animals and pet owners affected by disasters. Attending to animals in disasters has certainly changed in the past 20 years. An overall shift in the thought process has occurred, recognizing the human-animal bond as being a safety issue for the community at large and first responders. Where there are human issues, animal issues will follow. Communication and collaboration on all levels of government have provided useful resources, more training, and stable relationships from which to build and improve planning efforts to keep people,



their pets, and first responders safe. By continuing to work together, government and

nongovernment agencies can keep this trend going and continue to save more lives.

*Richard (Dick) Green, Ed.D., senior director of disaster response at the American Society for the Prevention of Cruelty to Animals, leads the efforts of the Disaster Response Department, which covers natural and manmade disasters as well as large- and small-animal rescue operations. He also oversees the ASPCA's internal disaster readiness program and develops partnerships with national and local agencies to enhance the country's disaster response capabilities. Following Hurricane Katrina, he established and chaired the National Animal Rescue and Sheltering Coalition (NARSC), the first coalition in the nation dedicated to working with all levels of government and nongovernment agencies in finding collaborative solutions to major human-animal emergency issues. He is a frequent speaker on such topics as best practices in animal evacuations, relief, and recovery efforts. He has a doctorate in education from Brigham Young University, and was an assistant professor at Gonzaga University and the University of Puget Sound.*

*Elizabeth Serca-Dominguez, disaster response manager at the American Society for the Prevention of Cruelty to Animals, works to strengthen the disaster response capacity of Midwest states most vulnerable to natural disasters by providing disaster response training, rescue equipment, and disaster planning expertise to local animal response teams. Prior to joining the ASPCA, she led the state animal response teams in both Florida and Texas – two of the most hurricane-prone states. She was a founding member of the Board of Directors for the National Alliance of State Animal and Agricultural Emergency Programs (NASAAEP), a collaborative alliance of state programs charged with planning for, preparing for, and responding to disasters involving animals. She received a Bachelor of Science with honors from the University of Florida (UF) in Environmental Management in Agriculture, as well as a Master of Science with honors from UF in Agricultural and Biological Engineering.*

## Canada Should Welcome Syrian Refugees, Carefully

By Tarek Fatah

Source: <http://www.meforum.org/5514/canada-syria-refugees>

The video showing a Hungarian camerawoman tripping a Syrian refugee as he ran across an open field on the Hungary-Serbia border sent a wave of revulsion across the world. Her television network fired her. On the other hand, her victim was offered a job by the football club Real Madrid in Spain. This was poetic justice unfolding in real life.

The Syrian migrant famously tripped by a Hungarian TV camerawoman on September 8 has been identified by Syrian Kurdish rebels as a member of Al-Qaeda's Syrian franchise.

However, what appeared to be a happy ending has now taken a new twist. No sooner did his name and picture flash across social media then a Kurdish-based political party in

Syria identified him as a member of the jihadi Nusra Front.

The Syrian Democratic Union Party (PYD) is one of Syria's major opposition parties and is banned by the government of dictator Bashar



al-Assad. It said on its website the



refugee had fought alongside the Nusra Front before leaving Syria with his family, earlier this year.

I reached out to him for comment through his new employer, Real Madrid, but the club's public relations office told me: "We receive all kind of opinions concerning these matters, and we acknowledge them, but we cannot nor should (we) take a stance on any of them." I was not able to reach him directly for comment. To be clear, no country has laid any charges against him in relation to allegations he belonged to a terrorist group, and I have no knowledge if they are true.

That said, this does illustrate the concerns of those advocating for thorough background security checks of all future Syrian refugees coming to Canada.

Many in Canada have invoked the 1956 Hungarian refugee crisis, the 1968 Czech refugee crisis, and the 1978 Vietnamese Boat People crisis as shining examples of how Canada reached out to those fleeing dictatorial regimes.

But this is different. In those crises we knew the people we welcomed to Canada hated our enemies and were committed to the West's values of democracy, freedom, and individual liberty. They embraced our values while retaining their own faith and cultures.

This may also be true of the Kurds, Iranians, Yazidis, Darfuris, and Baloch who wish to flee the tyranny of Islamism and embrace Canada and the West, and of the vast majority of Muslim refugees. But it cannot be said of any radical Islamists who seek refuge in the West. Take Britain. Despite the fact many were born in the UK, 40% of British Muslims surveyed by the *Telegraph* newspaper said they backed introducing sharia in parts of Britain, while 20% felt sympathy with the motives of the London July 7 bombers.

We will now rightfully open our doors to 10,000 Syrian refugees.

But let us not repeat the mistakes made by other countries and allow our refugees to be manipulated by Islamists already in our midst.

Let us make sure that before Islamist organizations and mosques poison their minds, they are introduced to Sir Wilfrid Laurier, Sir John A. Macdonald, Pierre Trudeau, Tommy Douglas, and to Voltaire and Rousseau.

Let us help them understand the futility of armed jihad and sharia as public law. Let us heed the warning by Hans-Georg Maassen, president of Germany's domestic intelligence services, who said Tuesday: "There is a big worry that Islamists in Germany, on the pretext of offering humanitarian help, could try to take advantage of the migrants' situation to convert and recruit those seeking asylum."

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*Tarek Fatah, a founder of the Muslim Canadian Congress and columnist at the Toronto Sun, is a Robert J. and Abby B. Levine Fellow at the Middle East Forum.*

## The Politics of School Safety & Security

By Wayne P. Bergeron

Source: [http://www.domesticpreparedness.com/Infrastructure/CIP-R/The\\_Politics\\_of\\_School\\_Safety\\_%26\\_Security/](http://www.domesticpreparedness.com/Infrastructure/CIP-R/The_Politics_of_School_Safety_%26_Security/)

**Sir Earnest Benn, political publisher and British baronet (1875-1954) once said that, "Politics is the art of looking for trouble, finding it whether it exists or not, diagnosing it incorrectly, and applying the wrong remedy." For school safety and security, the stakes of getting it wrong are too high to simply let the normal political process play out.**

"There's always been a context of politics around this topic. The parents don't know what they don't know, and no one is rushing to tell them," said Kenneth Trump, a prominent expert on school safety from his interview in October 2013 with NBC news. Clearly, when it comes to school safety and security, it is hard to find anyone who does not agree that it is an important topic, and a desirable goal is to seek

improvement. However, much of the agreement ends there and, as Trump further pointed out, "There's been a history of downplay, deny, deflect, and defend . . . to protect the image of the schools." Although no one is in favor of unsafe or dangerous schools, every improvement to school safety and security comes



at a cost and, in many cases, these costs are in competition for money and resources across the spectrum of public services.

One of the key problems in framing the conversation around this issue is that, in many cases, the biggest challenge is in actually defining what “right looks like” when it comes to school safety and security. As discussed in a previous *DomPrep Journal* article on this topic in 2014, without a universally accepted set of school safety and security standards at the national level and without state-level standards in many states, school officials may have difficulty justifying school safety and security improvement costs (for systems and facilities) to the political agencies that ultimately provide the funding.

### Shining a Harsh Light

Of course, one of the interesting paradoxes in this area is that every time there is a school shooting or other violent incident that occurs – there is an immediate rush to judgement by the media, politicians, and even the general public as to why the situation was not prevented. Although focusing on a hot topic can be useful in creating awareness, in many cases, it leads to policies and procedures that are not always well thought out or based on solid research and best practices. For instance, in many schools and systems a draconian zero-tolerance policy has been adopted in the wake of perceived problems with crime, drugs, and violence within schools rather than a more measured and scientifically researched system such as the State of Virginia’s Response to Intervention (RTI) framework.

Although well meaning in most cases and politically popular, such “Zero-tolerance” policies tend to deal solely with the symptoms of the problem instead of addressing the underlying causes. Zero-tolerance policies tend to focus exclusively on behavior. However, according to education expert Alfie Kohn (2004), “When we’re preoccupied with behaviors, we’re less likely to dig deep in order to understand the reasons, values, and motives that give rise to those behaviors.” Zero tolerance is a popular political position and would make sense if crime and violence in schools were increasing, but the number of such incidents has actually been decreasing

over time and not likely as a result of zero tolerance.

In fact, in New York City, the schools that have strict zero-tolerance policies and aggressive security procedures, such as metal detectors and surveillance cameras, actually have more problems and issue 48 percent more suspensions than schools that have a lessor profile and more tolerant policies. The media, in many cases while covering sensational events, certainly increases awareness of the issue, but rarely spends more than a few news cycles focusing on the topic in any depth – frequently offering only superficial coverage and failing to delve into any real underlying issues.

### Just Do Something – The Knee-Jerk Syndrome

Similar issues are found when it comes to equipment and technology. In the wake of school shootings, many political leaders and school district officials are under extreme pressure to “just do something.” For instance, in Ohio, there recently has been a highly emotional controversy spreading through the state over classroom door barricades. On the face of it, these devices (of various designs) allow classroom occupants to mechanically block the door in addition to normal locking mechanisms and would seem to be an excellent choice to help prevent the entry of an active shooter and protect students and faculty. From a political standpoint, they show concern and action on the part of officials. “Let’s put one in every classroom,” would likely be a great political quotation.

However, the possible second- and third-order effects of these devices raise concern about what would happen should a device fall into the wrong hands. As Trump (2015) pointed out, there are potentially “very real dangers created if these barricades are used improperly,” for example:

- Someone using the barricade to prevent the escape of a sexual assault victim from an empty and darkened classroom;
- A mentally disturbed student barricading an area in conjunction with a weapon to hold a class full of students hostage and to keep law enforcement out; or



- A disgruntled employee or student trapping occupants inside an area during a fire or arson event.

In addition to the political ramifications of these potential scenarios should barricades be placed in every classroom, the use of the devices may actually violate fire and building codes, as would chaining and locking doors.

**A Measured Approach**

In the end, when it comes to the political considerations of school safety and security policies and practices, officials and

administrators would be wise to adopt a reasonable and measured approach that considers all hazards and all threats within the context that they are likely to occur. Having a comprehensive threat assessment is a necessary first step that should drive policy decisions up front. Additionally, having a validated and research-based set of guidelines and standards for school safety and security that drives procedures and practices can go a long way toward ensuring comprehensive school safety and security and even providing political cover as well.

*Wayne P. Bergeron, lieutenant colonel, retired from the United States Army in May 2011 after a 23-year career within the Military Police Corps and Special Operations Forces. He currently serves as an instructor teaching both criminal justice and security and emergency management at the University of North Alabama in Florence, Alabama. His education includes undergraduate degrees in criminal justice and political science, a master’s degree in international relations from Troy University, and he is currently a doctoral candidate in emergency management at Jacksonville State University.*

**What Your Fingerprint Can Say About You**

Source: <http://i-hls.com/2015/09/what-your-fingerprint-can-say-about-you/>

Sept 25 – A new fingerprint technology that can analyze metabolites left behind in fingerprint residue for a variety of factors was introduced by ArroGen Group, a forensic solutions company. The technology uses a powder that contains sub-micron particles that adhere to the amino and fatty acids in fingerprint residue. While scientists have long used powders to develop fingerprints, these new materials produce images with higher contrast, better clarity, and less background staining.

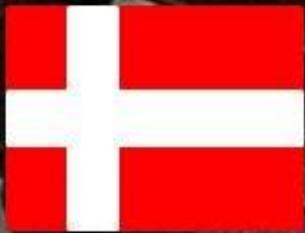
The Fingerprint Molecular Identification (FMID) process, as the company calls it, works like this: Scientists sprinkle the powder on the print at the crime scene, then remove it from the crime scene using lift tape. The samples are sealed and brought to the lab, where they are put into a mass spectrometer that scans the print with a laser. As the machine pans the surface, it vaporizes and ionizes the particles in the powder and molecules in the fingerprint residue, enabling the machine to detect molecular profiles in the residue.

Depending on the level of compounds in the secretions left in the print, the machine can detect not only the sex of the person but whether whomever left the print had consumed drugs like cocaine, marijuana, heroin, or methamphetamine; smoked or chewed nicotine; or had touched a gun or explosives. What’s more, the company says they can detect all this information up to a month after a fingerprint has been left—and they’re testing for the ability to read prints left as long as a year ago.

This might seem like a wonderful method for law enforcement agencies, not having to get consent for DNA testing, rummage through databases and lose evidence on the suspect if arriving to them too late. But there is a cost to a test being less invasive: It doesn’t require someone’s permission to be conducted. Civil liberties advocates fear that our rights could be violated without us even realizing it – with a test whose accuracy is not yet known.



# SHAME ON DENMARK

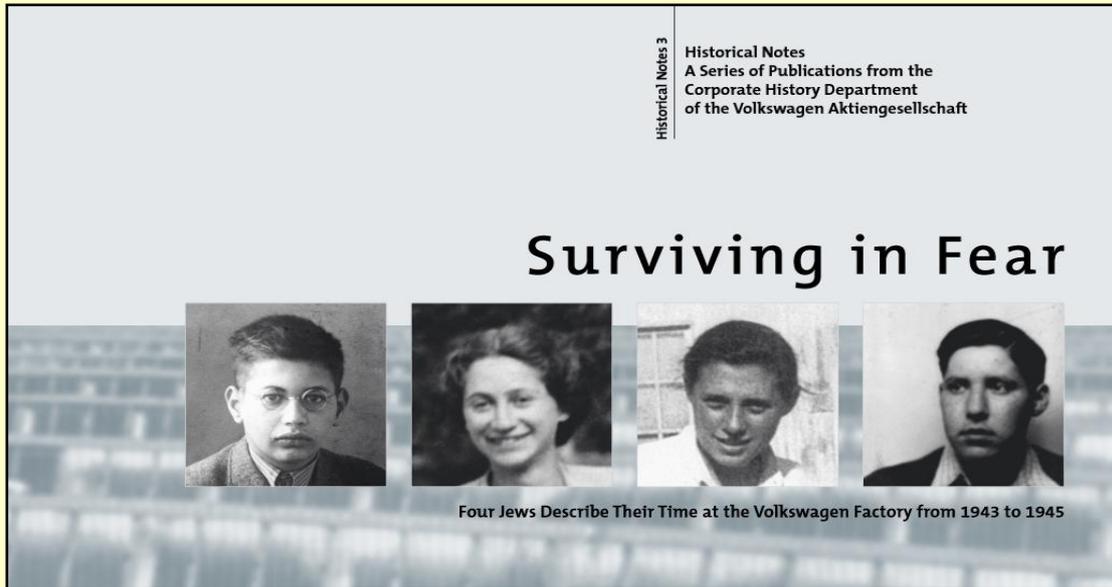


**Shame on the Parents...**



### VW – Surviving in Fear

Source: [http://www.volkswagenag.com/content/vwcorp/info\\_center/en/publications/2013/07/HN\\_11.bin.html/binarystorageitem/file/VWAG\\_HN3\\_Surviving\\_in\\_Fear\\_2013.pdf](http://www.volkswagenag.com/content/vwcorp/info_center/en/publications/2013/07/HN_11.bin.html/binarystorageitem/file/VWAG_HN3_Surviving_in_Fear_2013.pdf)

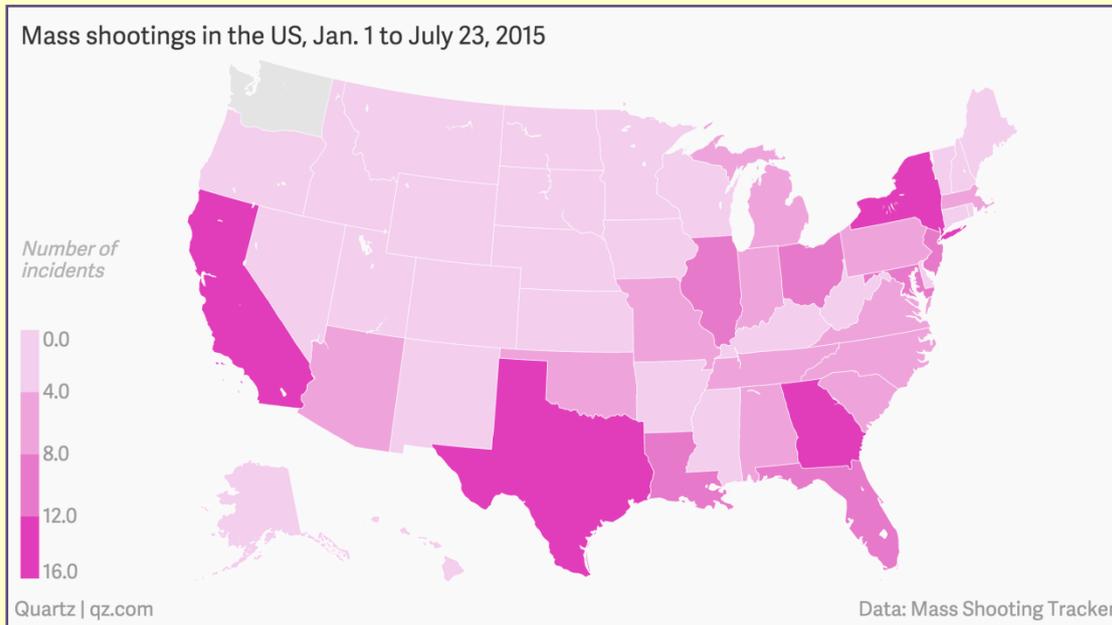


### Mass shootings since Sandy Hook, in one map

Source: <http://www.terrorismwatch.org/2015/10/mass-shootings-since-sandy-hook-in-one.html>

In December 2012, a gunman walked into Sandy Hook Elementary School in Newtown, Connecticut, and killed 20 children, six adults, and himself. Since then, there have been at least 986 mass shootings, with shooters killing at least 1,234 people and wounding 3,565 more.

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The counts come from the [Mass Shooting Tracker](#), a crowdsourced database that tracks shootings since 2013 in which four or more people were shot. As with any crowdsourced database, it's likely missing some shootings, and some of the shootings are missing details.



Vox's Soo Oh created an interactive map with data from the Mass Shooting Tracker. It shows the mass shootings tracked in the database that have been verified with news reports since the Sandy Hook shooting:

**274 days, 294 mass shootings**

Number of mass shootings (4+ victims, including shooter) by day of year, 2015



WAPQ.ST/WONKBLOG

Source: Mass Shooting Tracker

Are these types of shootings increasing? It depends on which definition you use.

Using the definition many people operate under — shootings at a public place in which the shooter murdered four or more people, excluding domestic, gang, and drug violence — they appear to be getting more common, according to an [analysis](#) from Harvard School of Public Health researchers.

But not everyone agrees with this definition. Northeastern University criminologist James Alan Fox, for example, defines mass shootings as any shooting in which at least four people were murdered. Under those terms, mass shootings don't appear to be increasing. Researchers from the Harvard School of Public Health call that definition too broad, since it catches domestic, gang, and drug-related shootings that aren't usually considered mass shootings in layman's terms.

But the Mass Shooting Tracker is even broader — counting not just shootings in which four or more people were murdered, but shootings in which four or more people were shot at all. The database's organizers explained their reasoning on their website: "For instance, in 2012 Travis Steed and others shot 18 people total. Miraculously, he only killed one. Under the incorrect definition of mass shooting, that event would not be considered a mass shooting! Arguing that 18 people shot during one event is not a mass shooting is absurd."

Even under this broader definition, it's worth noting that mass shootings make up a tiny portion of America's firearm deaths, which total [more than 32,000](#) each year. And the US

has way more gun violence than its developed peers: According to UN data compiled by the Guardian's Simon Rogers, the US had 29.7 firearm homicides per 1 million people in 2012, while Switzerland had 7.7, Canada had 5.1, and Germany had 1.9.

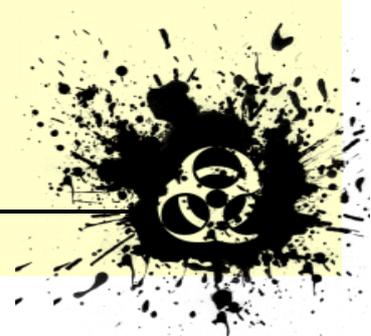
But why does the US have so many more gun homicides than other advanced countries? One possible explanation: Americans are much more likely to own guns than most of the world — the US makes up about 4.4 percent of the global population, but owns 42 percent of the world's civilian-owned guns. And the empirical research shows places with more guns have more homicides.

Criminal justice experts widely recognize this is a result of cultural and policy decisions that have made firearms far more available in America than in most of the world. For the US, that means not just more mass shootings — but more gun violence in general.

**'Another mass shooting in America': Oregon killings a grim familiarity for US**

Source: <http://www.theguardian.com/us-news/2015/oct/01/oregon-umpqua-community-college-shooting>

Oct 02 – The US is reeling from another school shooting, the 45th this year, after a 26-year-old gunman murdered as many as nine people and wounded seven more at a community college in Oregon before he was killed.



The gunman was named as Chris Harper Mercer, a 26-year-old man who lived near Umpqua college in the rural town of Roseburg.

He is thought to have been born in England before moving to the US as a young boy.

Investigators were focusing on reports from survivors that Mercer told students to state their religion before he opened fire.

The police were also looking at reports that hours before the attack he posted messages on an internet chat site warning people to stay away from school.

Investigators said they were attempting to trace people on the site who discouraged him while others urged him on. It does not appear anyone reported the messages to the authorities before the shooting.

CNN reported that four guns were recovered at

has about 3,000 registered students but only a few hundred attend full-time.

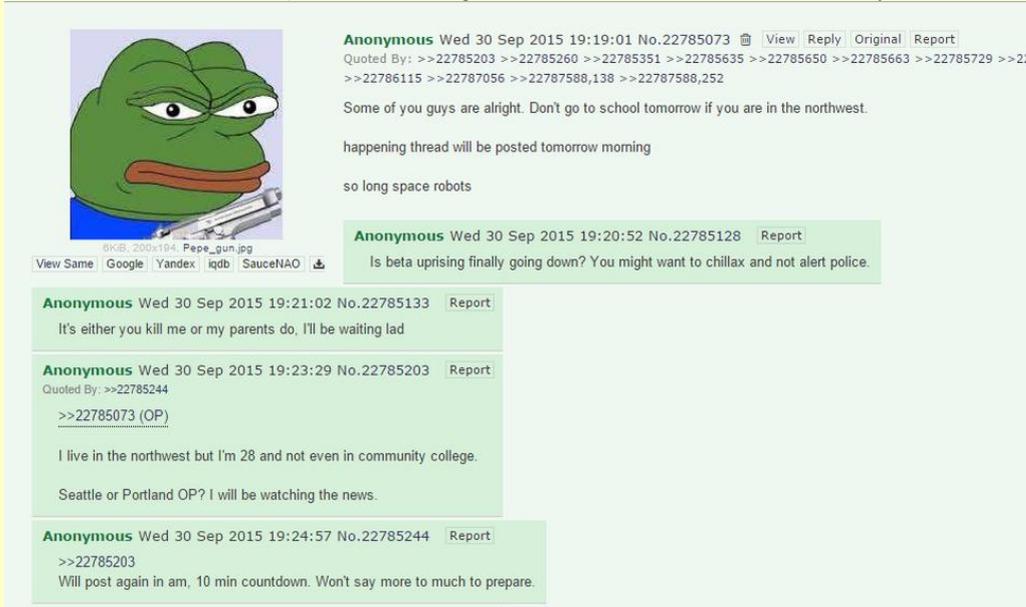
The gunman's father, Ian Mercer, said he was



“just as shocked as everybody” at his son's actions. Speaking from his home in the US, he told reporters: “I've just been talking to the police and the FBI and all the details I have right now is what you guys [reporters] have already.

“I can't answer any questions right now, I don't want to answer any questions right now. It's been a devastating day, devastating for me and my family. Shocked is all I can say.”

Hours after the killings, President Obama clearly agitated at making his 15th statement on shootings since taking office, said: “There's been another mass shooting in America” and spoke of the country being



the scene of the killings. Initial reports said 20 people were wounded alongside those who died although this number was later revised downwards.

It was not immediately known how many students were on campus at the time. The community college, which mostly provides adult education to students in their late 20s,

numbered by the repeated massacres. “As I said just a few months ago and I said a few months before that and each time we see one of these mass shootings, our thoughts and prayers are not enough. It does nothing to prevent this carnage being inflicted some place in America,



next week or a couple of months from now,” the president said. “Somehow this has become routine.”

Since Obama’s reelection in November 2012 there have been 993 mass shooting events in the United States, not including Umpqua. Almost 300 of them have occurred in 2015.

Kortney Moore, 18, told the News Review in

Mercer was cornered in a hall by a police officer who reported exchanging shots with the man. “Suspect is down,” he told the 911 dispatcher. “He’s not breathing, is in Snyder hall.”

A couple minutes later, the officer told the dispatcher: “We’ve got multiple gunshot wounds. We’re going to need multiple ambulances on scene.”

Mercer had been living at an apartment complex in nearby Winchester. Yellow police tape surrounded the building on Thursday night.

A neighbour, Bronte Hart, said Mercer lived upstairs and would “sit by himself in the dark in the balcony with this little light”. She said a woman she believed to be Mercer’s mother also lived upstairs.

It was not clear whether Mercer had been a student at Umpqua college although a listing from a Noel Coward play that had been staged there had his name posted as an assistant with the production.

His stepsister, Carmen Nesnick, told CBS Los Angeles that he travelled to the US as a young boy. Other accounts report that Nesnick specified that

**Spiritual Passions**

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**IRONCROSS45**

**Information Listing**

**The Red Room**  
Looking for someone who shares my beliefs, and is similar to me.

**About Me** (My Interests / Hobbies / Descriptions)

Hobbies & Interests	internet, killing zombies, movies, music, reading
Body Type	average, fit
Movies	sci-fi, drama, horror, romantic comedy, comedy
Orientation	straight
Eye Color	brown
Hair Color	dark brown
Ethnicity	Mixed Race
Relationship	single, single - never married
Have Kids	no - do not want kids
Education Level	currently in college
Income level	Less than \$25,000
Do you smoke?	no - open to dating smokers though
Do you drink?	no, teetotaler
I currently live	with parents
Socially, I am	shy at first, but warm up quickly, better in small groups
Political Views	conservative, republican
Food Related	Always Dieting, BRAINS!!!
Personality	lover, conservative, professional, intellectual, introvert
Religious Views	Not Religious, Not Religious, but Spiritual
Drugs	never
I'm looking for	romance, soulmate, conversation, miss right now, the yin to my yang, dating, penpal, friends only, relationship, miss right
My Sign	leo : july 23-aug. 22
Gender	Male
Music	Industrial, Punk, Rock
Hair Style	shaved head, short hair
Fitness & Sports	working out, aerobics, weightlifting

Groups: [Doesn't Like Organized Religion](#) ; [Left-hand Path](#) ; [Magick and Occult](#) ; [Meditation](#) ; [Not Religious, But Spiritual](#)

Roseburg she was in her writing class when a bullet came through a window and hit her teacher in the head. She said Mercer then ordered students to stand and state their religion before opening fire. Moore said she was left lying on the floor with people who were shot.

Other survivors spoke of not hearing a shot as he moved from room to room through the campus of 16 buildings with the classrooms in a horseshoe next to the Umpqua river. Marilyn Kittelman’s son was in the building next to the science block where the initial shooting occurred.

“He said there was no sound. There were some 30 shots and no sound. He was pretty surprised,” she told CNN.

Mercer was born in England.

At the Douglas County fairgrounds, families waited along with grief counsellors and a large international media contingent for students, who were being bused from the campus.

Heather Alvers, a UCC student, was waiting to give survivors free trips home. She was on her way to campus when police stopped her. Most of her friends were confirmed safe but, she said, “the community is devastated”.

Alvers said that rumours and confusion had taken the place of facts for most of the day, and “some people were still locked down on campus”. She had been here for hours, while “hundreds and hundreds” of evacuees came through. Like



everyone else, all she could do was wait. Oregon’s governor, Kate Brown, spoke of her “profound dismay and heartbreak” at the killings. Douglas County commissioner Chris Boice learned of the shooting when one of his staffers “got a phone call from her daughter who was on campus, and the shooting was happening at that point”.

“I ran down the hall called the sheriff on his cellphone. He was en route to the incident,” said Boice. “We’re a tight-knit community and everybody knows everybody. We’re going to be heavily impacted by this and I can’t imagine what those families must be feeling right now.”

**Exasperation from Obama**

Obama blamed the failure to pass gun control measures after earlier mass killings for having to make yet another address to the nation after yet another tragedy. He expressed frustration that countries such as Britain and Australia have been able to pass legislation that largely

“Yet we have a Congress that explicitly blocks us from even collecting data on how to reduce potential gun deaths. How can that be?” he said.

Obama appealed to voters to elect politicians committed to strengthening gun control and to gun owners to ask themselves whether organisations such as the National Rifle Association, which pour large amounts of money into lobbying against restrictions, are really serving the interests of those who use weapons for sport and hunting.

The kind of opposition the president faces comes from county sheriff John Hanlin, who was at the scene of the killings and spoke movingly of the impact it would have on families he is close to. But in 2013 he wrote to the vice-president, Joe Biden, saying he would not enforce “unconstitutional” laws to restrict ownership.

“Gun control is NOT the answer to preventing heinous crimes like school shootings. And



prevents such tragedies.

“Right now I can imagine the press releases being cranked out. We need more guns, they’ll say. Fewer safety laws. Does anybody really believe that?”

The president called for news organisations to compare the number of Americans killed by terrorism over the past decade with the number who died in gun violence. He noted that the US spends trillions of dollars and has passed myriad laws to protect people from terrorism.

actions against, or in disregard for our US Constitution and 2nd Amendment rights by the current administration would be irresponsible and an indisputable insult to the American people,” he wrote.

Guns can be carried openly in Oregon. The police in Portland sometimes get calls from alarmed citizens who spot a person with a semiautomatic weapon walking through the city only to be



informed that is legal. The state issues permits to carry concealed weapons as a matter of routine but, unlike many states, requires a mental health check.

Gun laws were tightened earlier this year by requiring background checks on private gun sales to bring them in line with weapons sold through gun shops.

“We have an obligation to protect Oregonians from gun violence,” Brown said before signing the legislation. “If we want to keep our kids, schools and communities safe, we must make it harder for dangerous people to get guns.”

There were immediate calls for strengthened gun control, including from the Democratic presidential candidate, Hillary Clinton.

Everytown for Gun Safety, a group funded by the billionaire former mayor of New York, Michael Bloomberg, noted that the Umpqua college killings were the 45th school shooting this year in the US, and the 142nd school shooting since the attack at Sandy Hook elementary school, in Connecticut, nearly three years ago.

“America is the only developed country where when someone asks if you heard about that campus shooting, you have to clarify: ‘Which one?’ That is unacceptable,” said Colin Goddard, a survivor of the 2007 Virginia Tech shooting and an Everytown advocate. “Something has to change. We need to all come together for the Umpqua families today.”

## **The Global Migration Crisis**

**By Brett Daniel Shehadey**

*Special Correspondent for In Homeland Security*

Source: <http://inhomelandsecurity.com/the-global-migration-crisis/>



The 21<sup>st</sup> century will be a trying time for geopolitical boundaries and ‘ethno-nationalist’ sentiment clashes. As a result of borders around the world quickly being redrawn and vast groups of peoples migrating out of violent crashes, migration becomes a controversial centerfold issue in foreign affairs. The clash of civilizations is further squeezed together abruptly by temporal ages of conflicts from terrorism to drugs to rampant corruption and disparity.

The British and French governments have both warned of the Global Migration Crisis. Their

point is that a “Global Migration Crisis” requires a “global” response. Right now, they are seeking greater participation from member states in the region to combat illegal immigration into Europe. Asylum seeker applicants alone numbered over 600,000 in 2014. Many of these are denied because they are fraudulent or not applicable for asylum. Such people are unauthorized if they have ventured across foreign soil illegally and then apply. In some areas, they are seeing

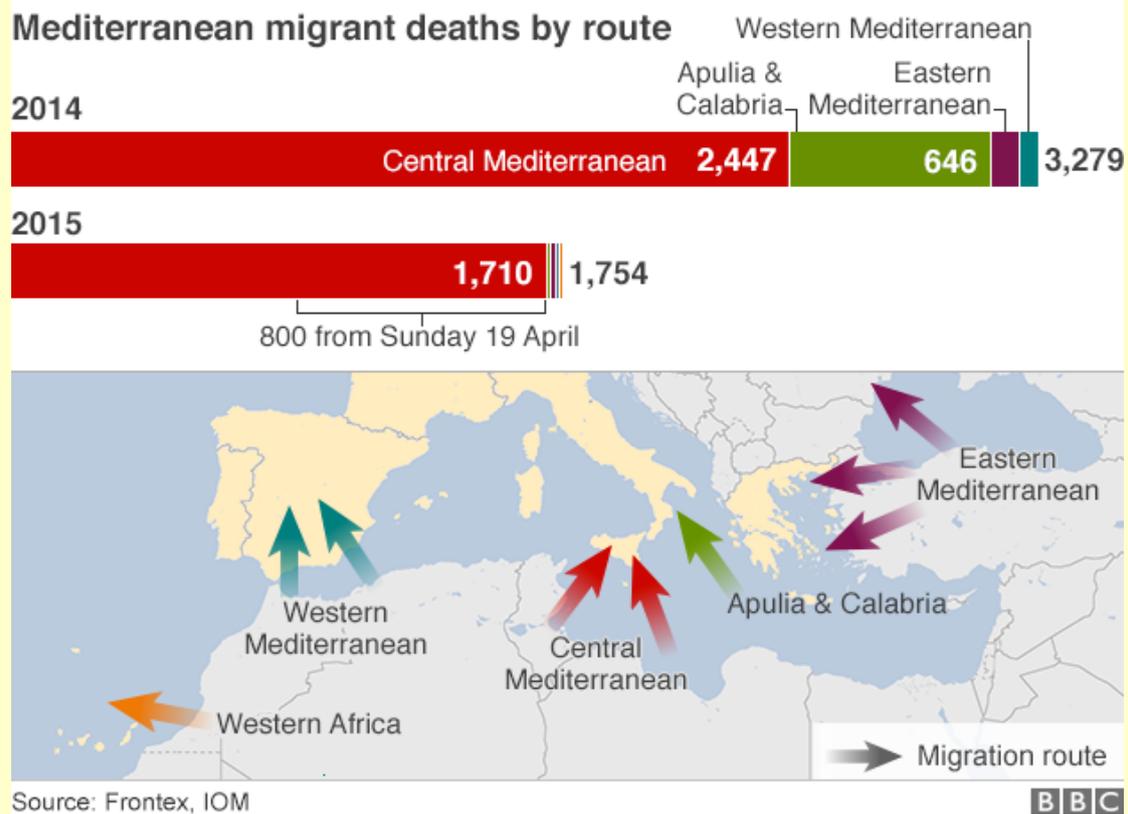


illegal migration figures rise 200 percent. In Calais, France, a self-made camp created by illegal migrants after the closer Sangatte refugee camps to riots in 2001-20002 now has an estimated over 3,000 migrants. Many with Britain as their final destination, attempt to stowaway or disrupt the Channel Tunnel trains. British Prime Minister David Cameron once referred to the migrants at Calais as a "swarm." British Home Secretary Theresa May and French Minister of Interior Bernard Cazeneuve are seeking ways to discourage migrants from believing that Britain's streets are "paved with gold." The U.S. Customs and Borders have done something similar with an awareness program called "Know the Facts." It is broadcasted on radios of select countries, along with a website and announcements with the intention of informing potential migrants from crossing the border illegally and believing they will not be detained and deported; and

Europe faces incoming waves of migrants on two major fronts: from African (mainly North African) and Asia (the Middle East). Britain and France are leading a charge to wake Italy, Greece, and other European states up to this imperative and to stop the flood of immigrants into Europe. Germany's elected government is taking a more 'open arms' approach in opposition to rivals.

**Migration to Europe: Out of Control**

Aside from out-of-control illegal African migration to Europe, in Germany, Chancellor Angela Merkel is battling far-right activists challenging loose asylum rules to inciting rallies and crimes against an incoming flow of immigrants from the Middle East. They are expecting fewer than one million refugees from Syria, Iraq and other Middle East states this year. This does not include the often unwelcome Turkish migrant workers to



also clarifying President Barack Obama's de facto amnesty as strictly for internal illegal immigrants already in the U.S. – and not future illegal migrants attempting to enter. Disincentives, lowering asylum cash allowances and disrupting smugglers have become a priority for Britain and France.

Germany or illegal African newcomers. Merkel visited a political asylum facility in Heidenau, Germany amidst protests, riots and attacks on immigrants there. In Hungary, after the highest one day wave of illegal migrants from Serbia crossed the border, the



government is sending in the army, mounted police, helicopters and dogs to hunt the illegals down. This is in addition to the border guards and the three layers of 174 km razor-wire fence shared on the Hungary-Serbia border. They camp out along the fence, dig holes and illegally sneak in. These migrants are escaping war and poverty. Their destination is actually not Hungary itself but wealthier European states with liberal political asylum laws. They are emigrating out of the Middle East and going through Turkey, Greece and the Balkans.

It is a perilous journey with no guarantees. But anything is worth the risk than the war-torn place they are leaving or the stagnant refugee camps they may have been held in for several years. They are frustrated with the registration process (e.g. Roszke, Hungary) and are causing unrest. The same is happening along the route from the Middle East which is rapidly causing reactions in Europe.

Even Sweden is having to boost up security measures in response for large inflows of refugees and a murder from two residents at an asylum center there. Two homeless residents were shot as they slept in a car near Boden earlier in the month.

Nils Muiznieks, the Council of Europe's Commissioner for Human Rights, tweeted in regards to Hungary's decision to beef-up security using the army that: "...militarization of borders is [the] wrong answer to migration. It is urgent to adopt a European response, which ensures access to asylum and humane reception conditions."

This is the central debate in the 21<sup>st</sup> century. Reinforcing the borders with heavier military presence in response to increased illegal migration or easing restrictions and softening rules of illegal entry. What is often ignored, however, is the presence of a weaker, poorer and even troubled regimes on the borders of more successful and resourceful states.

What does this all mean? The free flow of people is a universal civil right in international law; however, only when permissible after the filters of protectionist and sometimes racist national laws.

Middle East and African migration to Europe mostly face region-spreading civil wars, jihadists, genocide, hunger, poverty and political oppression. Mexican and Latin American Migration to the U.S. involve: political

oppression, imbedded corruption, drug wars and a highly competitive low-skilled labor market; moreover, they are primarily looking for safety and opportunity.

### **Immigration: Top Issue for Election 2016**

In the U.S., the Republican Party is placing immigration as a top issue. This is a radical shift from President Barack Obama's protecting millions of illegal immigrants residing in the U.S. from deportation by non-enforcement. Political positions from the right are now aggressively targeting illegal immigrants already inside and future illegal entry into the U.S. is increasing as a political reactionary outlet.

From a sociological perspective, one must consider the real basic causes. First consider the flows of Mexican migrants to be based primarily on population density and condition. Think higher concentration always moves to a lower concentration from physics class.

Mexico is a population dense nation in With a total population of 224 million people but only 762,000 square miles in territory versus the U.S. with 355 million people and 3.8 million square miles. In other words, Mexico has two thirds of the U.S. population and little over one fifth of the land. That means less natural resources, more competition and so forth. All of which lead to migration.

The next feature in natural human migration patterns is based on out-country condition. Mexico is undergoing a massive plight of instability, violence, corruption and dearth of safety and opportunity. Although Mexico's unemployment rate is low (i.e. officially 4.5 percent) many argue that is based on migration and migrant workers programs. But the conditions are much worse than finding a job: finding a job, being safe and making money are two different things.

### **The Mexico Factor**

During the Mexican Drug Wars, since 2006 alone, over 120,000 people have been killed, more than 30,000 missing and hundreds of thousands of people displaced. Mexican drug cartels also control around 90 percent of cocaine shipping into the U.S., not including other types of drugs. Even when one's life is



not in immediate danger, it is always in constant fear.

The average Mexican income is only around \$13,000 while in the U.S. the average American income is around \$50,000. This includes vast disparities in income but acts a gauge of basic comparison and incentive.

The next most important category is the destination country itself. America is the most



prosperous nation on earth and in human history. And it is close by. It is orders of magnitude safer and then there is the reality of opportunity and the American Dream. Compared to Mexico or any country in the Western Hemisphere, America is a first choice destination state. Opportunities equal more money. More money equals a chance at a better and more comfortable life.

Why not go through the formal process? One reason is limit caps. The immigration demand is estimated to be ten times that of the formal allowance. The number of low-skilled workers is capped at 66,000 for non-agrarian temporary guest workers obtaining an H-2B. There is no cap for H-2A temporary agrarian visas. Arguably, most want to live here and not just have to work and leave; and many of those that enter as guests decide to stay past the legally allotted times. An argument could be made that there is still a demand for low-skilled jobs needed by foreign workers and that if such visas were increased to match the level of supply coming in illegally, there would be few issues; especially, since they would be vetted for criminal backgrounds.

The last factor on the U.S. side of the border since 1942 has been the policy and habit of

hosting needed large-scale programs and granting incentives to Mexican immigrants. The Bracero program during World War II to fill the worker shortage but lasting until 1964. After Bracero, there were large liberties taken in the areas of attracting migrant workers to fill the needs of American farmlands and less so industry in order to increase their productivity and maintain low wages. In other words, when

Americans at the time were unavailable or were moving up in a booming economy through the 1950s and migrating internally, foreign workers were filling the void and taking increasingly lesser interesting and lower-skilled jobs.

American political parties each appear to be polarized into a camp of hard enforcement measures on criminal immigration penalties or greater acting humane enforcement and

amnesty. Mexico plays down its internal threats for political stability and shuns State Department officials and other agencies for revealing damaging figures. Tourism is a big industry, for example, in Mexico. It must appear as if everything is all right. Former President Vicente Fox called the unauthorized migrants to the U.S. "heroes," because they bring needed monies back to Mexico by sending it to extended families and friends. It is a common sentiment of the Mexican people and their leaders.

On the other side of the border, the Mexican Drug War is a top priority and American politicians are willing to compromise with Mexico that might jeopardize cooperation against cartels and the issue of Mexican stability. It is easier to keep Mexico afloat than to deal with the heart of the on-going U.S. migration crisis. But it may be that times are changing fast for America. Maybe American citizens need to fall back on low-skilled jobs that they out of necessity could or should be doing. Maybe America is not as industrious as it used to be and the low-skilled workers from Mexico are no longer needed.



In any case, Americans should become more educated on the topic and not just ask “how” but “why” Mexican migration is so strong. The reality of human migrant flows acting as a law

of human social nature comes face to face with nationalism and also the protections of cultural identity and purity as well.



## Six easy ways to tell if that viral story is a hoax

By Pete Brown

*Research Fellow, University of Oxford*

Source: <http://theconversation.com/six-easy-ways-to-tell-if-that-viral-story-is-a-hoax-47673>

Sept 18 – **“And so it begins ... ISIS flag among refugees in Germany fighting the police,”** blared the headline on the Conservative Post; “with this new leaked picture, everything seems confirmed”. The image in question purported to show a group of Syrian refugees holding ISIS flags and attacking German police officers.



For those resistant to accepting refugees into Europe, this story was a godsend. The photo quickly spread across social media, propelled by far-right groups such as the English Defence League and Pegida UK. At the time of writing, the page claims to have been shared over 300,000 times.

The problem is, the photo is three years old, and has precious little to do with the refugee crisis. In fact, it seems to be from a confrontation between members of the far-right Pro NRW party and muslim counter-protesters, which took place in Bonn, back in 2012. A number of news outlets tried to highlight the hoax, including Vice, the Independent and the Mirror, as did numerous Twitter users.

But news in the digital age spreads faster than ever, and so do lies and hoaxes. Just like retractions and corrections in newspapers, online rebuttals often make rather less of a splash than the original misinformation. As I have argued elsewhere, digital verification

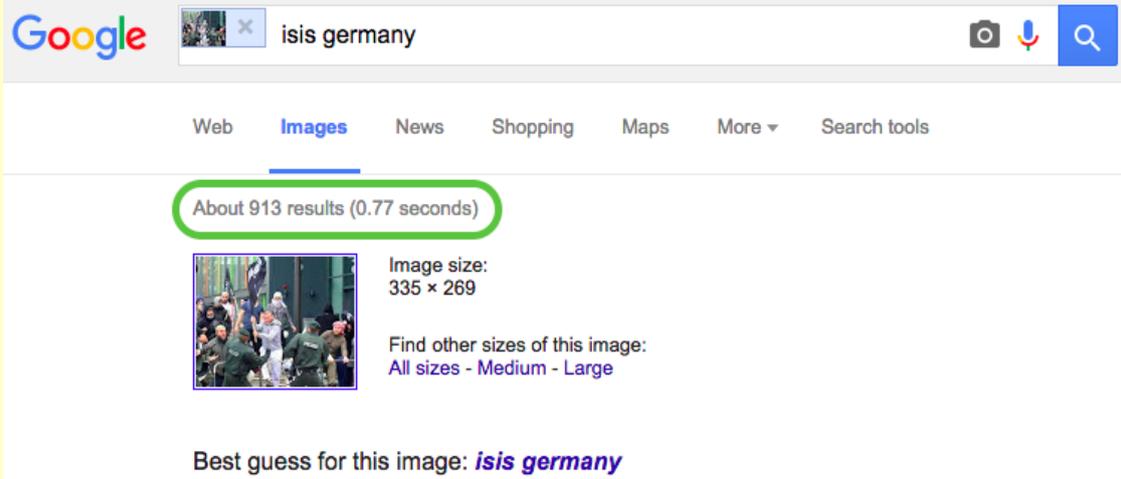


skills are essential for today's journalists, and academic institutions are starting to provide the necessary training.

But ordinary people are also starting to take a more sophisticated approach to the content they view online. It's no longer enough to read the news – now, we want to understand the processes behind it. Fortunately, there are a few relatively effective verification techniques, which do not require specialist knowledge or costly software. Outlined below are six free, simple tools that any curious news reader can use to verify digital media.

### Reverse image search

Not only is a reverse image search one of the simplest verification tools, it's also the one that showed the "leaked" ISIS refugee photo was a fake. Both of the most popular services, Google Images and



[TinEye](#), found pages containing this image dating back to mid-2012. As the screenshot below shows, the "ISIS refugee" story could be debunked in less than a second.

When a link to the story was posted to Reddit, sceptical users swiftly took to Google to query it. Soon, one reported back: "Google Image Search says the photo is from 2012".

### YouTube DataViewer

When watching the latest viral video on YouTube, it's important to be on the look-out for "scrapes": a scrape is an old video, which has been downloaded from YouTube and re-uploaded by someone who fraudulently claims to be the original eyewitness, or asserts that the video depicts a new event.

Amnesty International has a simple but incredibly useful tool called [YouTube DataViewer](#). Once you've entered the video's URL, this tool will extract the clip's upload time and all associated thumbnail images. This information – which isn't readily accessible via YouTube itself – enables you to launch a two-pronged verification search.

If multiple versions of the same video are hosted on YouTube, the date enables you to identify the earliest upload. This is most likely to be the original. The thumbnails can also be used in a reverse image search to find web pages containing the video, offering a quick and powerful method for identifying older versions or uses of the same video.

### Jeffrey's Exif Viewer

Photos, videos and audio taken with digital cameras and smartphones contain Exchangeable Image File (EXIF) information: this is vital metadata about the make of the camera used, and the date, time and location the media was created. This information can be very useful if you're suspicious of the creator's account of the content's origins. In such situations, EXIF readers such as [Jeffrey's Exif Viewer](#) allow you upload or enter the URL of an image and view its metadata.



Below is the EXIF data of a photograph I took of a bus crash in Poole in August 2014. It's very comprehensive; had I claimed the photo was taken, say, last week in Swanage, it would be very simple

### Basic Image Information

Target file: IMG\_0150.JPG

Camera:	Apple iPhone 4S
Lens:	iPhone 4S back camera 4.28mm f/2.4 Shot at 4.3 mm
Exposure:	Auto exposure, Program AE, 1/132 sec, f/2.4, ISO 50
Flash:	Auto, Did not fire
Date:	<b>August 29, 2014</b> 12:40:20PM (timezone not specified) (1 year, 18 days, 20 hours, 21 minutes, 27 seconds ago, assuming image timezone of US Pacific)
Location:	Latitude/longitude: <b>50° 41' 9.2" North, 1° 56' 33.8" West</b> ( 50.685875, -1.942717 )  Location guessed from coordinates: <i>40 Banks Rd, Poole, Poole BH13, UK</i>  Map via embedded coordinates at: <a href="#">Google</a> , <a href="#">Yahoo</a> , <a href="#">WikiMapia</a> , <a href="#">OpenStreetMap</a> , <a href="#">Bing</a> (also see the Google Maps pane below)  Altitude: 11 meters (36 feet) Camera Pointing: Northeast
File:	<b>3,264 × 2,448 JPEG (8.0 megapixels)</b> 2,971,193 bytes (2.8 megabytes)
Color Encoding:	<b>WARNING:</b> Color space tagged as sRGB, without an embedded color profile. <b>Windows and Mac browsers and apps treat the colors randomly.</b>  Images for the web are most widely viewable when in the sRGB color space and with an embedded color profile. See my <a href="#">Introduction to Digital-Image Color Spaces</a> for more information.

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to disprove. It is worth noting that while Facebook, Instagram and Twitter remove EXIF data when content is uploaded to their servers, media shared via platforms such as Flickr and WhatsApp still contain it.

### FotoForensics

[FotoForensics](#) is a tool that uses error level analysis (ELA) to identify parts of an image that may have been modified or "photoshopped". This tool allows you to either upload, or enter the URL of a suspicious image and will then highlight areas where disparities in quality suggest alterations may have been made. It also provides a number of sharing options, which are useful for challenging the recirculation of inaccurate information, because they allow you to provide a direct link to your FotoForensics analysis page.



**WolframAlpha**

[WolframAlpha](#) is a “computational knowledge engine”, which allows you to check weather conditions in at a specific time and place. You can search it using criteria such as “weather in London at 2pm on 16 July, 2014”. So if, for example, a photo of a freak snowstorm has been shared to your timeline, and WolframAlpha reports that it was 27 degrees and clear when the photo was purportedly taken, then alarm bells ought to be ringing.

The screenshot shows the WolframAlpha interface with the search query "Weather in London at 2pm on 16 July 2014". The results are as follows:

**Input interpretation:**

weather	London
	2:00 pm BST   Wednesday, July 16, 2014

**Recorded weather for London:**

time range	2:00 pm BST   Wednesday, July 16, 2014
temperature	27 °C
conditions	clear
relative humidity	40%
wind speed	7 mph

**Weather history:**

Temperature:

**Online maps**

Identifying the location of a suspicious photo or video is a crucial part of the verification process. Google Street View, Google Earth (a source of historical satellite images) and [Wikimapia](#) (a crowd-sourced version of Google Maps, featuring additional information) are all excellent tools for undertaking this kind of detective work.

You should identify whether there are any reference points to compare, check whether distinctive landmarks match up and see if the landscape is the same. These three criteria are frequently used to cross-reference videos or photos, in order to verify whether or not they were indeed shot in the location the uploader claims.



Google Earth, in particular, has been put to incredible use use by Elliot Higgins AKA Brown Moses, of [Bellingcat](#) – a site for investigative citizen journalism.

**EDITOR'S COMMENT:** This is a very interesting article! I also used the photo with German Police in the cover of "Upcoming Events" for Sept 2015 issue of the Newsletter. Now I know better how to look for actual photos although the topic of the photo is not far from coming reality in our neighbor.

## Rio Olympics security force doubles that of London games

Source: <http://www.dw.com/en/rio-olympics-security-force-double-that-of-london-games/a-18619436>

July 2015 – Organizers of the 2016 Olympics in Rio de Janeiro say they'll have more than double the number of security personnel as London had at the previous games. Pollution in Brazil has also been under the microscope.

At an event held Thursday to mark 53 weeks until South America's first ever Olympic Games, Rio's security secretary Andrei Passos Rodrigues said a total of about 85,000 people would be deployed to assist with security, from security guards and law enforcement to military troops.

"It will be the biggest integrated operation in the history of our country," Rodrigues told reporters.

**Included in the line-up are some 47,500 members of the paramilitary police and other security forces in Rio itself, while security in the five other cities hosting Olympic football matches will be provided by 38,000 troops.**

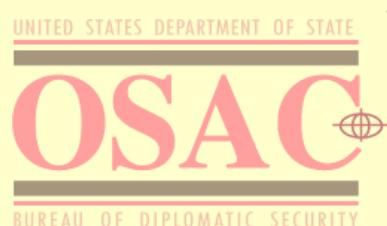
**At the 2012 Olympics held in London 40,000 security personnel were used, including 18,000 troops.**

Brazil has one of the world's worst crime rates with an estimated 52,000 murders a year. However, the country also has experience in policing major events in recent years, including the 2014 Football World Cup and a 2013 visit by Pope Francis.

**EDITOR'S COMMENT:** Just another proof supporting the idea of "Security Olympic Games" – more security forces, more money for security! And still not a word about new emerging threats and Olympic preparedness issues...

## Brazil 2015 Crime and Safety Report: Rio de Janeiro

Source: <https://www.osac.gov/pages/ContentReportDetails.aspx?cid=17164>



The State Department divides its roles and responsibilities in Brazil between four Consular Districts (one for the Embassy and each of the three Consulates). This Crime and Safety Report focuses on U.S. Consulate General Rio de Janeiro's district, which is comprised of the states of Rio de Janeiro, Espirito Santo, Minas Gerais, Bahia, and Sergipe. For more information regarding the security environment in other areas of Brazil, please reference the OSAC Crime and Safety Reports from: Brasilia, Sao Paulo, and Recife.

**Crime Rating: Critical**  
**Crime Threats**

Crime is a major concern, especially in the larger cities. The police and the press report that crime is becoming more widespread. Street crime is a problem especially in the evenings and late at night. In Rio, robbery, assault, burglary and theft are concerns for foreigners and Brazilians alike. Criminals are determined and sophisticated, which requires visitors to be alert to their surroundings. Violent crimes (murder, kidnapping, carjacking, armed assault, and burglary) occur regularly. The consolidation of power among a few large criminal gangs has led to a



decrease in gang-on-gang violence; however, this has resulted in an increased focus on civilian targets. Many criminals use weapons and often gratuitous violence.



Most residential properties, especially single family homes, utilize security alarm systems. These systems are monitored by local security companies who respond along with local police. Some neighborhoods employ static guard posts to monitor activity on the streets adjacent to their homes. Larger properties and commercial sites generally employ 24/7 security guard services. Foreign visitors may be susceptible to targeting for certain crimes in part because visitors may be less likely to file a police report and/or return to testify at criminal proceedings

should perpetrators be apprehended by police.

Reports of cargo theft, from both overland shipments and from storage facilities, occur frequently.

Organized crime in Rio is controlled by major drug gangs, operating mainly in the favelas. The crime in Rio's favelas is certainly a product of organized crime, mostly centered on narcotics trafficking. In Rio, a systematic "favela pacification program" has begun to bring favelas under government and police control. The security services secured the symbolically criminally-hardened Mare favela (which straddles two major traffic thoroughfares: Avenida Brasil and Linha Vermelha) and have occupied over 30 smaller favelas. There have been instances of large-scale gun battles in/around the favelas during some of the police operations. In addition, criminal elements located in certain favelas have specifically targeted police officers.

*Areas of Concern*

Caution is required when travelling at night through more rural areas and satellite cities due to the significant potential for roadside robberies.

Public transportation hubs, hotel sectors, and tourist areas have the highest crime rates.

It is recommended that American visitors to the tri-border area, to include Foz de Iguazu, remain especially vigilant and maintain a low profile.

**Transportation-Safety Situation**

*Road Safety and Road Conditions*

The surface conditions of the roads in Rio are generally acceptable. However, certain areas have major issues with pot holes, some of which, particularly during the rainy season, can cause significant damage to a vehicle's suspension system. Lighting, traffic signals and road markings vary from good to poor. Brazil uses automatic photo-ticketing systems to discourage speeding and tickets are mailed to the owner of the vehicle.

Road conditions outside of the main cities vary greatly. Accidents are always a concern outside of major cities.

*Public Transportation Conditions*

Avoid city buses and other public transportation. Many pass through high crime areas and are susceptible to robberies.

Only use legitimate, well-marked taxis.



*Aviation/Airport Conditions*

Airports countrywide inaugurated supplemental security measures, in part to thwart criminal activity targeting aviation facilities.

**Political, Economic, Religious, and Ethnic Violence****Political Violence Rating: Medium***Local, Regional, and International Terrorism Threats/Concerns*

There are no known indigenous terrorist groups operating in Brazil. Brazil is a non-aligned country with no significant enemies and is not targeted by any known radical groups.

**The tri-border area (where Brazil, Argentina, and Paraguay come together) is home to a large Arab community. To date, no incidents directed against official or non-official Americans have occurred in this area.**

**Terrorism Rating: Low***Civil Unrest*

Political violence in the form of protests occurs throughout Brazil -- especially in the capital and major cities. These protests are held for various reasons: work conditions, wages, the environment. While protests are generally non-violent, some have resulted in property damage and minor injuries. Protests tend to increase in numbers and intensity during visits from high-profile foreigners and coincide with major events.

There were extremely large protests in 2014 in Brasilia, Recife, Rio de Janeiro, and Sao Paulo. While the majority of these protests are peaceful, violence occasionally occurs. Visitors should avoid areas where large crowds are gathering or protests are on-going.

**Post-specific Concerns***Environmental Hazards*

Significant flooding does occur during the rainy season. Flooding, and associated mudslides, have become a serious problem in the state of Rio de Janeiro.

*Drug-related Crimes*

The major cities of Brazil experience the effects of persons addicted to illicit drugs. This includes criminal activity (street assaults and robberies) the proceeds of which are used to support their addictions. Brazil is the number two consumer of cocaine in the world, behind the U.S. As such, a large proportion of crimes have a nexus to narcotics.

*Kidnapping Threat*

"Quicknapping" is an ongoing criminal activity in which ATM users are kidnapped at gun point and taken to several ATMs to withdraw cash. Quicknapping is the current kidnapping trend in Brazil. Criminals abduct a victim for a short period of time, usually a Brazilian citizen, in order to receive a quick payoff from the family, business, or the victim's ATM card. However, all foreigners are vulnerable to this crime.

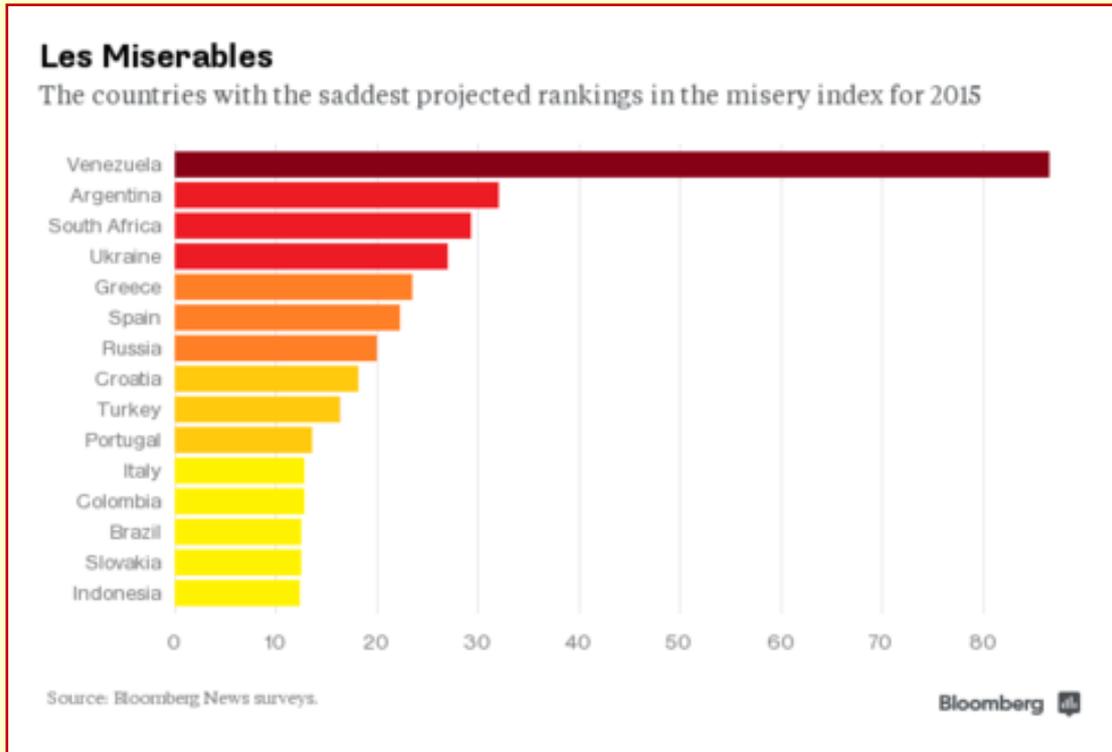
**The 15 Most Miserable Economies in the World**

Source: <http://www.bloomberg.com/news/articles/2015-03-02/the-15-most-miserable-economies-in-the-world>

Inflation is a disease that can wreck a society, Milton Friedman, the late Nobel laureate economist, once said. Add rising unemployment to the diagnosis, and his profession ascribes a rather non-technical term to the debilitating effect on people: misery.



That affliction this year will be most acute in Venezuela, Argentina, South Africa, Ukraine and Greece — the five most painful economies in which to live and work, according to Bloomberg survey data that make up the so-called misery index for 2015. (It's a simple equation: unemployment rate + change in the consumer price index = misery.)



In Ukraine's case, war will exact greater economic casualties. Tension with Russia-backed rebels will prolong joblessness in the eastern-European nation, and inflation won't offer much relief, the surveys showed. The one-two punch means Ukrainian consumers are set to be the fourth-saddest among 51 economies (including the euro area) based on forecasts for the misery measure.

Rank (Worst to Best)	Country	Misery Index	Major Contributing Factor
1	VENEZUELA	106.03	Consumer Prices
2	ARGENTINA	68.00	Consumer Prices
3	SYRIA	63.90	Unemployment
4	UKRAINE	51.80	Unemployment
5	IRAN	49.10	Unemployment
6	BRAZIL	42.79	Unemployment
7	SAO TOME AND PRINCIPE	42.06	Interest Rates
8	SERBIA	40.32	Unemployment
9	JAMAICA	39.85	Interest Rates
10	SOUTH AFRICA	39.16	Unemployment
11	SUDAN	38.71	Consumer Prices
12	MACEDONIA	36.53	Unemployment
13	KYRGYZSTAN	35.17	Interest Rates
14	BELARUS	34.81	Interest Rates
15	ARMENIA	34.45	Unemployment
16	SPAIN	34.32	Unemployment
17	PALESTINIAN TERRITORIES	33.50	Unemployment
18	EGYPT	32.72	Unemployment
19	GREECE	32.02	Unemployment
20	CYPRUS	31.55	Unemployment
21	BOSNIA AND HERZEGOVINA	31.22	Unemployment
22	TURKEY	29.72	Interest Rates

Adding to the agony is the relatively abysmal income growth that will fail to cushion Ukrainian households against the still-surging prices. At \$8,494 gross domestic product per capita this year, Ukraine only edges out the Philippines among the countries surveyed and measured with the International Monetary Fund's proxy for resident income.

2014 Misery Index

Unemployment probably will climb to 9.5 percent in Ukraine this year from its 8.9 percent rate as of the third quarter in 2014, the survey data show. Inflation is projected to rise at a 17.5



percent pace in 2015, compared with the 24.9 percent December year-over-year rate. The depressing expectations for Ukraine still aren't quite as bad as what the embattled nation faced in 2014, when it finished second in the misery index. The 2015 projections, dismal as they are, would make Ukraine bright enough to jump past South Africa and Argentina from last year's misery-index readings.

The three countries that will probably see the most economic misery in 2015 — South Africa, Argentina and Venezuela — haven't budged much from their 2014 rankings, when they occupied three of the top four spots, the data showed.

At 78.5 percent, the estimated CPI inflation rate in back-to-back, most-miserable Venezuela more than quadruples Ukraine's inflation rate. The dire shortage of basic goods in Venezuela last week prompted neighboring Trinidad & Tobago to offer a tissue paper-for-oil swap.

Five years after investors popularized the term "PIIGS" to describe a handful of European countries with bloated budget deficits, four of those five countries remain in dire straits, according to their projected misery indexes.

Greece is 5<sup>th</sup>, Spain is 6<sup>th</sup>, Portugal is 10<sup>th</sup> and Italy is 11<sup>th</sup> in this year's ranking, though each show about average projected income levels relative to survey peers. (Ireland happily sits further down the chain at No. 16 in the misery ranking and with a much-better-than-average GDP per capita of \$48,787. The 51 economies in our misery index average GDP per capita of \$31,079.)



**EDITOR'S COMMENT:** Greece jumped to 5<sup>th</sup> position from 19<sup>th</sup> position in 2014. Is there somebody to blame for this? For sure it is not the people...

So sad for a country with some of the best brains around the globe (but not in homeland). It seems that mental desertization is not the best soil for brain seeds to flourish and prosper.

**What people in 1900 thought the year 2000 would look like**  
 Source: [https://www.washingtonpost.com/news/wonkblog/wp/2015/10/04/what-people-in-1900-thought-the-year-2000-would-look-like/?tid=hybrid\\_experimentrandom\\_2\\_na](https://www.washingtonpost.com/news/wonkblog/wp/2015/10/04/what-people-in-1900-thought-the-year-2000-would-look-like/?tid=hybrid_experimentrandom_2_na)

## Talking Helmets and Robot Builders: The Army's Future of 3D Printing

Source: <http://www.defenseone.com/technology/2015/10/talking-helmets-robot-built-bases-army-peers-future-3d-printing/122551/?oref=d-river>

Oct 05 – If you go by the Hype Cycle — [Gartner's annual tech-buzz assessment](#) — then consumer 3D printing is about to tumble from the “peak of inflated expectations” into the “trough of disillusionment,” part of the coming five- to 10-year slog to the practical applications that await atop the “plateau of productivity.” But Larry “L.J.” Holmes, the principal investigator for materials and technology development in additive manufacturing at the U.S. Army Research Laboratory, (ARL) isn't waiting around for that.

In a presentation last month at the Intelligence and National Security Alliance summit, Holmes sketched out a variety of potential uses for 3D printing for the military, ranging from intelligence to communications to terraforming the battlefield.

**Here are a few highlights.**



Plastic antennas: As the electromagnetic spectrum gets packed tighter with cell phones, radios, and other tech, keeping comms up in the war zone will increasingly require more highly specialized antennas and other equipment.

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**U.S. ARMY RDECOM** **Approach** **ARL**

For references, contact POC Larry R. Holmes, Jr. [larry.r.holmes.civ@mail.mil](mailto:larry.r.holmes.civ@mail.mil)

**Tailoring Dielectrics**

- Isolate components with just dielectrics
- Controlled radiation patterns
- All plastic antennas!

Two Antennas, No SVAM

Two Antennas, With SVAM

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Rather than trucking or airlifting in the gear and replacement parts, Holmes said, troops might print dielectric antennas from nonconductive materials like ceramic or plastic. Recent [research](#) out of the University of Texas at El Paso involved

making a dielectric antenna from plastic.

"It works just like a copper patch," Holmes explained. "It works by the dielectrics that are internal to the structure, solely because of the shapes you can make through 3D printing." In other words, it's a not a replacement part *per se*, but an entirely new type of electronic communication that uses geometry to compensate for a lack of atomic conductivity in the material.

Such 3D-printed antennas made from plastic could "help us reduce logistics and the logistics trail but also help with signature management," he told the crowd, in other words, helping a group of soldiers avoid detection when communicating.

Hidden bugs and spy cameras: [Multi-material printing](#), which allows printed objects to incorporate working electronics, is in its infancy. But as the field develops beyond expensive toys, it will open up a host of potential applications for the military, including intelligence gathering.

Example: a milk carton with a sensor — resistor, capacitors, etc. — manufactured into the cap. Of course, real-time assessment of spoiled milk isn't really a military concern, but this kind of thing could aid intelligence gathering in hard-to-reach places, or from stand-off distances.

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**U.S. ARMY RDECOM** **Opening the Door** **ARL**

For references, contact POC Larry R. Holmes, Jr. [larry.r.holmes.civ@mail.mil](mailto:larry.r.holmes.civ@mail.mil)

**Additive manufacturing opens doors for both embedding sensors into structures as well as enabling the use of new materials.**

Unique 3D structures that can be embedded into arbitrary shapes

Wu et al; *Microsystems and Nanoengineering* (2015)

New ways of guiding energy by manipulating material in three dimensions

Flexible and resilient materials can be implemented to expand capability

J. Lewis, *Adv. Materials* (2014)

K. Willis, *ACM Symposium* (2012)

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Everyday objects with the capacity to record voices or take pictures could do some of the work of flesh-and-blood intelligence assets. Breakthroughs in multi-material 3D printing will also

help make electronics smaller, or better shaped, for tight spaces like airplane wings, combat boots, etc.



**Biometric communication:** What does 3d printing have to do with brain-to-brain communication? Potentially, a lot.

The Army has been funding cutting-edge research in brain-to-computer communications for years. In 2008, it sent a \$4 million [dollar](#) grant to researchers at UC Irvine, the University of Maryland, and Carnegie Mellon University to study “synthetic telepathy” via EEG sensor data. No, a sensor can’t hear your thoughts and understand them as intelligible language. But they can be sensitive enough can pick up your brain’s electromagnetic pulses. Think about raising your arm, or respond to a visual cue, and you create an [alpha wave](#) between 8 and 12 hz. Those signals can, in theory, be translated into a crude form of speech, like Morse Code. Those signals can then be conveyed to someone else, through a technique called transcranial magnetic stimulation.

Last year, a team of Spanish researchers [demonstrated](#) brain-to-brain communication via EEG, so a real-world proof exists. But getting a fully functional EEG into a helmet isn’t easy. After all, helmets are

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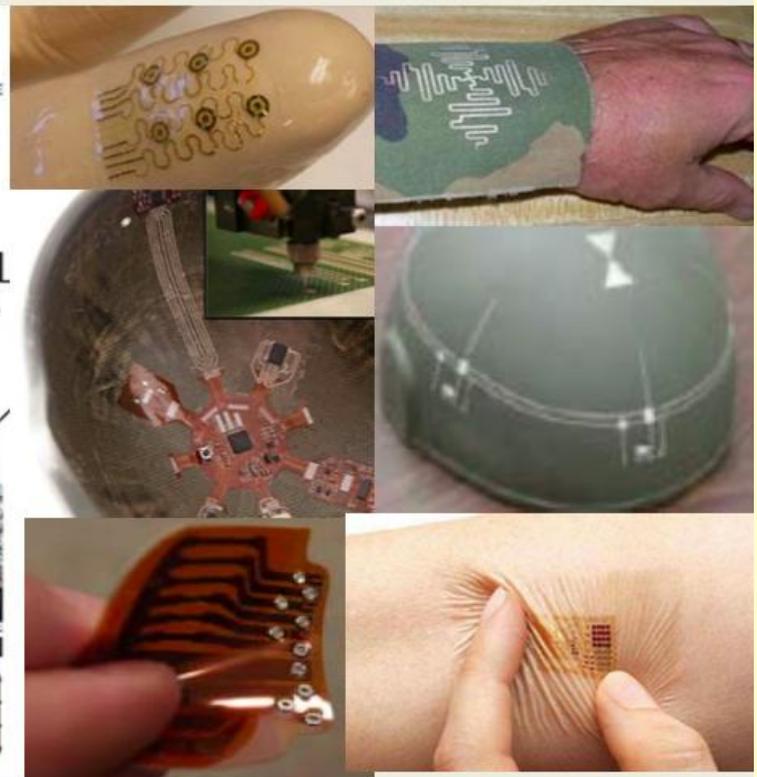
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**RDECOM**

**Future Warfighter System**



For references, contact POC Larry R. Holmes, Jr. [larry.r.holmes.civ@mail.mil](mailto:larry.r.holmes.civ@mail.mil)

### Light weighting critical warfighter components while maintaining proper functionality requires novel materials and processing technologies



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designed to protect the head from force, not send brain scans. This is where 3D printing comes in, with its unique ability to produce otherwise-impossible shapes and designs.

"Imagine if I have a helmet. You can put it in this [3D printing] machine, tell this machine to scan it, then go back and say, 'Oh, this mission requires some communication device that I don't have,'" Holmes said during his talk. "I can tell [the printer] to rebuild this helmet and



incorporate the device into this helmet as I'm building it, antennas, structured sensors. Whatever.” In his presentation, Holmes described how materials that showed various levels of resistance to hand movement could also serve as a means of biometric communication. “We know that soldiers do a lot of communication with their hands,” he said “With this technology, instead of having to move their entire upper body for communication,” they could use their hands and perhaps avoid detection.

**Robots that build beachheads from found objects:** What if you could send robots ahead of your troops to set up bases on hostile territory?

“This isn't officially an Army goal yet,” Holmes said of a 3D printing project of his own conception called forward operations for reconnaissance and terraforming, or FORT.

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## Current In-Field Printing

For a complete list of references, contact POC, Larry R. Holmes, Jr., larry.r.holmes.civ@gmail.com



The REF inserted two (2), 20-foot, containerized mobile Expeditionary Labs, or Ex Labs, to deploy to units in isolated locations. Each lab includes a Stratasys Fortus 250mc 3-D printer, a computer numerical control milling machine, an array of fabrication tools, electrical diagnostic equipment, software programs and a global communications system to connect forward teams directly with REF leadership and other partners.




The REF owns five (5) 3-D printers -- the two in Afghanistan and three at its headquarters at Fort Belvoir, Va. -- all of which print solely in plastic polymers, suitable for prototyping. While the labs can create one-off, low-volume orders for simple, plastic components, REF prototypes are typically the first step and often require external validation.

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It's a concept that amounts to invasion via MakerBot. Here's how he described it: “We drop a black box in a place where you wouldn't want to send your soldiers. It could be a biohazard area, a radioactive area, dense jungle, the top of a mountain, a dangerous extreme environment, etc. Through a suite of sensors, this manufacturing unit senses what's around it, what minerals are in the sand, and what trees are around it. It then prints robots to go collect those materials, to collect sap from trees, mud and straw to make bricks. These robots bring those materials back.”

The box uses the materials to build whatever you need: a containment unit, a helicopter pad on the side of a mountain...That's where technology is pushing us in the future,” Holmes said.

He acknowledged that figuring out how to program a series of machines—robots in various forms—to achieve that goal are a decades-away ambition. But “the manufacturing, data and sensing technologies already exist,” he says.

Holmes isn't the only 3D printing fan dreaming of self-replicating robots conquering new, hostile territory. FORT bears a lot in common with a concept called [Luna Ring](#) from the Japanese construction company Shimizu. To harness solar power from space — where it can be gathered ten times more efficiently than on Earth — robots would travel to the moon to build more robots and solar panels and other pieces of equipment from lunar dirt.



Advanced robotics for additive manufacturing is also an area that the Defense Advanced Research Projects Agency has looked at through a program called Magnetically Actuated Micro-Robots for Advanced Manipulation Applications.

**Of course, these sorts of projects are decades away, and the trough of disillusionment looms near.** While 3D printing for rapid prototyping has been around for more than a decade, it was only **last year that the Navy permanently installed a 3D printer on a ship for the first time. The printer aboard the USS Essex amphibious warship was used not to building replacement parts but to make scale models and syringe caps.**

Printing objects that can actually match military specifications is a big hurdle. Holmes says this is one reason why some of the most fertile ground for military 3D experiments will be in the special operations community, which can work around some of the bureaucracy of military certification. The Army's Rapid equipment force already owns five 3D printing stations, two of which were sent to Afghanistan in 2012 to print replacement parts.

It's also an issue of money and politics. 3D printing will be revolutionizing broad areas of logistics and supply chain management long before black-box factories can be deployed to hostile zones to ready the ground for invasion. If additive manufacturing is going to save the military and taxpayers billions, it will do so at the cost of billions in lost revenue to suppliers. If a part can be printed for pennies at the site of use that will replace something that costs thousands, then it falls on the maker of the more expensive part to defend the high price tag — which they may do by blasting the integrity or structural soundness or design security of 3D printed parts.

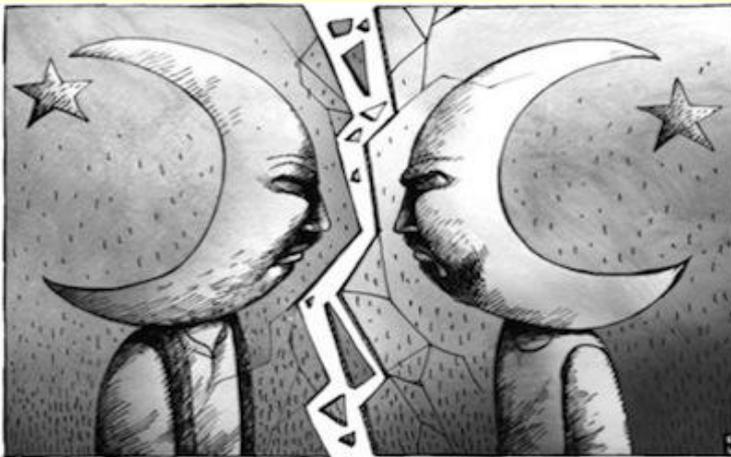
The trough of disillusionment can be both deep and wide.

## Here's the Real War within Islam

By Tarek Fatah

Source: <http://www.meforum.org/5551/real-war-within-islam>

"There is a war going on and the war is within Islam."



In one short sentence, 29-year-old Karim Jivraj, the Conservative candidate in the federal riding of Rosedale-University in downtown Toronto, summed up the crisis that dominates political discourse today, including in Canada and the U.S.

Jivraj was speaking Sunday at an all-party debate hosted by the Canadian Council of Muslim Women (CCMW). There he found himself under attack by Liberal, NDP and

Green candidates from other ridings, as well as the audience of young professional Muslim women, many in hijab, many of whom gave him the hostile treatment of silent glares and rolling eyes.

If we are seeing a war within Islam, the CCMW debate — or "panel discussion" as they called it — was an illustration of it at the local level.

On the one hand, here was Jivraj, an exuberant young Muslim man who is a son of refugees from Uganda. He was beaming with confidence, extolling the virtues of the West

and Canada, urging his fellow Muslims to rid themselves of self-inflicted victimhood, to take advantage of the opportunities of living here and to soar to any heights they wished.

Jivraj's positive attitude was in contrast to the gloom and doom scenario of racism and "Islamophobia" painted by the other political candidates.

The irony that they, as Muslim immigrants or children of Muslim



immigrants, are running for the Canadian Parliament, two of them — the Liberal and NDPer — with a good chance of winning, was lost on them.

Canada is not the only country where Muslims are a minority and where conservative Islamists don leftist garb to rub in victimhood among the young. This is the norm in the U.S., Britain, Europe and it is most pronounced in India.

But on the positive side, Jivraj is not alone in his optimistic outlook. Zameer Uddin Shah, vice-chancellor of India's most prominent seat of Muslim education, Aligarh Muslim University, said Monday: "There is no discrimination on religious grounds. ... The (Muslim) community just rues about discrimination which is non-existent."

During the Toronto debate, Jivraj slammed those who see the "barbaric practices hotline" proposed by the Conservative government as an example of anti-Muslim bigotry.

"There are honour killings taking place not in Mosul or Baghdad, but in cities like Kingston and Mississauga," he reminded them.

Predictably, some women in the crowd scoffed at him, as did the other candidates.

But Jivraj was correct when he said, "It's a war between those (Muslims) who believe in pluralism and tolerance," and those who don't, including the minority who kill in the name of Islam.

But I'd argue there is a third group.

They are what I refer to as Muslim nationalists, who see Muslims as a "team" and themselves as that team's cheerleader or fan base.

This group includes another son of immigrants from Africa, Mayor Nahed Nenshi of Calgary .

Nenshi recently told a symposium in Stratford, Ont., where he defended the right of women to wear the niqab at citizenship ceremonies: "That label of terrorist is thrown around with disturbing regularity ... It's targeted language that nearly always describes an act of violence by someone who shares my faith."

I asked Jivraj to react to his fellow Muslim's support of the niqab.

"It's very unhelpful," he said. "The niqab has no place in Islam."

The reality that appears to evade Mayor Nenshi is that most terrorists today are Muslims and most of their victims are Muslims as well.

*Tarek Fatah, a founder of the Muslim Canadian Congress and columnist at the Toronto Sun, is a Robert J. and Abby B. Levine Fellow at the Middle East Forum.*

## An app alerts people, law enforcement about potential crime risk

Source: <http://www.homelandsecuritynewswire.com/dr20151009-an-app-alerts-people-law-enforcement-about-potential-crime-risk>

Oct 09 – You are walking home after a night out on a dark autumn evening. Suddenly, you get the feeling that someone is following you. You look over your shoulder, and see a shadow between the trees in the park. You quicken your steps. When you glance behind you again, you see the shadow



disappear in between two houses.

This is when you could press the "help" button on the app that you have downloaded. It sends a message to everyone in the area who also has the app, with information about your phone number and where you are.

This way they are able to call you, alert emergency services, or get to your location if need be.

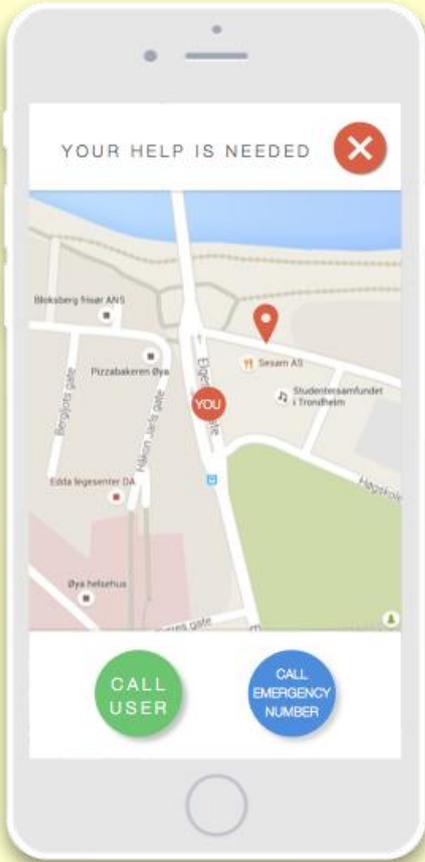
They will also be able to follow your movements on the map that appears on their phone.

Four **Norwegian University of Science and Technology (NTNU) students** are behind this newly launched app, called **Flare**.



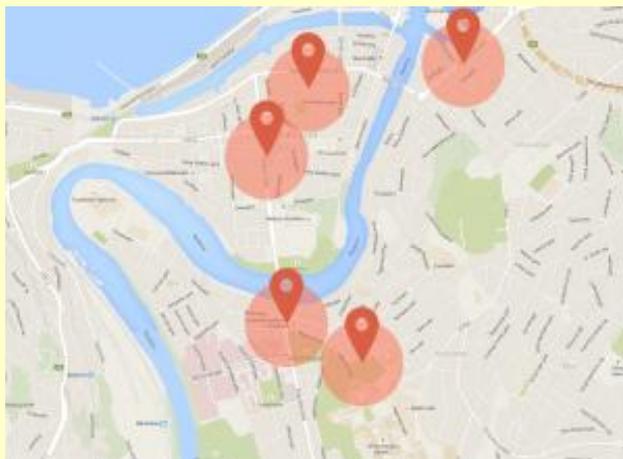
“We want to start a network of users who can help each other, and by doing so, help make the world a little safer,” says Svein Grimholt. He is the brains behind the app, which he is developing while also studying Energy and Environmental Engineering at NTNU.

**Idea during student festival**



NTNU notes that Grimholt got the idea during the UKA student festival held in Trondheim two years ago. Every other year, ten thousand young people come together during the UKA festival to go to concerts and other large events. Many of these concerts are in a place called Dødens dal, a small volleyball and football field close to the university, which is located centrally in a highly developed area. “Right near Dødens dal, there was a rape case, and an attempted rape.” he explains. “This got me thinking that in situations like that, there should be a way to

alert people in the area to your need for help.” And so the first seeds for the idea that became Flare were sown. Together with NTNU



students Anders Hua and Jørgen Svennevik Notland from the School of Entrepreneurship, and Stian Sandø, a computer science student, he has developed Flare for both iOS and

Android phones. A quick search of “Flare Help and be helped” should bring you to the right place. The app is free and has no ads.

**The more, the merrier**

“There are apps that resemble ours, but ours is unique in that it is crowd sourced. This means that you reach out to other users that are nearby, so help can potentially arrive much quicker. The average response time for the police is between 15 and 23 minutes, meaning that the damage may already have been done by the time they get there,” Grimholt explains.

The more people who have the app, the better and safer Flare’s network becomes.

“It’s a win-win situation, because the chances of getting help increase both for you and others,” he points out.

This is what the coverage in a city like Trondheim might look like. You set the radius of your signal yourself — the standard setting is 200 meters, but you can set it to as much as 500 meters.

To spread the word about the app, the team is working with “Faddervaktordningen,” a group of volunteer students who work to make the streets of Trondheim safer for new students during the first weeks of the semester. They are also collaborating with “Natteravnene,” a volunteer service that provides preventative security and aid at large events and at night during the weekends, and with the police.

**Coverage in Trondheim, NO**

The team believes that the best way to spread the word about the app, however, is through the grapevine.

**Not meant as a replacement**

It is not unimaginable that this app might mobilize people who would like take matters into their own hands. The team, however, rejects the idea that it might

encourage vigilantism.

“We’re very careful to communicate that people shouldn’t take the law into their



own hands. We recommend first trying to call the person in need of help, to assess the situation and establish contact. After this, you should call appropriate emergency services. Going to the scene of distress should always be considered carefully — it's important that you always put your own safety first," Grimholt points out.

Flare is not meant as a replacement for emergency services, but to supplement them.

"We recommend contacting emergency services if possible, which you can do directly through the app. But there are many different situations where a conversation on the telephone is difficult or impossible. In these cases, Flare can help get the message out," says app developer Anders Hua.

### Danger of misuse

But what about people who send out prank emergency calls in the wee hours of the morning?

"We've taken several measures to prevent misuse of the service. The app requires verification with your phone number, so your user is connected to your identity. The information about both the person who sends out an alarm call and everyone who receives it is stored for a certain period of time, so we can go in and retrieve the info if there is a problem," says designer Stian Sandø, who has taken a year off his studies at NTNU to work as a host on a children's science television program produced by the Norwegian Broadcasting Corporation called "Newton."

If anyone were to activate the alarm as a joke, they will likely receive a phone call, and possibly meet the people who respond. And those who respond will likely be less than pleased by the prank.

## On symptoms and underlying conditions

Source: <http://www.homelandsecuritynewswire.com/dr20151013-on-symptoms-and-underlying-conditions>

Oct 13 – In the last few days, Israelis in Jerusalem, Tel Aviv, and other cities have been facing a spontaneous, from-the-bottom-up campaign of violence by (mostly) Palestinian youth wielding, in most cases, no more than kitchen knives.

Yesterday saw four attacks by Palestinians on Israelis:

"We think that the fact that you publicize your phone number and location when you send out an alert will help minimize this type of abuse. It is in everyone's interest that the app is used correctly," says Jørgen Svennevik Notland.

### Won an entrepreneurship startup package

NTNU says that one year ago, the founders of the app were one of five winners of the Inven2Start entrepreneurship contest. The contest is an initiative to encourage new student companies, and the winners each receive a startup package to help start a company based on their idea. The package consists of 30,000 kroner from Inven2Start and 100,000 kroner from Innovation Norway.

The Flare team, who are all studying different subjects, chose to spend their summer concentrating on developing the app and planning its launch and distribution. They spent two months in a maker space in Berlin.

### Ambitions

The preliminary target group is students in Trondheim, but ultimately the goal is to establish the app nationally.

"We would like to make this a standard program on all phones. Our ultimate dream is to have Flare be built into the national alarm central's warning system," says Grimholt.

They have also been thinking of other areas of use for an idea like this, such as for a warning app against bullying.

"It could make a good preventative tool against bullying. If all of the teachers at a school have the app on their phones, it would be easy to get the word out about problems in the schoolyard," he said.



- Shortly after the attack on the bus, a Palestinian killed a man on a near-by street by running him over with his car. He then got out of the car and tried to stab people on the sidewalk but was prevented from doing so by policemen who wrestled him to the ground.



- Most of the Palestinian attackers are in their teens
- Four of the attackers were women
- None of the attackers had any known affiliation with any terrorist group
- Some of the attackers appear to be deeply religious

- All of the attackers, except two, were residents of East Jerusalem, which was annexed to Israel in 1967 (two of the attackers were Israeli Arabs). This means that the attackers carried Israeli identity papers and could move easily between East and West Jerusalem.

The analysts say that these spontaneous, "lone wolf" attacks are impossible to predict or pick up by traditional intelligence

- Later the same morning, a 22-year old Palestinian used a knife to attack one man at a bust station in the town of Ra'anana. Several Israelis jumped on the Palestinian attackers and beat him repeatedly, seriously injuring him. The police had to protect the injured Palestinian and pushed back angry Israelis who wanted to kill him on the spot
- About an hour later, in the same town, a 28-year old Palestinian stabbed four Israelis, injuring one of them seriously. An Israeli cab driver ran over the Palestinian with his cab, injuring him, and several Israelis were then able to subdue him until police arrived.

These four attacks followed four attacks in Jerusalem on Sunday. In the most serious attacks, a 13-year old Israeli teen was seriously injured by two Palestinian youths wielding knives, who then also attacked and seriously injured a 25-year old Israeli. Both attacks occurred in the Pisgat Ze'ev neighborhood. The two attackers were confronted by police, and one of them, a 17-year old, was killed.

Later that evening a young Palestinian tried to grab a weapon from an IDF soldier, but the soldier shot and killed him. About the same time, a Palestinian woman tried to stab a policeman near police HQ in Jerusalem, but was prevented from doing so.

Analysts examining the wave of recent attacks point out to several discernible patterns and characteristics:

means since the perpetrators, in many cases, decide to go on a rampage a short time before doing so. Moreover, since they are not members of an organized terrorist cell, informers planted by Israel intelligence in such cells cannot provide any warnings about impending attacks.

The Israeli security services would now have to find an answer to knife-wielding lone-wolves.

There are no indication so far that the Palestinian population in the Palestinian territories in eager to support a third intifada. Also, the security services of the Palestinian Authority (PA) have been diligent in trying to keep a lid on Palestinian anger and frustration. Last week Prime Minister Benjamin Netanyahu and some right-wing cabinet ministers charged that the PA and Abu Mazen, the PA premier, were "inciting" and encouraging the attacks. Both the Shin Bet, Israel's domestic security service, and Aman, the IDF's intelligence branch, presented the government with evidence which contradicted these charges, and over the last two days Netanyahu, if grudgingly, publicly admitted that the PA was exerting considerable efforts to calm the situation.

This wave of attacks may soon recede, but another eruption of violence will surely come soon unless the underlying conditions are dealt with.



One condition is nearly 50-years old: The continuing occupation of Palestinian lands by Israel, and the continuing systematic disenfranchisement of millions of Palestinians. The second condition is new: The growing pressure by Israeli religious fanatics – one or two of them are cabinet ministers — to change the status-quo which has governed Al Aqsa since 1967. This goes beyond the Israeli-Palestinian conflict, and has the potential of

adding an explosive, religious dimension to an already tense and volatile situation.

The lone-wolf attacks are an immediate security problem with which Israel's security services must deal. This security problem, however, is only the symptom of a deeper, more pernicious condition.

As is the case with a medical condition, dealing with the symptoms would just not be sufficient.

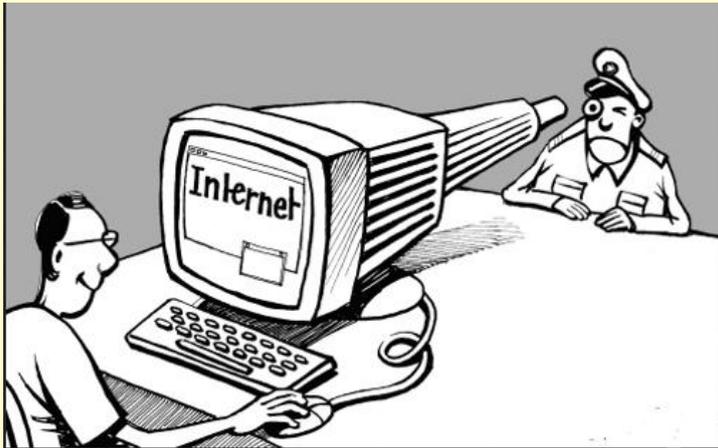
*Ben Frankel is the editor of the Homeland Security News Wire*

## The Continuing Battle over Privacy vs. Security

By Ellen C. Cornelius

Source: [http://www.domesticpreparedness.com/Infrastructure/Cyber\\_%26\\_IT/The\\_Continuing\\_Battle\\_Over\\_Privacy\\_vs.\\_Security/](http://www.domesticpreparedness.com/Infrastructure/Cyber_%26_IT/The_Continuing_Battle_Over_Privacy_vs._Security/)

In this electronic age, there is a constant struggle between sharing critical information and protecting individual privacy with adequate security to prevent data and documents from falling into the wrong hands. To address these concerns, expectations of privacy, knowledge of liabilities, and development of policies must be examined.



Oct 14 – Some people might argue that there is virtually no privacy left as the Internet, government, and media dramatically affect daily routines. Others would say that, although daily life is not as private as it

once was, privacy is a worthy sacrifice in order to defend against hackers and terrorists. The battle for a clear winner continues to rage, while several questions remain:

- How do expectations of privacy change based on security concerns?
- Who is liable in the aftermath of data breaches and identity theft?
- Are there policy solutions that could help balance these concerns?

### Expectations of Privacy

The expectation of privacy is deeply rooted in legal tradition and culture. For example, published in 1890, "The Right to Privacy," was a seminal article by Samuel Warren and Louis Brandeis (later a Supreme Court Justice) that still resonates today. Against the backdrop of the invention of the camera and the coverage of upper class society in the gossip pages of local newspapers, Warren and Brandeis' article in the *Harvard Law Review* explained the right of the individual citizen to be left alone. They started first with principles. The U.S.

Constitution provides the right to life, liberty, and property. Property law protects the tangible, such as land and personal possessions, as well as the intangible, such as trade secrets and trademarks. Warren and Brandeis asserted that the right to privacy emerges from the right to life and liberty.

The right to privacy does not prohibit publication of material that is in the public or general interest. However, common law – or norms embodied in judicial decisions – protects an individual from being



compelled to express his or her thoughts, sentiments, or emotions, except on the witness stand. The individual retains the power to limit publicity but, as soon as the individual decides to publish information, the right to privacy with respect to that particular piece of information is waived. If a person limits publicity, but a reporter uses a camera to take pictures surreptitiously, then the only applicable law is torts or, in this case, a lawsuit claiming invasion of privacy. Warren and Brandeis argued that the courts should protect the right to be left alone – that is, one's right to privacy.

Expectations of privacy change depending on security concerns. For example, closed-circuit television (CCTV) has attracted attention from privacy advocates who argue that they should be able to travel discreetly, without the government's knowledge. With CCTV, facial recognition software, and international databases, a person can be tracked on every continent around the world. Abuses by law enforcement and computer errors can be difficult to identify and correct. However, many of these fears have been addressed by cities in laws that regulate or limit how visual footage may be used by the government.

Beyond government interests, the general public takes photos and videos constantly. In a sense, individuals surveil each other.

**Facebook has perhaps the largest facial recognition database in the world.** National level and local level law enforcement are heavily invested in facial recognition databases and software as well. In 2005, the identities of terrorists in London were discovered in a few weeks after they attacked three underground stations and a double-decker bus. In 2013, the terrorists who attacked the Boston Marathon were identified within a few days. Boston, Massachusetts, had only 55 law enforcement cameras in 2007 and the number has grown. Facial recognition software has made searching footage much faster.

Security advocates might say that observing possible terrorists and criminals makes communities more secure. They support increasing the number of cameras and license plate readers and argue that cameras with features like high definition, the ability to zoom in, and automated movement to focus on gunshots provide law enforcement with important opportunities to prevent and solve

crimes. In response, policies to mitigate the impact of this technology focus on who can view the footage, how it can be used, and how long the recording will be kept.

### **Breaches, Thefts & Liabilities**

Data breach, identity theft, and corporate liability are of great concern. In June 2014, over 1 million CareFirst BlueCross BlueShield subscribers had their personal data stolen. The first class-action lawsuit alleges negligence, breach of contract, and violations of Washington, D.C.'s consumer protection and data-breach notification statutes.

The Anthem breach announced in February 2015 was even bigger. Payment data was transmitted through the BlueCard network, but the data was being retained in an unencrypted fashion. It involved 80 million subscribers and has spawned more than 50 class-action lawsuits. Claims include violations of the Health Insurance Portability and Accountability Act (HIPAA) and state laws. However, data breach and identity theft are not just risks for insurance companies or healthcare systems. Many employers, big or small, maintain employees' names, addresses, social security numbers for tax purposes, and bank account information for payroll. There are at least three different ways that businesses can be liable for data breaches: HIPAA regulatory liability; negligence; and state statutory liability.

Medical identity theft can be used to falsify medical history, get surgeries, obtain or sell prescription drugs, and blackmail. Electronic medical records can be sold illegally for about \$50 each, whereas cyber thieves may only earn \$1 for social security numbers. Under HIPAA, any organization that handles patient information under a "business associates agreement" with a HIPAA-covered entity is equally liable for breaches as the covered entity itself, in accordance with the law. The courts often rely on HIPAA's privacy and security rules as the standard of care in negligence cases. Other best practices that the courts rely on include: encryption, monitoring of business associates, mitigation of risks, and increased accountability.

The U.S. Department of Health and Human Services (HHS) recommends administrative, physical, and technical



safeguards to protect patient information:

- *Administrative safeguards* include security management processes, security personnel, information access management, training and management, and evaluation.
- *Physical safeguards* include facility access and control as well as workstation and device security. A HIPAA-covered entity must: limit physical access to its facilities while ensuring that authorized access is allowed; implement policies and procedures to specify proper use of and access to workstations and electronic media; and have policies and procedures regarding the transfer, removal, disposal, and reuse of electronic media to ensure appropriate protection of electronic protected health information.
- *Technical safeguards* include access control, audit control, integrity control, and transmission security.

Businesses may be liable for civil penalties if the courts determine that they are negligent in protecting electronic health records. According to the U.S. Department of Health and Human Services, about [75 percent of health records are electronic](#), and healthcare providers use mobile devices to store, process, and transmit patient information. If a mobile device is hacked, then the healthcare provider or business associate may face penalties. In July 2015, the National Institute of Standards and Technology, National Cybersecurity Center of Excellence, issued a "[How to Guide](#)," which provides a sample solution for protecting electronic health records on mobile devices. The guide uses commercially available products to more securely share electronic health records. A court may use this as the standard of care and apply it in negligence cases.

Four elements are required to establish a case of negligence: duty, breach, causation, and damages. Reasonable care speaks to duty. Principal factors to consider in ascertaining whether the person's conduct lacks reasonable care include: (a) the foreseeable likelihood that this conduct will result in harm; (b) the foreseeable severity of any harm that may ensue; and (c) the burden of precautions to eliminate or reduce the risk of harm (see [Restatement \[Third\] of Torts:](#)

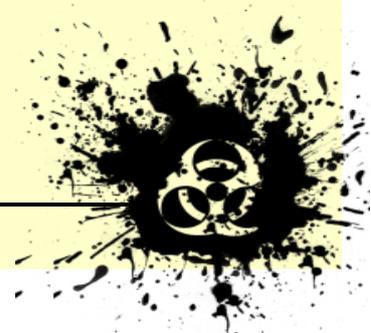
[Liability for Physical Harm § 3](#) [P.F.D. No. 1, 2005]). Negligent conduct may consist of either an act, or an omission to act when there is a duty to do so (see [Restatement \[Second\] of Torts § 282](#) [1965]).

Businesses have a duty to safeguard customer information. For example, Maryland's Social Security Number Privacy Act requires employers to transmit social security numbers over the Internet with a secure connection or encryption. Businesses should know what personal information the organization has on its computers, then secure that information physically, with passwords, or with assigned identification numbers that are different from the social security numbers.

Many companies spend a significant amount of money on antivirus products and firewalls, but hackers can breach such perimeters. What companies really need are detection products that stop an attack once the system has been breached. Hiring and training also are important. Organizations should train employees on the data security plan, as well as on protocols so employees can spot, report, and remedy potential security threats. Background checks on employees who have access to personally identifiable information are also important, while confidentiality agreements can be used to address security with contractors.

Liability can also ensue from a violation of a state statute. For example, the Maryland Personal Information Protection Act requires an employer to maintain reasonable security procedures and practices for personal information. Consumers must receive notice of a data breach, and the notice must include:

- A description of the information compromised;
- Contact information for the business, including a toll-free number if the business has one;
- Toll-free numbers and addresses for Equifax, Experian, and TransUnion;
- Toll-free numbers, addresses, and websites for the Federal Trade Commission and the Office of the Attorney General of Maryland; and
- A statement that the individual can obtain information from these sources regarding steps to avoid identity theft.



**Policy Solutions to Address Concerns**

There are also policy developments in cybersecurity to consider. For example, in the healthcare industry, the development of a unique patient identifier is under consideration. Currently, medical record numbers are not unique and not transferable. Another policy proposal is that businesses create business continuity plans, so they can continue to operate if the organization's data were catastrophically breached.

The federal Cybersecurity Information Sharing Act of 2015 ([S.754](#)) has been proposed to promote the sharing of cyberthreat information among government agencies and private sector businesses. As drafted, S.754 would offer incentives to the private sector to share information about cyberthreats with the government. Supporters, including senators

from both parties and many in the private sector, say the information sharing legislation would create stronger defenses against hackers. However, privacy advocates are concerned about the bill's treatment of sensitive information, arguing that it would violate the right to privacy. Moreover, security experts have questioned whether the bill would be effective.

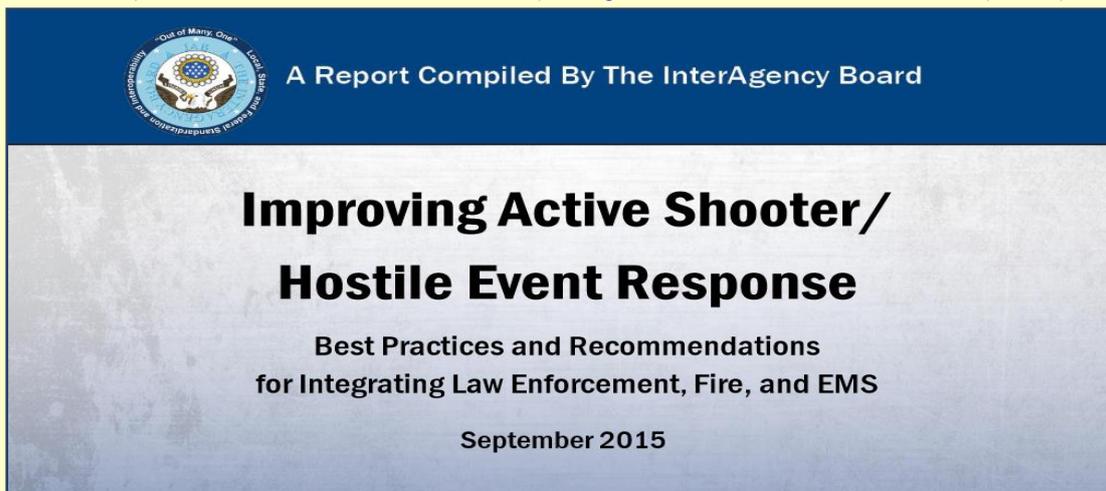
Against this complicated backdrop, policy makers continue to try to balance privacy and security. Privacy advocates push back against the use of technology to monitor threats and favor tighter regulations, whereas security advocates push for a more widespread use of technology and the development of threat-detection tools. Undoubtedly, there are many challenging calls to be made in the year ahead.

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## Improving Active Shooter/Hostile Event Response

Source: <http://www.iaem.com/documents/IAB-Improving-Active-Shooter-Hostile-Event-Response.pdf>



Oct 13 – This report documents the key findings of the March 2015 Active Shooter Summit. Summit participants identified 29 discrete recommendations for an integrated active shooter/hostile events response. This report condenses and organizes the 29 specific recommendations into 10 broad recommended best practices.

1. Ensure leadership prioritizes and supports the development and implementation of proactive ASHE-relevant joint policies, procedures, training, exercises, and equipment.
2. Integrate and improve coordinated pre-event law enforcement, fire, and EMS policy development, planning, training, and exercises.
3. Create and implement a common operating language.
4. Integrate and improve coordinated command and incident management across all responder disciplines.
5. Adopt the Rescue Task Force concept.
6. Employ Tactical Emergency Casualty Care (TECC).
7. Implement Casualty Collection Points (CCP).
8. Develop and communicate evidence-based guidelines for fire/EMS ballistic protective equipment (BPE).
9. Establish evidence-based guidelines and education for medical and rescue equipment.
10. Promote two-way public communication as an essential component for effective ASHE response.

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► Read the full report at source's URL.

## Christianity looks set to disappear from parts of the Middle East: Report

Source: <http://www.homelandsecuritynewswire.com/dr20151014-christianity-looks-set-to-disappear-from-parts-of-the-middle-east-report>

Oct 14 – Christianity looks set to disappear from key parts of the Middle East, according to a report issued Tuesday, 13

October, which highlights a worsening cycle of persecution.



[Persecuted and Forgotten? A Report on Christians oppressed for their Faith 2013-15,](#)

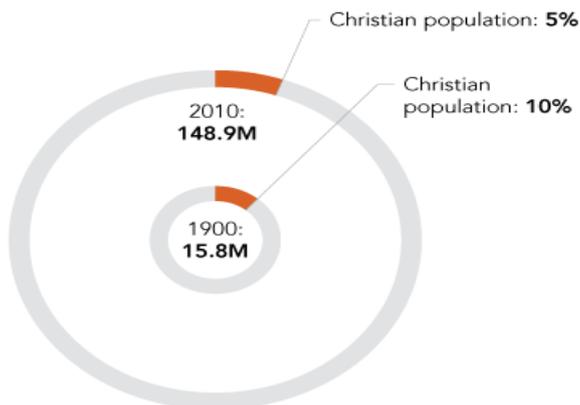
Cameron highlighted the U.K. government's commitment to promoting religious freedom,

# CHRISTIANITY IN THE MIDDLE EAST

In the region where Christianity was born, the religion is experiencing a decline. Pope Francis has said that Christians "suffer particularly from the consequences of the tensions and conflicts underway" in the Middle East, and local church officials blame emigration due to violence, as well as job and housing opportunities elsewhere, for the low percentage of Christians remaining.

## PERCENT OF CHRISTIANS IN REGION HAS DECLINED BY HALF OVER THE LAST CENTURY

Population of Egypt, Iraq, Israel, Jordan, Lebanon, Palestinian territories and Syria, 1900 and 2010



### Percent of population that is Christian, 2010

Legend: <1% (lightest orange), 1.1-5% (light orange), 5.1-10% (medium orange), 10-20% (dark orange), >20% (darkest orange)

● Sites of historical importance to Christianity



compiled by Catholic charity Aid to the Church in Need, concludes that if the exodus of Christians from Iraq continues at existing levels, the Christians could all but disappear within five years, and that a faster rate of attrition is noted in Syria whose Christians have reportedly plummeted from 1.25 million in 2011 to as few as 500,000 today.

ACN reports that in a message read in the House of Lords on Tuesday, the day of the report's launch, Prime Minister David Cameron states that "Every day in countries across the world, Christians are systematically discriminated against, exploited and even driven from their homes because of their faith."

describes ACN's work as "crucial", adding: "This [Persecuted and Forgotten?] report serves as a voice for the voiceless, from their prison cells, and the places far from home where they have sought refuge."

The First Minister of Scotland, Nicola Sturgeon, also sent a message of support for the ACN's report. She said: "Only by publishing reports such as this and identifying the extent and scale of the problem can we hope to take steps to address the persecution of minorities that sadly still exists across the world."

At yesterday's launch, another message was read out from the



Vatican stating: "His Holiness [the Pope] deeply appreciates the efforts of all involved in

Assessing twenty countries where persecution is severe, the CAN report describes what it

calls a "religiously motivated ethnic cleansing" of Christians by Islamist terror groups, especially in Iraq and Syria but also in parts of Africa.

Examining countries of core concern in the Middle East and elsewhere such as China, Egypt, Eritrea, Nigeria, North Korea, Pakistan, Sudan, and Vietnam, the report draws on eye-witness reports and testimonies.

The report concludes that since 2013 the situation for Christians has worsened in fifteen of the nineteen core countries under review.

In ten countries — more than half — the persecution is ranked "extreme," up four from the last edition of Persecuted and Forgotten? report which covered 2011-13.

Ranking Islamism as the greatest threat, the 2015 Persecuted and Forgotten? report also highlights growing problems caused by other extremist religious groups — militant forms

of Hinduism, Judaism, and Buddhism — with attacks increasing in number and ferocity.

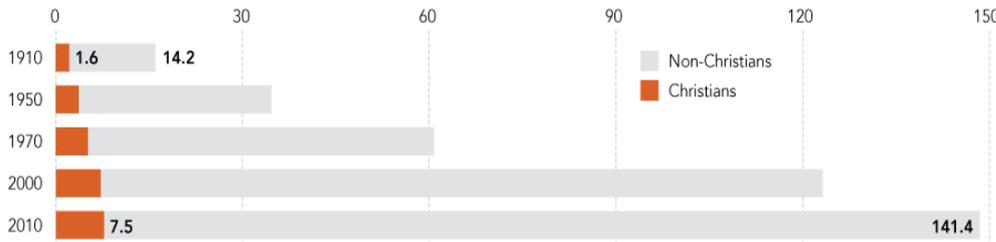
Totalitarian regimes, notably China, have put increasing pressure on the Church, according to the report, with severe threats facing Christians in Eritrea and Vietnam.

The report notes that in many cases Christians are persecuted not so much because of their faith but because of their perceived links with the West and a view associating the faithful with colonialism.

NUMBER OF CHRISTIANS HAS GROWN, BUT NOT MUCH

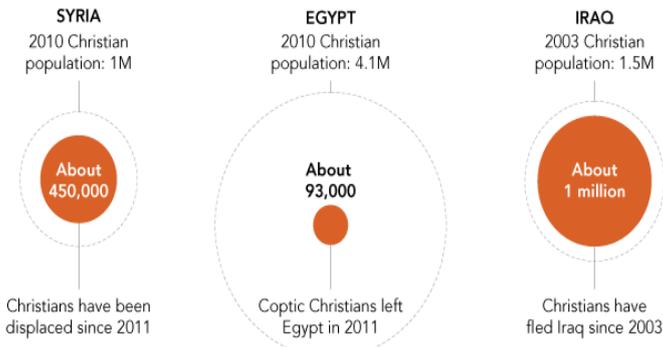
Church officials blame emigration (often due to violence or for economic reasons) and low birth rates among Christians, compared with other religious groups, for the slow growth. Meanwhile, total population in the region has increased tenfold, much of it Jewish and Muslim.

Population of Egypt, Iraq, Israel, Jordan, Lebanon, Palestinian territories and Syria, in millions



CHRISTIANS HAVE BEEN DISPLACED BY VIOLENCE AND RESTRICTIONS

Many Christians are among those displaced by violence in the Middle East, and in countries with ongoing conflict, they are often targets of persecution and violence. Since the U.S. invasion of Iraq in 2003, as many as two-thirds of the Christian population fled their homes — many first to the Kurdish northern region of Iraq, then to neighboring countries. In Syria, about 450,000 Christians have been displaced since March 2011 by the country's civil war. Egypt's narrative is similar, where about 93,000 Coptic Christians left the country in 2011 alone, and continue to face targeted attacks on churches.



80%

Local Catholic church authorities estimate that about 80 percent of Palestinian Christians live abroad. Palestinians, Christian and Muslim alike, face restrictions on where they can live, work and travel in Israel and the Palestinian territories of Gaza and the West Bank. Many Palestinians also live as refugees in neighboring countries Syria, Lebanon and Jordan.

Sources: Pew, Associated Press, The New York Times, PBS, The Jerusalem Post, Voice of America

producing this report and in keeping before the world the plight and suffering of Christians persecuted for their faith."

The message continues: "[the Pope] prays that those in positions of authority will diligently strive not only to eradicate religious discrimination and persecution in their own nations, but also to seek ever more effective ways to promote international cooperation in order to overcome these offenses against human dignity and religious freedom."



Describing the report as “a shocking read for shocking times,” the editor of the report, John Pontifex, said: “A cultural genocide of Christians is erasing the presence of faithful from large swathes of the Middle East, the very heartland of the Church.” He added: “Far from laying the entire blame for persecution against Christians at the door of extremist Islam, *Persecuted and Forgotten?* demonstrates that

many of the problems stem from non-Muslim extremist — nationalist — faith groups and historically communist totalitarian regimes.”

The report states that the loss of Christians in the Middle East and elsewhere represents a blow to community relations as Christians have acted as bridge-builders in increasingly fragmented societies.

— *Read more in [Persecuted and Forgotten? A report on Christians oppressed for their Faith 2013-2015 \(Aid to the Church in Need, October 2015\)](#).*



## Experts are often fallible, so expert advice should be examined carefully

Source: <http://www.homelandsecuritynewswire.com/dr20151016-experts-are-often-fallible-so-expert-advice-should-be-examined-carefully>

Oct 16 – **Evidence shows that experts are frequently fallible, say leading risk researchers, and policy makers should not act on expert advice without using rigorous methods that balance subjective distortions inherent in expert estimates.**

The accuracy and reliability of expert advice is often compromised by “cognitive frailties,” and needs to be interrogated with the same tenacity as research data to avoid weak and ill-informed policy, warn two leading risk analysis and conservation researchers in the journal *Nature*.

**While many governments aspire to evidence-based policy, the researchers say the evidence on experts themselves actually shows that they are highly susceptible to “subjective influences” — from individual values and mood, to whether they stand to gain or lose from a decision — and, while highly credible, experts often vastly overestimate their objectivity and the reliability of peers.**

U Cambridge reports that the researchers caution that conventional approaches of informing policy by seeking advice from either well-regarded individuals or assembling expert panels needs to be balanced with methods that alleviate the effects of psychological and motivational bias.

They offer a straightforward framework for improving expert advice, and say that experts should provide and assess evidence on which decisions are made — but not advise decision makers directly, which can skew impartiality.

“We are not advocating replacing evidence with expert judgements, rather we suggest integrating and improving them,” write professors William Sutherland and Mark Burgman from the universities of Cambridge and Melbourne respectively.

“Policy makers use expert evidence as though it were data. So they should treat expert estimates with the same critical rigor that must be applied to data,” they write.

**“Experts must be tested, their biases minimized, their accuracy improved, and their estimates validated with independent evidence. Put simply, experts should be held accountable for their opinions.”**

Sutherland and Burgman point out that highly regarded experts are routinely shown to be no better than novices at making judgements.

However, several processes have been shown to improve performances across the spectrum, they say, such as “horizon scanning” — identifying all possible changes and threats — and “solution scanning” — listing all possible options, using both experts and evidence, to reduce the risk of overlooking valuable alternatives.

**To get better answers from experts, they need better, more structured questions, say the authors.**

“A seemingly straightforward question, ‘How many diseased animals are there in the area?’ for example, could be interpreted very differently by different



people. Does it include those that are infectious and those that have recovered? What about those yet to be identified?" said Sutherland, from Cambridge's Department of Zoology.

"Structured question formats that extract upper and lower boundaries, degrees of confidence and force consideration of alternative theories are important for shoring against slides into group-think, or individuals getting ascribed greater credibility based on appearance or background," he said.

When seeking expert advice, all parties must be clear about what they expect of each other, says Burgman, director of the Center of Excellence for Biosecurity Risk Analysis. **"Are policy makers expecting estimates of facts, predictions of the outcome of events, or advice on the best course of action?"**

"Properly managed, experts can help with estimates and predictions, but providing advice assumes the expert shares the same values and objectives as the decision makers. Experts need to stick to helping provide and assess evidence on which such decisions are made," he said.

U Cambridge notes that Sutherland and Burgman have created a framework of eight key ways to improve the advice of experts. These include using groups — not individuals — with diverse, carefully selected members well within their expertise areas.

They also caution against being bullied or "starstruck" by the over-assertive or heavyweight.

**"People who are less self-assured will seek information from a more diverse range of sources, and age, number of qualifications and years of experience do not explain an expert's ability to predict future events — a finding that applies in studies from geopolitics to ecology,"** said Sutherland.

Added Burgman: "Some experts are much better than others at estimation and prediction. However, the only way to tell a good expert from a poor one is to test them. Qualifications and experience don't help to tell them apart."

**"The cost of ignoring these techniques — of using experts inexpertly — is less accurate information and so more frequent, and more serious, policy failures,"** write the researchers.

— *Redmore in William J. Sutherland and Mark Burgman, "Policy advice: Use experts wisely," Nature (14 October 2015).*

## Europe's Muslim Migrants Bring Sex Pathologies in Tow

By David P. Goldman

Source: <http://www.meforum.org/5569/migrants-rape>

The body of a 20-year-old Syrian woman, "Rokstan M.," was unearthed from a shallow

grave in the small Saxon town of Dessau last week. Her father and brothers stabbed her to death on her mother's orders, after she was gang-raped by three men. The rape left her "unclean" and the mother allegedly demanded



A 20-year-old Syrian immigrant identified as "Rokstan M" (left) was allegedly stabbed to death by her father (right) and brothers because they felt that her past gang rape had left her "unclean."

the killing to restore the family's honor. German police are seeking the father and brothers. That by itself is not newsworthy. What is newsworthy is that this affair did not appear in any of Germany's major daily newspapers or websites. The tabloid *Bild-Zeitung* ran the story, along with the regional press, while the arbiters of enlightened opinion buried it. *Der Spiegel*, the country's biggest news site, and the Frankfurter *Allgemeine Zeitung*, the

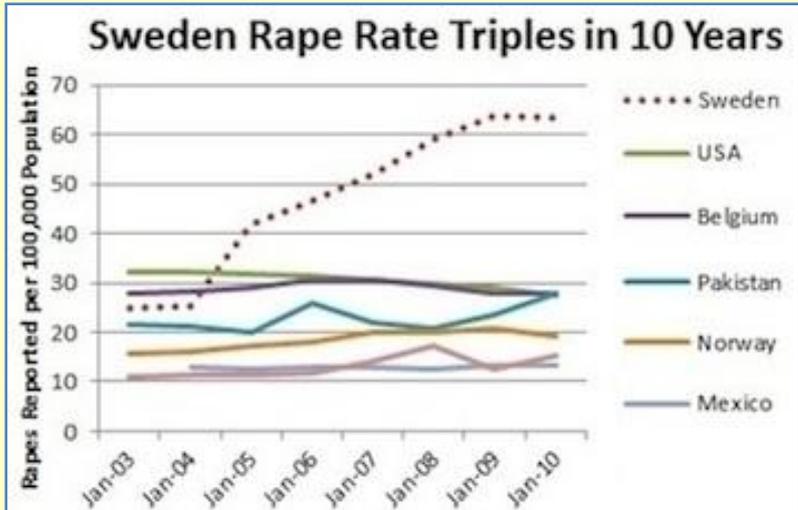
grave in the small Saxon town of Dessau last week. Her father and brothers stabbed her to death on her mother's orders, after she was gang-raped by three men. The rape left her "unclean" and the mother allegedly demanded



newspaper of record, made no mention. The case of Rokstan M. is heart-rending. She had found work in Germany as a translator for the government, but she knew her family would track her down and kill her. "I am awaiting death. But I am too young to die," she had written on a social media profile. Her story deserves a line or two in the quality press. But it's one of many that German leaders want to ignore.

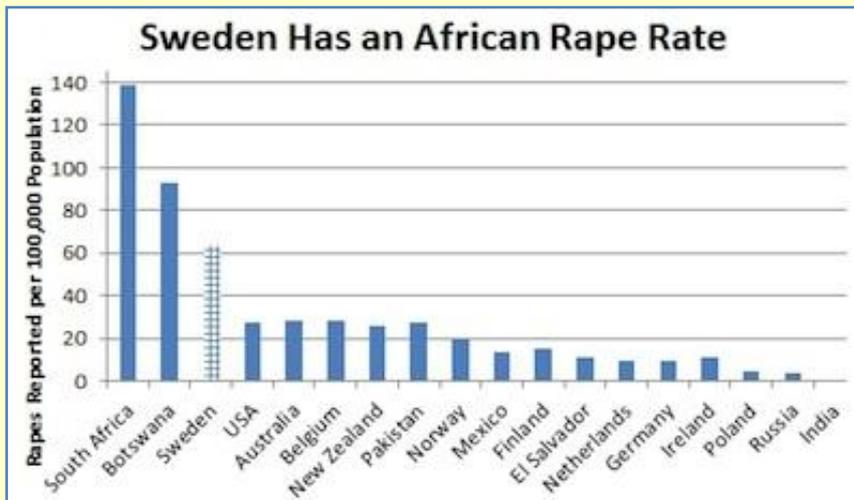
Political leaders in Germany—which may absorb 1.5 million migrants this year—are struggling to respond to reports of a sex crime epidemic among newly-arrived Muslims. Interior Minister Thomas de Maiziere urged Germans not to believe rumors of widespread rape at refugee centers, while Germany's police union chief Rainer Wendt warned, "There is a lot of glossing over going on. But this doesn't represent reality." Wendt added, "It

women outside of Africa, with an incidence of rape ten times that of its European peers. Sweden's political leaders not only refuse to



take action, but have made it a criminal offense to talk about it.

Even in liberated, feminist, gender-neutral Sweden, there is something more horrible than rape, something horrible enough to persuade



is understandable that there is the desire to calm things down politically."

Germany's elite knows perfectly well that the migrants bring social pathologies, because they have already seen the world's worst sex crime epidemic unfold in Scandinavia. Sweden now has the highest incidence of reported rape outside of a few African countries, and nearly ten times the rate of its European peers—and all this has happened in the past ten years. Sweden ranks near the top of the World Economic Forum's Gender Gap Index, yet it has become the most dangerous country for

the percentage is higher including second-generation immigrants.

There have been protests, to be sure, and nationalist parties like the Sweden Democrats have gained support on an anti-immigration platform, but Sweden will remain supine as its social fabric unravels. So, I expect, will Germany. Europe is transfixed by the horror unfolding from Libya to Afghanistan, as one of the world's major civilizations unravels in real time. In its moment of agony, the Muslim world's most potent



weapon is its own weakness. The human cost of the collapse of Libya, Yemen, Afghanistan, Iraq and Syria is horrendous, but it is small thus far compared to the horrors that would attend instability in Turkey, Saudi Arabia, Pakistan and Bangladesh. The West can't bear to look at it.

**The incidence of rape in Sweden has tripled in the past ten years as the country became Europe's premier destination for Muslim immigrants.** Writing for the Gatestone Institute, Ingrid Carlqvist and Lars Hedegaard observe,

Since 2000, there has only been one research report on immigrant crime. It was done in 2006 by Ann-Christine Hjelm from Karlstads University. It emerged that in 2002, 85% of those sentenced to at least two years in prison for rape in 2002 were foreign born or second-generation immigrants.

A 1996 report by the Swedish National Council for Crime Prevention reached the conclusion that immigrants from North Africa (Algeria, Libya, Morocco and Tunisia) were 23 times as

likely to commit rape as Swedish men. The figures for men from Iraq, Bulgaria and Romania were, respectively, 20, 18 and 18. Men from the rest of Africa were 16 times more prone to commit rape; and men from Iran, Peru, Ecuador and Bolivia, 10 times as prone as Swedish men.

**A new trend reached Sweden with full force over the past few decades: gang rape — virtually unknown before in Swedish criminal history.** The number of gang rapes increased spectacularly between 1995 and 2006. Since then no studies of them have been undertaken.

Sweden not only stands by while a large number of its women are raped, but outlaws public discussion of the causes. Michael Hess, a Social-Democratic politician, was condemned by a Swedish court under a law forbidding denigration of ethnic groups. for writing in 2014, "There is a strong connection between rapes in Sweden and the number of immigrants from MENA countries [Middle East and North Africa]."

*David P. Goldman is a senior fellow at the London Center for Policy Research and the Wax Family Fellow at the Middle East Forum.*

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## The Truth About Immigration & Foreigners In Europe

Source: <http://brilliantmaps.com/europe-immigration/>

Think immigration is too high in Europe? If so, do you know how many foreigners do you think live in your country? The numbers may be far lower than you think.

The map above shows the percentage of the foreign citizens (split between EU and non-EU nationals) living in many European countries. While the media loves to portray the continent as being overrun with foreigners, the truth is quite different.

**Below are the percentage of foreign citizens by country, based off data from Eurostat:**

1. **Luxembourg:** 43.8% (37.9% EU and 5.9% non-EU)
2. **Lichtenstein:** (*non-EU*) 33.3% (16.7% EU and 16.7% non-EU)
3. **Switzerland:** (*non-EU*) 22.8% (14.8% EU and 8.5% non-EU)
4. **Cyprus:** 20.0% (12.6% EU and 7.4% non-EU)
5. **Latvia:** 16.3% (0.3% EU and 16.0% non-EU)
6. **Estonia:** 15.7% (1.1% EU and 14.6% non-EU)
7. **Spain:** 12% (5.1% EU and 6.9% non-EU)
8. **Austria:** 11.2% (4.5% EU and 6.7% non-EU)
9. **Belgium:** 11.0% (7.0% EU and 4.0% non-EU)
10. **Ireland:** 10.6% (8.5% EU and 2.2% non-EU)
11. **Germany:** 9.1% (3.4% EU and 5.7% non-EU)
12. **Greece:** 8.6% (1.3% EU and 7.3% non-EU)
13. **Norway:** (*non-EU*) 8.3% (5.0% EU and 3.3% non-EU)
14. **Italy:** 7.9% (2.4% EU and 5.5% non-EU)
15. **United Kingdom:** 7.6% (3.7% EU and 3.9% non-EU)
16. **Montenegro:** (*non-EU*) 7.4% (0.2% EU and 7.2% non-EU)
17. **Sweden:** 6.8% (2.9% EU and 3.9% non-EU)





- 25. **Netherlands:** 4.2% (2.2% EU and 2.0% non-EU)
- 26. **Czech Republic:** 4.0% (1.4% EU and 2.6% non-EU)
- 27. **Finland:** 3.4% (1.3% EU and 2.1% non-EU)
- 28. **Hungary:** 2.1% (1.3% EU and 0.8% non-EU)
- 29. **Slovakia:** 1.3% (1.0% EU and 0.3% non-EU)
- 30. **Lithuania:** 0.7% (0.1% EU and 0.6% non-EU)
- 31. **Bulgaria:** 0.6% (0.2% EU and 0.4% non-EU)
- 32. **Croatia:** 0.6% (0.2% EU and 0.4% non-EU)
- 33. **Turkey:** (non-EU) 0.3% (0.1% EU and 0.2% non-EU)
- 34. **Romania:** 0.2% (0.1% EU and 0.1% non-EU)
- 35. **Poland:** 0.1% (0.0% EU and 0.1% non-EU)

So based on the data above, Luxembourg is the most generous country overall with over 40% of its population being foreign citizens, although mostly from the EU. Lichtenstein and Switzerland, while not EU members themselves, are also both very generous to EU citizens.

Estonia and Latvia are interesting as while they're not yet especially rich, they still host a large number of non-EU nationals. The explanation is many ethnic Russians living in both countries at the time of independence have chosen not to become citizens.

Lithuania does not have this issue, because when it became independent it had far fewer ethnic Russians living its borders and so made them all citizens.

At the other extreme you have Poland and Romania which are the most exclusionary states in the EU.

Overall, non-EU states seem to be more generous than EU countries with Lichtenstein, Switzerland, and Norway all allowing in more foreigners than the EU27 average (and more than the UK).

Considering that these are 3 of the richest countries in Europe, it seems difficult to take the claim that immigrants simply "sponge off benefits" or are "a burden to their host countries" seriously.

In fact, it seems the reverse is true. Countries with a high proportion of EU migrants seem to be richer than those with fewer. Of course people are attracted to countries that are doing well, so more immigrants should be seen as a sign of success and be celebrated rather than a cause for alarm.

## What could happen to Afghan women should the Taliban return to power

Source <http://www.dawn.com/news/1213720/what-could-happen-to-afghan-women-should-the-taliban-return-to-power>



Hiding in her basement, a Kunduz radio presenter was paralysed with fear when the Taliban came looking for her as they conducted house-to-house searches for working women after storming the northern Afghan city.

Long condemned as misogynistic zealots, the Taliban have sought to project a softened stance on female rights, but the insurgents' three-day occupation of Kunduz offers an ominous blueprint of what could happen should they ever return to power.

Harrowing testimonies have emerged of death squads methodically targeting a host of female rights workers and journalists just hours after the city fell on September 28.

When they knocked on the radio host's door, her uncle answered,



she told AFP, requesting anonymity due to safety concerns.

"We know a woman in your house works in an office," she said they told him.

"When my uncle denied it, he was taken outside and shot dead. His body lay in the streets for days — no one dared to go out and get it."

Such testimonies hark back to the Taliban's 1996-2001 rule of Afghanistan, when women were relegated to the shadows.

Rights groups say female prisoners in Kunduz were raped and midwives were targeted for providing reproductive health services to women.



Rampaging insurgents destroyed three radio stations run by women, looted a girls' school and ransacked offices working for female empowerment, stealing their computers and smashing their equipment, according to several sources including activists and local residents. One of their main targets were women's shelters, which give refuge countrywide to runaway girls, domestic abuse victims and those at the risk of "honour killings" by their relatives.

The Taliban have often denounced the shelters as dens of "immorality" and labelled the women who seek shelter there as "sluts".

"Where are you hiding those women from the shelter?" Haseena Sarwari recalled being asked in an abrupt phone call from the head of the Taliban's vice and virtue department soon after they took the city.

"They are safely in Kabul," Sarwari, the Kunduz director of Women for Afghan Women, an NGO

which ran a shelter housing 13 women, said she told the insurgent.

"He laughed and said: 'It's good for them they managed to get away'."

That shelter has since been burned down.

**'Threaten, attack, kill'**

The Taliban tried to project a moderate view on women's rights through informal peace talks earlier this year, where insurgent representatives for the first time sat across the table from Afghan women and even prayed alongside them.

"There has always been a serious disconnect between their vague promises and the behaviour of the Taliban on the ground, where they have continued to threaten, attack and kill women who stepped out of roles of total subservience," Heather Barr, a researcher with Human Rights Watch, told AFP.

"In Kunduz we may have caught a glimpse of how little their pledges to women are worth."

Sarwari is no stranger to threats from the Taliban, but the married mother-of-two also received an astonishing

letter just before the insurgents stormed Kunduz.

Wrapped in a wedding card, the note warned that she would be married off to a Taliban commander.

Sarwari said the threat could not be dismissed lightly. In some areas overrun by the Taliban, she said insurgents are known to have married off wives of government officers to their cadres, treating the women as spoils of war.

Women who fled Kunduz said the Taliban used a "hit list", including names, photos and mobile phone clips of their targets, sparking fears there had been a large-scale identity theft from the computers and documents stolen from various city offices.

Many received calls and text messages with a clear message from the Taliban: "Don't come back or we will kill you."



As Sarwari was fleeing the city in a burqa, she recalls seeing a band of thickset insurgents wrapped in bandoliers of ammunition at Taliban checkpoints, rifling through women's purses for any government IDs and scrolling through mobile phones for contacts. They also chastised some women for travelling without a male chaperone.

"The Taliban still adhere to the idea that women must submit to men, that they are half-brained, and offer mere ornamental value," Sarwari said during an interview in Kabul. "The tumult in Kunduz showed us that their medieval mindset has still not changed."



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## Limited Life SC1

Source: <http://www.respirexinternational.com/en/products/splash-suits/limited-life-sc1/>

The SC1 in Chemprotex™ 300 material is a single use Type 3, Type 4 & Type 5 splash contamination suit designed for use with breathing apparatus worn outside the suit or with a face mask and filter.

The garment is CE certified to EN14605:2005+A1:2009, EN13982-1:2004+A1:2010, EN14126:2003, EN1073-2:2002 and EN1149-5:2008 and is intended for use in areas that are not immediately dangerous to life or health.

- One-piece construction
- Integral hood with neoprene rubber face grommet to seal around the wearer's face mask
- 91cm (36") Nylon zip fitted across the shoulders in rear of suit, flapped internally and encased in a double external housing with self adhesive tape closure
- Chemically protective laminated glove welded to the suit material
- Supplied with Mapa M420 neoprene outer gloves
- Integral socks in the same Chemprotex™ 300 material as the suit with plain outer leg allowing the wearing of customer's own boots. (Boots not included)

The Respirex SC1 splash suit in Chemprotex™ 300 can be used the PermaSURE toxicity modelling app, allowing emergency responders to quickly establish the maximum safe working time with a given chemical based on real world conditions.



## Limited Life Suit

This fully encapsulating Type 1A - ET limited life gas tight suit is designed to protect the emergency responder against toxic, corrosive gases, liquids and solid chemicals.

The suit is manufactured in DuPont™ Tychem® TK, a high performance, seven layer, nonwoven, chemical barrier fabric that is also light in weight.

- Fully encapsulating design to allow breathing apparatus to be worn inside the suit
- Heavy duty 122cm (48") long gas tight zip, fitted to the right hand side of the suit - flap with a VELCRO® brand hook and loop fastener fitted to cover the teeth of the zip
- Adjustable internal support belt and batwing sleeves for optimal wearer comfort
- Flexible, multi-laminated, anti-mist visor giving clear undistorted vision
- Seams welded and double taped
- Dual glove system consisting of a chemically protective laminated inner glove (North Silver Shield® /4H®) bonded to an outer neoprene glove for mechanical protection.
- Gloves fitted by means of Respirex locking cuff
- Integral socks with outer splash guards or Hazmax™ FPA safety boots - Exclusive to Respirex, these boots are highly chemically resistant and are CE marked to EN ISO 20345:2004 and EN345-2:1996



- Exhalation valves ensure that the pressure change within the suit does not exceed 400 pascals in one minute
- Tested to EN464 prior to despatch for leak-tightness
- Pressure test required annually from year five or after each use

**ROV Bag**

Designed to transport Remotely Operated Vehicles (ROV's), used specifically in CBRN incidents, where the ROV has been contaminated.

- Manufactured in Lightweight Multi Laminate DuPont™ Tychem® TK material
- Reinforced PVC base and handles
- Gas tight zip
- Viewing window
- Custom design possible

DuPont™ and Viton® are trademarks or registered trademarks of E.I. du Pont de Nemours and Company.



**EDITOR'S COMMENT:** The ROV Bag is an interesting product especially now that remotely controlled vehicles are used in EOD and CBRN operations. Clever!



**Decontamination for the Disabled**

► **Original title:** Addressing Functional Needs at a Mass Casualty Decontamination Site  
 By **Katheryn D Bruhn and Jeffrey M Brodeur**

*CBRNe World; August 2014*

Presented at the 7th Annual CBRNe Convergence, Hyatt Regency, Long Island, New York, 28-30 October 2014

Source: <http://www.cbrneworld.com>

Saving lives; this is the primary mission of first responders. Since the events of 9/11, the US developed specialized equipment and training programmes to mitigate all types of hazards such as collapsed structures, hazardous materials and potential secondary or delayed devices. We rushed to purchase commercial equipment and provided the training needed to save lives prescribed by a number of national scenarios. Our mass casualty decontamination capacity is sufficient to process thousands of contaminated casualties, and yet there remains a significant capability gap with regards to those with special or functional needs. This article will help the reader understand the types and projected percentages of a population at a decontamination site that require assistance - in the form of training and equipment that has yet been codified as a capability gap by the Department of Defense (DoD) - a population that can be as high as 40%.

**The 40%**

Consider these statistics from the Centers for Disease Control:

- 35.1% of adults age 20 and older are obese
- 14.1% are aged 65 years and over
- By 2030, the number of US adults aged 65+ will more than double to about 71 million
- 20% of persons aged 65+ require the use of a mobility aid to walk
- 8.8% of adults have sight issues
- 16% of adults have hearing difficulties
- 17% of children in the United States

have a disability, ranging from speech and language impairments to cognitive and developmental delays, cerebral palsy, and autism. These disabilities can cause significant communication challenges.



CBRN planners must consider how citizens with mobility issues, such as wheelchair users, will move from the point of origin and through the decontamination lane. We don't have the skills or equipment to move a bariatric adult in a standard wheel chair across unpaved areas such as dirt, lawns, mud, or gravel, to the mass casualty decontamination (MCD) line. Do shower chairs need to be substituted for backboards? Should physical therapists be added to the decontamination team to move people through the decontamination corridor? Do decontamination sites have waterproof, nonporous gait belts and are decontamination staff trained to use them? What will our service members do when the asthma patient refuses to surrender the inhaler? What if they have a medical condition such as diabetes, asthma, HIV, seizure disorders or behavioral health conditions which require frequent scheduled medication?

**Medical challenges to responders**

According to the World Health Organization (WHO), obesity is the world's most significant health

problem. WHO estimates that worldwide there are more than one billion overweight adults. Bariatric patients present injury risks to first responders because of their size and limited mobility. Some thoughts: What specialized training has been provided to decon teams to clean under a panniculus (a hanging flap of tissue)? What decontamination challenges would a ventilator patient pose? How would you decon the ventilator machine and suction pump? Do you have access to another machine and pump while this machine is being cleaned? – Do you have the human resources to bag mask this patient while the machine is being cleaned?



.....

**Additional decon challenges**

There are many other medically related decon challenges that will require specialised procedures and training for people presenting with:

- Prosthetics
- Spinal cord injuries
- Tracheotomies
- Mediports and peripherally inserted central catheter (PICC) lines
- Ventilator dependency

**Communication**

Worldwide, 775 million adults — approximately 12% of the world's population — are considered functionally illiterate, with only basic or below-basic literacy skills in their native languages. In addition, the US Census Bureau reports that 20.5% of people over the age of five, speak a language other than English at home. Up to 44% of the population in California is



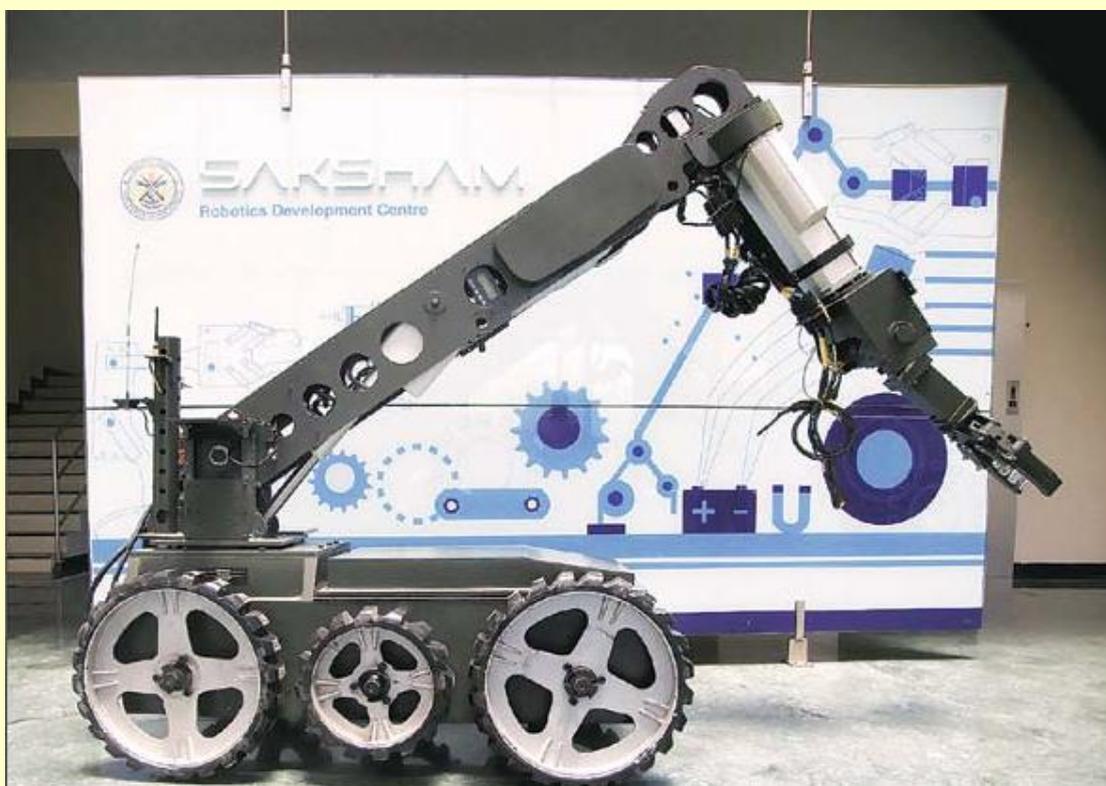
non-English speaking and there is evidence that the role of languages other than English is a growing trend according to the Census Bureau.

▶ You can read the full paper at source reference

*Katheryn D Bruhn, RN, BSN, chief executive officer of Interagency CBRN Enterprises. As well as being the Owner & Chief Executive Officer, Ms Bruhn is also a US Army Nurse and Chemical Officer Col(Ret) Jeffrey M Brodeur (former assistant commandant, US army CBRN school) on special needs decon.*

## Faster, lighter, DRDO's Daksh now has CBRN detection mechanism

Source: <http://indianexpress.com/article/cities/pune/faster-lighter-drDOS-daksh-now-has-cbrn-detection-mechanism/#sthash.7voDe0oR.dpuf>



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Armed Forces and other security agencies in the country will now have enhanced hazard detection capabilities as the Defence Research and Development Organisation's (DRDO's) indigenous robot **Daksh** has not just become lighter, faster and rugged, but has also been equipped with Chemical, Biological, Radiological and Nuclear (CBRN) hazard detection mechanisms.

Daksh, which has been developed by DRDO's Pune-based lab Research and Development Establishment, Engineers (R&DE) located in Vishrantwadi, is primarily designed to detect and recover Improvised Explosive Devices (IEDs). It was inducted in the Indian Army around 2011.

A senior DRDO scientist said, "When Daksh was inducted into the Army, they already had imported Unmanned Ground Vehicles (UGVs). The performance of Daksh has been at par with the imported ones. In some aspects, it is even better. As per our information, as many of 40 IEDs have been neutralised in the insurgency-affected areas in the North-East India with the help of Daksh so far. But from the beginning, we were aware of the limitations of this robot. One of the most important was the speed, another was its weight."



As per the information given by scientists from the R&DE, the newer version of Daksh is made of aluminium alloy as against the older version, which was made of steel. "The use of new material has not just reduced the weight but has also made it more rugged. Use of custom-made motors has increased the speed by three times as compared to the older version," said Mridukant Pathak, a scientist with the R&DE.

**The new Daksh has been integrated with DRDO's Unmanned Aerial Vehicle (UAV) Netra, and the integrated system is being called CBRN Remotely Operated Platform (ROP).** "In case of a radiation hazard, the radiation detection unit fitted on Netra can be flown to the affected area. Netra model being used for this platform has an increased range of four kilometres and double the flying time. The new-age warfare will be way different from the conventional one and we need to have capabilities to detect CBRN attacks. Now that these capabilities are indigenous, we do not have depend on foreign suppliers," said another DRDO scientist.

"This system will not just be useful for the armed forces, but also the paramilitary forces operating in areas where the nature of conflict is different. There will be demand for this new version of Daksh from the security agencies. The manufacturing of these units will be done by Pune-based Bharat Electronics Ltd and three private companies on the Transfer of Technology (ToT) basis," said Alok Mukherjee, assistant director of the R&DE.

Jamal Khan, the Commandant of the Institute of IED Management of the Central Reserved Police Force (CRPF) located in Talegaon near Pune said, "The faster, lighter version of the devise will definitely have an added advantage. The enhanced capabilities will certainly be useful in the backdrop of changing nature of warfare in insurgency affected areas, especially with increased threat of dirty bombs, which use radioactive material."

## **Global chemical, biological, radiological, and nuclear (CBRN) security market to grow steadily to US\$11.92 billion by 2021 illuminated by new report**

Source: <https://www.whatech.com/market-research/military/97545-global-chemical-biological-radiological-and-nuclear-cbrn-security-market-to-grow-steadily-to-us-11-92-billion-by-2021-illuminated-by-new-report>

The CBRN security market is primarily driven by escalating demand for effective CBRN incident combat equipment globally. The increasing importance for the security and safety of civilian lives during CBRN incidents caused either naturally, artificially, or intentionally is boosting the demand for CBRN security worldwide.

According to a new market report published by Transparency Market Research "Chemical, Biological, Radiological, and Nuclear (CBRN) Security Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast, 2015 - 2021," global chemical, biological, radiological, and nuclear (CBRN) security market was valued at US\$9.13 bn in 2014, expanding at a CAGR of 3.8% from 2015 to 2021 to account for US\$11.92 bn in 2021.

Browse the full Chemical, Biological, Radiological, and Nuclear (CBRN) Security Market report at <http://www.transparencymarketresearch.com/cbrn-security-market.html>

The CBRN security systems and equipment facilitate the armed troops and civilians by providing effectiveness and accuracy in protection, detection and decontamination of the harmful agents during CBRN attack situations.

In terms of segmentation by types, the nuclear security segment held the highest revenue share accounting for more than thirty percent of the overall market in 2014. With the increasing threats from terrorist organizations, the requirement for chemical and biological security is also escalating at substantial rate globally.

In terms of functions, the decontamination equipment segment, detection equipment segment and protection equipment segment are evaluated to be growing at significant rates worldwide. The simulation systems segment is currently growing at a slower pace;



however, this segment is expected to gain pace over the forecast period from 2015 to 2021. Geographically, North America lead the global CBRN security market with market revenue share more than thirty percent in 2014 and is expected to continue its dominance throughout the forecast period. Growing interest for effective CBRN control and increasing adoption of enhanced security systems to prevent CBRN incident are the major factors driving the growth of the CBRN security market in North America.

Moreover, the initiatives undertaken by the governments and military to minimize threats from terrorist organizations are further contributing to the growth of CBRN security market in North America. The U.S. is presently estimated to be the largest market for CBRN security in the world and is expected to continue holding the position throughout the forecast period.

Europe and Asia Pacific trails behind North America in the global CBRN security market to collectively account for more than fifty five percent of the global market revenue share. Asia Pacific currently accounts to be the fastest growing region in the global CBRN security market with a CAGR of 4.6% from 2015 to 2021.

The report includes the market revenues of 18 major countries in the CBRN security market. The report provides company market share analysis of the various industry participants and a brief snapshot of the leading CBRN security contractors. Key players have also been profiled on the basis of company overview, financial overview, business strategies, historical roadmap and recent developments in the field of CBRN security.

Major market participants profiled in this report include Argon Electronics (U.K.) Ltd., Bruker Corporation, FLIR Systems, Inc., Blücher GmbH, HDT Global, AirBoss Defense, Inc., General Dynamics Corporation, MSA Safety, Inc., Kärcher Futuretech GmbH and Thales Group among others.

## Boarding Teams and CBRN threats

By Brigadier General (ret) Ioannis Galatas, MD, Lieutenant Leonidas Palaiodimos, MD and Major Antonios Sxoinas, MD

Source: <http://www.nmiotc.nato.int/files/NMIOTCjournal10.pdf>



## Clothing that guards against chemical warfare agents

Source: <http://www.homelandsecuritynewswire.com/dr20151001-clothing-that-guards-against-chemical-warfare-agents>

Oct 01 – Recent reports of chemical weapons attacks in the Middle East underscore the need for new ways to guard against their toxic effects. Toward that end, scientists report in the journal *ACS Applied Materials & Interfaces* a new hydrogel coating that neutralizes



both mustard gas and nerve agent VX. It could someday be applied to materials such as clothing and paint.

Toxic chemicals have been used as weapons since ancient times, but it was not until the First World War that they were released in large-scale attacks. Despite international efforts to ban them, chemical warfare agents (CWA) are still deployed. ACS notes that scientists have developed some substances which can neutralize CWAs, but they lose their effectiveness when incorporated into practical coatings such as paint. Lev Bromberg, a research scientist in T. Alan Hatton's group, and other colleagues wanted to come up with a better solution.

**The researchers developed hydrogel materials that completely broke down the nerve gas VX — one of the most dangerous and persistent CWAs — in less than twenty minutes. The materials also quickly degraded mustard gas and soman, a nerve agent that was reportedly used in the 1980s during the Iran-Iraq war. And, the researchers say, the hydrogels could be applied to fabrics or other materials without losing their ability to neutralize CWAs.**

The Defense Threat Reduction Agency funded the research

— Read more in Lev Bromberg et al., "Nucleophilic Polymers and Gels in Hydrolytic Degradation of Chemical Warfare Agents," *ACS Applied Materials & Interfaces*, Article ASAP (11 September 2015)

### Nucleophilic Polymers and Gels in Hydrolytic Degradation of Chemical Warfare Agents

Lev Bromberg<sup>†</sup>, William R. Creasy<sup>‡</sup>, David J. McGarvey<sup>§</sup>, Eugene Wilusz<sup>||</sup>, and T. Alan Hatton<sup>†‡</sup>

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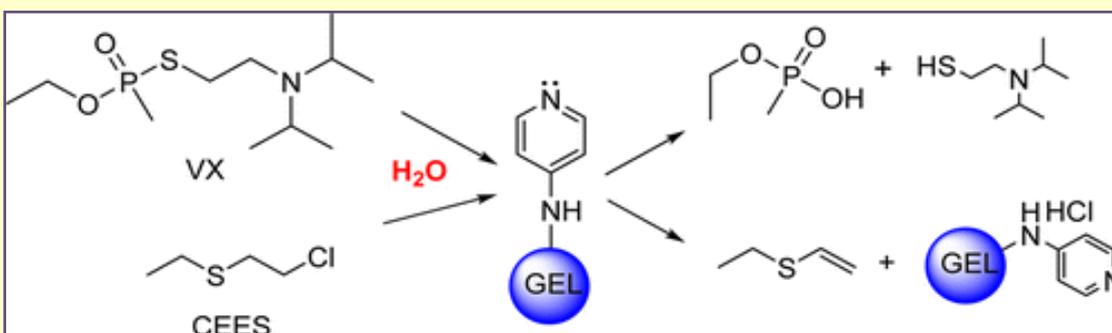
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*ACS Appl. Mater. Interfaces*, Article ASAP

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Publication Date (Web): September 11, 2015



Water- and solvent-soluble polymeric materials based on polyalkylamines modified with nucleophilic groups are introduced as catalysts of chemical warfare agent (CWA) hydrolysis. A comparative study conducted at constant pH and based on the criteria of the synthetic route simplicity, aqueous solubility, and rate of hydrolysis of CWA mimic, diisopropylfluorophosphate (DFP), indicated that 4-aminopyridine-substituted polyallylamine (PAAm-APy) and polyvinylamine substituted with 4-aminopyridine (PVAm-APy) were advantageous over 4-pyridinealoxime-modified PVAm and PAAm, poly(butadiene-co-pyrrolidinopyridine), and PAAm modified with bipyridine and its complex with Cu(II). The synthesis of PVAm-APy and PAAm-APy involved generation of a betaine derivative of acrylamide and its covalent attachment onto the polyalkylamine chain followed by basic hydrolysis. Hydrogel particles of PAAm-APy and PVAm-APy cross-linked by epichlorohydrin exhibited pH-dependent swelling and ionization patterns that affected the rate constants of DFP nucleophilic hydrolysis. Deprotonation of the aminopyridine and amine groups increased



the rates of the nucleophilic hydrolysis. The second-order rate of nucleophilic hydrolysis was 5.5- to 10-fold higher with the nucleophile-modified gels compared to those obtained by cross-linking of unmodified PAAm, throughout the pH range. Testing of VX and soman (GD) was conducted in 2.5–3.7 wt % PVAm-APy suspensions or gels swollen in water or DMSO/water mixtures. The half-lives of GD in aqueous PVAm-APy were 12 and 770 min at pH 8.5 and 5, respectively. Addition of VX into 3.5–3.7 wt % suspensions of PVAm-APy in DMSO-*d*<sub>6</sub> and D<sub>2</sub>O at initial VX concentration of 0.2 vol % resulted in 100% VX degradation in less than 20 min. The unmodified PVAm and PAAm were 2 orders of magnitude less active than PVAm-APy and PAAm-APy, with VX half-lives in the range of 24 h. Furthermore, the PVAm-APy and PAAm-APy gels facilitated the dehydrochlorination reaction of sulfur mustard (HD) and its analogue 2-chloroethyl ethylsulfide (CEES). The ability of the reported aminopyridine-modified polyalkylamine materials to degrade the most persistent of CWAs, coupled with aqueous solubility, and the presence of numerous amino groups that provide convenient “handles” for covalent attachment on polymeric and inorganic supports yields promise for applications such as protective fabric and textile treatment and components of decontaminating materials.

CBRNE WORLD

**Captain Joselito S. Ignacio Acting Director of the Chemical Defense Program in the US Department of Homeland Security's Office of Health Affairs describes the steps US subway operators are taking to protect their passengers from chemical attack**

## Derailing a chemical attack in a subway system

Every day, millions of people worldwide take underground trains to get to and from work, to visit family and friends or just for leisure. Despite the vast

many other countries, toxic industrial chemicals (TICs) are manufactured, used, transported and stored in large quantities every day. Industry produces

through the system. Furthermore, limited egress in stations hampers evacuation and the rush to exit may result in severe or fatal crushing injuries.

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► **Source:** CBRNe World; April 2013; pp.70-74.

[http://www.cbrneworld.com/uploads/download\\_magazines/Derailing\\_a\\_chemical\\_attack.pdf](http://www.cbrneworld.com/uploads/download_magazines/Derailing_a_chemical_attack.pdf)

### Standoff detection of chemical and biological threats

By Petros Kotidis, Erik Deutsch and Anish Goyal

Source: <http://spie.org/x113846.xml>

June 2015 – The standoff detection and identification of chemical threats is commonly considered to be the ‘holy grail’ of detection instruments. Standoff techniques enable detection of chemical threats without contact. The possibility of contamination (for operators and/or equipment) is thus avoided, and the need for subsequent decontamination is eliminated. In addition, standoff detection of explosives allows identification of threats from safe distances, i.e., outside the blast zone. There are now ongoing efforts to extend these methodologies to biological threats.

For several decades, Block MEMS LLC has been developing standoff detection systems that are based on mid-IR (MIR) spectroscopy. The company also produced the first modern version of the Fourier-transform IR (FTIR) spectrometer. Several Block standoff detection systems—based on the FTIR spectrometer—are used to protect critical infrastructure in the United States (e.g., at the Pentagon). Compared with other parts of the optical spectrum (e.g., UV, visible, near-IR, and short-wave IR), the MIR enables higher sensitivity detection and

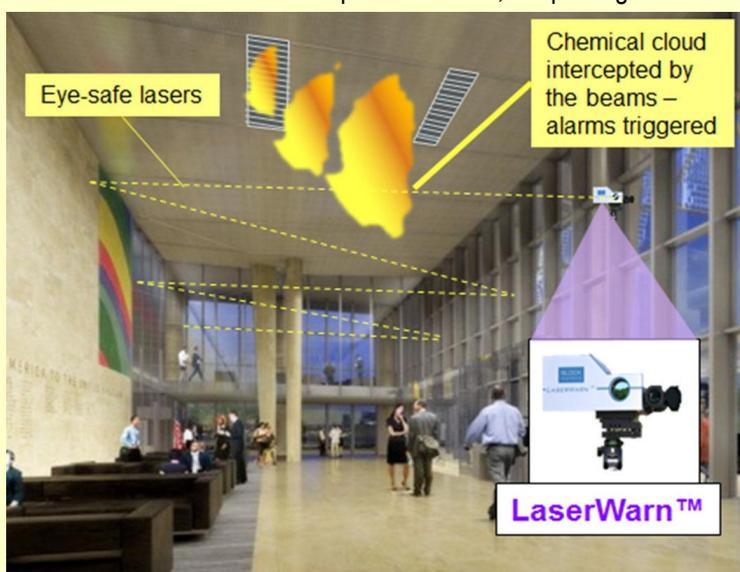


higher specificity identification of a wide range of chemicals.<sup>1, 2</sup> Laser-based systems, however, have higher sensitivity than passive MIR detection systems that use ambient thermal radiation. As such, laser-based systems can be used under a wider range of environmental conditions (e.g., indoors and outdoors).<sup>3, 4</sup> Laser-based standoff methods—based on Raman spectroscopy and laser-induced breakdown spectroscopy—have also been used with success, but these require the use of lasers that are not eye-safe (an important consideration for many standoff detection systems).<sup>5</sup>

In response to the growing need for standoff detection systems with enhanced capabilities, we recently introduced new technology that is based on quantum cascade lasers (QCLs). These lasers operate in the MIR portion of the optical spectrum, where almost all chemicals have strong and unique absorption features. QCLs substantially extend the capability of well-known and proven MIR spectroscopy instruments. Our company is a leader in the use of QCL-based MIR spectroscopy for standoff detection applications, and we have produced several new products that use this technology.<sup>3, 6</sup> It is important to emphasize that all our QCL-based systems are also eye-safe.

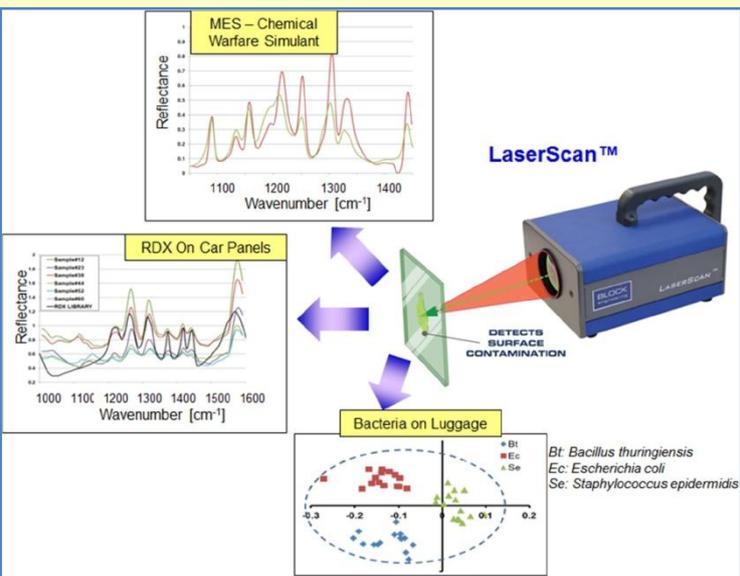
With our standoff detection systems, we take advantage of several key advancements in wavelength-tunable QCL technology. First, the QCLs that we use in our products are widely tunable and can cover a spectral range of more than  $1000\text{cm}^{-1}$  in a single unit, anywhere within the feature-rich  $5\text{--}13\mu\text{m}$  wavelength range. Second, our QCLs can tune at very high speeds to allow real-time detection and handheld operation. Third, we package and seal the QCLs in extremely compact modules. This means

that the overall size, weight, and power consumption of a complete system can be dramatically reduced. We recently presented results for our latest standoff detection technologies and their applications.<sup>7</sup> Our LaserWarn system (see Figure 1) can be used to protect critical facilities (e.g., embassies, federal buildings, shopping malls, and transportation terminals) against chemical attacks.



**Figure 1.** Artist's illustration of the LaserWarn system. Eye-safe lasers create an invisible beam that is used to detect chemical threats in the air. This system can be used for 24/7 protection against chemical attacks.

With this system, we create an invisible tripwire-like mesh. Any threatening chemical cloud that crosses this laser beam is instantaneously identified, which triggers established security protocols for the protection of the venue. This detection system has no consumables and can be set up for automated, unattended 24/7 surveillance and protection of the selected facility. We also provide built-in libraries of chemical threats, which can be used and expanded by a user as necessary.



**Figure 2.** Illustration of the LaserScan detection system. Mid-IR spectroscopy is used to detect chemical warfare agents (e.g., methyl salicylate, MES), explosives (e.g., Research Department explosive, RDX), and bacteria on various surfaces. The lower plot shows that a detection algorithm (based on principal component analysis of the reflection spectra) can be used to clearly distinguish between three types of bacteria on luggage.



Another of our standoff detection systems—LaserScan—is illustrated in Figure 2. This portable system is used to detect chemicals on surfaces by illuminating the surface with wavelength-tunable QCLs and analyzing the reflection spectrum for features that indicate the presence of a trace chemical threat. These threats may include chemical warfare agents (e.g., methyl salicylate), explosives, or bacteria (e.g., *Bacillus thuringiensis*, *Escherichia coli*, or *Staphylococcus epidermis*).<sup>8</sup> A detection algorithm (based on principal component analysis of the reflection spectra) is able to clearly distinguish between all three types of bacteria on wood, steel, and luggage substrates (see Figure 2). We have also conducted a series of tests at government facilities using the LaserScan system. We were able to detect and identify a wide range of chemical agents and explosives on various substrates (e.g., asphalt, cement, plastics, and metals). The typical standoff distance for the LaserScan system is 6–12 inches, but we can offer other distances by selecting different front-end optics for the system. Our LaserScan-



DE instrument is another version of this system (see Figure 3). The LaserScan-DE is designed for use by dismounted soldiers for real-time standoff detection of 'disturbed earth,' which can indicate the presence of a buried improvised explosive device.

**Figure 3.** Illustration of a dismounted soldier scanning the ground for disturbed earth (DE), which can be an indicator of a buried improvised explosive device. The LaserScan-DE instrument is designed for this purpose.

We have developed a series of standoff detection instruments that can be used to identify chemical, explosive, and biological threats. These are based on our advanced widely tunable QCL technology, which enables real-time and high-sensitivity detection. Several of our systems are portable and support handheld operations. We believe there are many applications—both governmental and

commercial—which require sensitive standoff detection of chemicals, and we are adapting our QCL technology for use in these applications. Furthermore, we are currently pursuing the incorporation of our QCLs into hyperspectral imaging systems to enable even higher-sensitivity chemical detection.

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*Petros Kotidis is the CEO of Block Engineering and has several decades of experience in the photonics industry. He previously held senior management positions at Axsun, Nortel, and Textron. He has a PhD and MS from the Massachusetts Institute of Technology and a BS in mechanical engineering from*



*the National Technical University of Athens, Greece. He has also been awarded 21 patents. Erik Deutsch obtained his PhD in electrical engineering from the Massachusetts Institute of Technology and his BA in physics from Vassar College. He was a co-founder at Polychromix, where he oversaw the development of all MEMS (microelectromechanical systems). He has extensive experience with micro-optical devices and has played a large part in their design, development, and commercialization. He led all engineering efforts at Block and is also responsible for bringing new MEMS and laser-based instruments to the marketplace.*

*Anish Goyal has a PhD in electrical and computer engineering (specializing in solid-state device technology) from the University of California, Santa Barbara. He obtained his BS in electrical and computer engineering from Rensselaer Polytechnic Institute. He joined Block from the Lincoln Laboratory at the Massachusetts Institute of Technology, where he was a member of the technical staff in the Laser Technology and Applications Group. He leads all aspects of technology development, assessment, as well as the demonstration of new commercial and government applications, and the establishment of corporate technology strategies.*

CBRNEWORLD

Dr Michael Logan, research and scientific branch, Queensland Fire and Emergency Services and Dr Christina Baxter, CBRNE programme manager, Combating Terrorism Technical Support Office, United States Department of Defense on making chemical agent detectors relevant to hazmat incident response

# Choose your weapons!

Since the terrorist attacks on the World Trade Center and the Pentagon, emergency response organisations worldwide have been inundated with new detection equipment, most of which has targeted capabilities for the detection and identification of chemical

warfare agents. Unfortunately, the training necessary to operate and maintain the detection equipment was not coordinated, and in many cases, was not provided at all. While the global threat has changed, it has not diminished, as evidenced by the recent

deliberate releases of chemical warfare agents in Syria. Therefore, the need for chemical agent detectors within the detection portfolios of emergency response agencies remains.  
Many of the chemical warfare agent detectors that were deployed to and

Source: [http://www.cbrneworld.com/uploads/download\\_magazines/Choose\\_your\\_weapons.pdf](http://www.cbrneworld.com/uploads/download_magazines/Choose_your_weapons.pdf)

► CBRNe World; April 2015



## Helping Soldiers Breath Easy with New 3D Printed Gas Mask

Source: <http://inside3dprinting.com/helping-soldiers-breath-easy-with-new-3d-printed-gas-mask/>

UK firm Design Reality has recently put 3D printing to use to design a better General Service Respirator – more commonly known as a gas mask – for the British military.



The design team used an **Objet260 Connex** (photo) to develop the respirator, taking advantage of the system's multi-material capabilities to, according to Stratasys, "accurately prototype every single aspect of the mask, from the rubber seals to the rigid clips and fasteners to the transparent visor." The ability to put together nearly functional prototypes without requiring manual construction helped



speed up the design process to get the new respirators in the field.



Beyond protecting British troops from chemical weapons, the new respirators are meant to defend against biological agents and, potentially, nuclear particles. The respirators were also designed to allow



for easy fluids intake, weight, and comfort, without significantly impacting communication. "This respirator is no mere gas mask," said Lord Bach, Defense Procurement Minister. "It will give our troops unparalleled levels of protection in the field."



## AirBoss Moulded CBRN Glove (AMG)

Source: <http://www.airbossdefense.com/products/airboss-moulded-cbrn-glove/#prettyPhoto>

**There is simply no better CBRN glove engineered specifically for military and first-response forces. Injection moulded using bromobutyl, the AirBoss glove fits better, dons faster, and lasts much longer than dipped gloves. This is the ultimate in CBRN hand protection, the operational standout worldwide.**

### Excellent Fit

With its unique sizing system, the AirBoss Moulded CBRN Glove is manufactured to fit more than the 95th percentile of the population, both male and female. Each glove can be supplied with our patented CoolMax® liners for sweat management and easier donning and doffing.



### High Dexterity

Lightweight and seamless with textured fingertips, the AirBoss Moulded CBRN Glove provides extra-high dexterity and tactility.

### Tear Resistance

Despite being only 0.56mm (±0.13mm) thick, the AirBoss Moulded CBRN Glove is remarkably tear resistant.

### Ambidexterity

The AirBoss Moulded CBRN Glove is the only moulded ambidextrous CBRN glove of its kind.

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### Extended Protection and Ease of Decontamination

The AirBoss glove provides 24-hour protection against CW agents and a variety of TIC threats. It can be decontaminated easily in the field.



### Anti-Static

The glove's anti-static properties are a major benefit in potentially explosive situations. Wearers are able to ground themselves and remained gloved, thus uncontaminated, when fuelling vehicles or aircraft.

### Compatible

The AirBoss Moulded CBRN Glove fully integrates with CBRN suits.

### Accurate Sizing

Available in seven sizes: Small, Medium-Narrow, Medium, Large-Narrow, Large, X-Large-Narrow, X-Large

### Proven High Performance

**Chemical and Biological:** 24-hours of continuous protection against CW agents based on stringent military test methods; impermeable to all biological agents



**Toxic Industrial Chemical:** Excellent protection against a wide range of TICs (*list available upon request*)

**Ruggedly Tough & Durable**

**Operational Range:**-45°C to 70°C (-49°F to 158°F)

**Storage:**-50°C to 60°C (-58°F to 140°F)

**Shelf Life**15 years in original package if properly stored

**Specifications**

**Weight:** 135 g (4.76 oz) per pair (size L, not including liners)

**Packaging:** Low-profile vacuum packed (size L, 365 cm<sup>3</sup>)

**Also available:** CoolMax® Lycra removable liner for even greater comfort and sweat management

**EDA and TNO Defence sign last CBRN joint investment programme contract**

Source: <http://www.army-technology.com/news/newseda-and-tno-defence-sign-last-cbrn-joint-investment-programme-contract-4686742>



TNO Defence and Security director Henk Geveke and EDA deputy chief executive Rini Goos signed the last contract under CBRN Joint Investment Programme. Photo: courtesy of European Defence Agency.

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Oct 07 – The European Defence Agency (EDA) and TNO Defence and Security have signed the last of the chemical, biological, radiological and nuclear (CBRN) protection projects within the Joint Investment Programme CBRN (JIP CBRN).

The contract signing paved the way for the RACED project, which aims to improve decontamination (DECON) procedures of material or equipment exposed to chemical or biological warfare agents.

The project is expected to assess DECON procedures and lead to development of a prototype tool that will aid operational commanders in minimising the after-decontamination exposure risk.

In addition, the assist tool will help commanders in making decisions on the assessment of the sufficient level of DECON, remaining hazards in terms of exposure to human beings, and necessity of taking further steps.

Executed by a consortium led by the Netherlands-based TNO with partners coming from four member states and Norway, RACED will primarily focus on a scientific and technological consideration of the complex question of 'how clean is clean enough?'

The consortium partners include FFI from Norway, ITQB and LBDB from Portugal, Austria-based ACMIT and ADL, Belgian RMA,



as well as SUJCHBO from Czech Republic. RACED is the last of 14 projects under the JIP-CBRN, which serves as an EDA contribution for the European Framework Cooperation, a joint effort of the European Commission and the EDA on maximising synergies between civilian and defence-related research activities. "RACED is the last of 14 projects under the JIP-CBRN, which serves as an EDA contribution for the European Framework Cooperation,"

The €12m project has been set up as Category A programme, and is being funded by 12 member states and Norway.

The JIP-CBRN programme arrangement was signed in March 2012, while two calls for

proposals covering various research and technology projects within the CBRN area were conducted in 2012 and 2013.

Projects included stand-off detection for chemical agents, point detection of biological agents, unknown samples handling, modelling and simulation of CBRN architectures, decontamination, protection equipment, and sensor networking.

A total of seven projects were initiated within the first call frame, and one project, dubbed 'Biotype' successfully ended with a demonstrator device with an integrated biosensor for point detection of airborne bio-threats based on anti-body lab on a chip technology this year.

## Chemical Contamination of food and water

Source: Medical NBC Battlebook

The effects of chemical agents on food depend on the properties of both the agent and the food. Contamination of water may lead to a toxic hazard when it is used for food preparation.

Nerve and mustard agents readily penetrate fatty foods and will also penetrate granular foods (e.g., grain and sugar). Arsenicals penetrate proteins less readily owing to their coagulating action. Nerve agents may penetrate fruit. Three groups of foods may be considered on the basis of their composition.

**A. Foods with high water content, but low fat and a crystalline structure** (e.g., fresh vegetables, fruit, sugar, and salt). These absorb mustard and nerve agents in vapor and in liquid form.

**B. Foods with low fat content and amorphous structure** (flour, bread, grain, rice cereals, dried fruit and vegetables, tea, coffee, peas and beans). These absorb liquid nerve and mustard agents; some absorption of vapor may occur.

**C. Foods with high fat and low water content** (butter, fat, oil, ham, fat meat, cheese, milk, eggs, and fish). These absorb nerve agents and mustard so readily that decontamination is impossible.

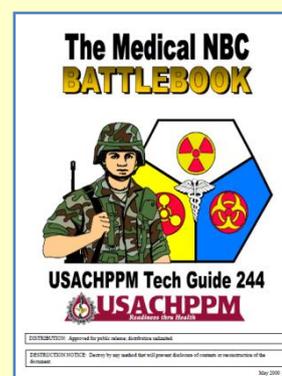
Food may become highly toxic without any change in its appearance. The absence of these signs must not be relied upon in deciding that exposed food is fit.

**Effect of crops.** Heavy contamination of plants with mustard or arsenicals will destroy crops. Lighter contamination may cause partial defoliation. Arsenical agents will leave sufficient arsenic to render the plant toxic, and nerve agents may penetrate plants so as to make them toxic.

**Effect on Livestock.** The effects of chemical agents on livestock will be the same as those upon human casualties apart from species specific variations. Mustard does not cause blistering in animals. The presence of large numbers of dead animals may indicate contamination in the area and these animals should not be eaten.

**Packing Materials.** Decontamination of food is difficult and not likely to be satisfactory, so that the protection of food and drink is of the first importance. Food supplies should therefore always be covered when transported or stored. Even the thinnest covering is better than no covering at all, but good protection can be given by suitable methods of packing and storing.

**Disposition of Packaged and Stored Supplies.** In determining the disposition of packaged and stored supplies which have been contaminated, consideration must be given to the nature of the contaminant, as well as to the type of foodstuffs and the security afforded by the packaging material.



**Monitoring Food.** All food exposed to chemical attack that has not been protected by agent-proof containers or in fully protected stores must be considered contaminated. Monitoring for volatile agents only may be undertaken by putting the food into a clean plastic bag and sampling the air in the bag with suitable detection equipment. Where arsenical contamination is suspected, the food may be suspended in water and the water tested with a water testing kit. Liquid contamination on the surface of containers may be tested for using detector papers, but this method will only be reliable while liquid agent remains. Mental incapacitants, biological agents, and nuclear fallout will not be detected by these means.

**Classification of Supplies.** Before any decontamination is done, a careful survey should be made to determine the extent of the contamination. From information gained in this survey, the exposed items should be divided into three groups.

A. **Group I** will consist of canned and unopened packaged items that have been exposed only to the vapors of a chemical agent. Generally, the items in this group will be safe to issue to personnel after a brief period of outdoor airing.

B. **Group II** will consist of canned and unopened packaged items, the outsides of which have been contaminated with a liquid chemical agent. The best procedure is to allow self decontamination of the packaging material by ageing and airing. If a shortage of food does not permit the necessary time for self decontamination, then a decontamination procedure is to strip off the outer contaminated coverings and examine the inner layer to see if agent penetration has occurred. If it has, continue stripping off layers until an uncontaminated layer is reached.

C. **Group III** will consist of unpackaged or poorly packaged items that have been exposed to an agent in either vapor or liquid form. Decontamination of food itself will be attempted only in emergency situations when there is no alternative supply of food. The general decontamination procedure to be followed in sequence is:

- (1) Trimming of surface fat and/or grossly contaminated areas.
- (2) Washing with water of 2% sodium bicarbonate solution or 1% chlorine solution.
- (3) Boiling in water. Frying, roasting or boiling will not remove traces of nerve or blister agents from meats. In general, salvage of foods contaminated with droplets of the blister agents is not practical.

**Disposition of Packaged and Stored Supplies**

Airtight glass bottles, sealed aluminum laminated packages, and sealed metal cans give complete protection against vapor and liquid. Decon outer surface before opening.
Wooden boxes not sealed for the exclusion of air gives almost no protection against vapor and liquid.
Waxed paper boxes sealed for the exclusion of air give good protection against vapor and fair protection against liquid.
Untreated wrapping papers give poor protection against vapor and very little against liquid.
Ordinary textiles in a single layer packaging give almost no protection against vapor and liquid.
Coverings of sod and earth give good protection against vapor and liquid.
Overhead shelters give protection against liquid sprays and splashes. Closed buildings give protection against liquids but often not against vapors, unless overpressured with filtered air.
Generally, double layers greatly increase the protective efficiency of packaging materials.
Field rations are packaged to protect the enclosed foods for hours even when the outside of the package is heavily contaminated with a liquid agent.

**Water.** Contamination of water may lead to a toxic hazard when it is used for drinking, washing, and food preparation. Although many agents hydrolyse in water, this is not satisfactory as a method of decontamination. Arsenical agents leave degradation products that are toxic even when hydrolysis is complete. The appearance of water does not indicate contamination, and any water exposed to high concentrations of vapor, or any liquid contamination must be regarded as toxic until tests have been made. Open water sources



subjected to chemical attack should be considered contaminated until tested. Water from deep wells will be safe provided that the well mouth is covered. Water in closed metal tanks will be safe provided that the tap and air inlets are decontaminated.

**Effect of Certain Agents on the Appearance of Food**

Agent	Taste	Smell	Color
Mustard	Affected	Garlic	Meat discolored
N-Mustard	Affected	Fishy	No discoloration
Arsenicals	Acid	Unpleasant	Meat & vegetables discolored
Nerve agents	None	None	No effect
White phosphorus	Acid	Garlic	Glows in dark

Food may become highly toxic without any changes in its appearance. The absence of these signs must not be relied upon in deciding that exposed food is fit for consumption.

**Monitoring Water.** Water testing kits will detect the following agents: mustard, nerve agents (0.05 ppm only), arsenic, antimony, cyanogen agents, other heavy metals (lead, copper, mercury). Water with a pH less than 3 is condemned since this high acidity may be due to contamination with mustard, but if free chlorine is present throughout 30 minutes mustard will be destroyed. Chlorine in excess of 5 ppm will, however, interfere with the testing and should be reduced (e.g., with thiosulphate). The water testing kits will not detect mental incapacitants, biological agents, or nuclear fallout.

**Maximum Allowable Concentrations of Agents in Drinking Water**

Agent	Maximum Allowable Concentration (mg/l) consumed at 5 liters per day for not more than 7 days
GA	0.014
GB	0.028
GD	0.012
VX	0.015
Mustard	0.140
Arsenic	0.3
Cyanogens	6.0

**Decontamination of Water.** Simple boiling is not a reliable method of decontamination. The following methods are available for decontaminating water and may be used in combination:

- A. **Filtration.** In a small scale emergency, water may be decontaminated by running it through a spare unused respirator canister, provided that the flow rate is such that the water emerges drop by drop; any water coming through at first faster than this should be discarded. No more than 5 liters should be filtered with one canister. The canister cannot be used on a respirator after being used for this purpose.
- B. **Superchlorination.** Small amounts of water, in units of one litre, may be superchlorinated. Simple chlorination, as is used to disinfect water from naturally occurring bacterial contaminants, is not sufficient to decontaminate water suspected of being contaminated with chemical agents.
- C. **Flocculation.** Larger quantities of water may be treated by flocculation with metal salts, after which the water is treated with chlorine.
- D. **Reverse Osmosis.** Reverse osmosis is an effective method of removing contamination, including heavy metals.

**Bad chemistry: ISIS and mustard agents**

By Gabrielle Tarin

Source: <http://thebulletin.org/bad-chemistry-isis-and-mustard-agents8793>

Oct 09 – Two years after the dismantlement of Syria’s declared chemical weapons arsenal, chemical warfare continues in the Middle East, attended by little public outcry.



US officials have identified at least four occasions in the last two months when the Islamic State in Iraq and Syria (ISIS) has used mustard agents on both sides of the Iraq-Syria border. While early claims by **US officials suggested that ISIS militants obtained the deadly chemicals from caches in Syria, officials now believe the group has developed the capacity to [manufacture its own mustard](#) on a small scale.**

Chemical weapons have a decades-long history in the Middle East, a region that has seen their widest and most recent use. Leaders like Saddam Hussein and Bashar al-Assad have viewed them as highly effective battlefield weapons that could be used to generate tactical and even strategic gains. ISIS's actions are a continuation of established security patterns.

Hussein's use of chemical weapons during the Iran-Iraq War, in the 1980s, created a number of dangerous precedents relevant to the current situation. The failure of Iraq's attacks to overwhelm Iranian defenses early in the war fueled a perceived need for chemical weapons. Because Iraq did not initially possess huge chemical weapons stores, it first employed chemical agents, namely the riot-control agent known as tear gas, in an effort to offset the Iranian human-wave attacks that overwhelmed Iraqi defenses and demoralized troops.

As the war dragged on, chemical weapons went from a defensive last resort used to prevent a decisive Iranian breakthrough to a trump card critical in the mounting of key offensives. The scope and size of Iraqi chemical attacks increased, the agents became deadlier, and, most crucially, chemical weapons began to be used to support offensive attacks. The largest and most notorious chemical attack was launched in what proved to be one of the final battles of the war, in March 1988, when Iraqi forces bombarded the town of Halabja with various chemical agents. The use of chemical weapons in Halabja, along with the threat of chemically tipped Scuds, brought Iran to its knees, and signaled Iraq's determination to force a negotiated settlement. Some regional observers drew the conclusion that chemical weapons could indeed have a strategic impact on the outcome of a conflict: Hussein had successfully staved off what initially looked like an all but certain Iranian victory and emerged with the backing of the international community.

Bashar al-Assad appears to have made a similar calculation when he began using

chemical weapons during the Syrian civil war. Assad's regime was on the verge of defeat when it hit Ghouta, a Damascus suburb, with the nerve agent sarin in August 2013, the largest known use of chemical weapons by the regime. Assad had been fighting the opposition for 18 months using conventional bombs and guns, with little success. Analysts such as Hamish de Bretton-Gordon, a former commanding officer of the British military's Joint Chemical, Biological, Radiological, and Nuclear Regiment and NATO's Rapid Reaction CBRN Battalion, have argued that Assad believed that the use of chemical weapons could serve as an effective last-ditch effort to keep the rebels from encroaching on his headquarters in Damascus, the capital. Today, two years after Assad agreed to dismantle Syria's chemical weapons stockpile, there is still evidence that his government is dropping barrel bombs containing chlorine on insurgent-held areas.

ISIS's recent use of chemical agents fits with the historical pattern established by Hussein and Assad. The militant group certainly sees itself as a state and behaves like one—administering territory, levying taxes, and managing large numbers of fighters across vast amounts of land. **The group's increasing use of mustard agent points to a belief that chemical weapons are an important tactical asset on the battlefield.**

ISIS's alleged chemical attacks in Marea in August are a good example of this strategy. Located in northern Syria, Marea is a key town along the border with Turkey, close to a vital supply route for the Syrian rebels. Capturing Marea would make ISIS well-placed to control the nearby Bab al-Salaama border crossing with Turkey, providing it access to more supplies, weapons, and foreign recruits. The Syrian American Medical Society reported that the assault on Marea involved more than 50 shells centered on civilian areas. After the attack, the group's field hospital received more than 50 patients, 23 of



whom showed symptoms of chemical exposure. The report was corroborated by local rebel forces, who claimed the shells had been fired from an ISIS-controlled village. The Marea attack reflects the established line of thinking: When conventional weapons fail, chemical weapons may make the difference. This troubling pattern raises concerns about the erosion of fairly solid international norms surrounding chemical weapons use. Despite an

enormously ambitious and exceedingly complex international effort to rid Syria of its chemical stockpile (and one that, despite tensions and poor relations, brought the US and Russia together), it appears that chemical warfare is still alive and well in Syria and Iraq, because of an enduring belief among regional actors that chemical weapons will get the job done.

*Gabrielle Tarini is a research assistant at the James Martin Center for Nonproliferation Studies in Washington, DC. Prior to joining CNS, she held a number of internships in the peace and security field, including at the Center for Arms Control and Non-Proliferation and at Global Zero. Tarini graduated magna cum laude from Boston College in 2015, where she majored in international studies and political science.*

### QU hosts workshop on weapons of mass destruction

Source: <http://thepeninsulaqatar.com/news/qatar/355473/qu-hosts-workshop-on-weapons-of-mass-destruction>

Oct 19 – A recent workshop on weapons of mass destruction brought together students from Qatar University College of Law and Georgetown University School of Foreign Service Qatar (SFS-Q). The 5th Weapons of Mass Destruction Awareness Workshop was held at Qatar University (QU), under the patronage of Chief of Staff of Qatari Armed Forces Major General Pilot Ghanim bin Shaheen Al Ghanim. It was sponsored by National Committee for the Prohibition of Weapons (NCPW).



It aimed to orient students on Qatar’s efforts to implement and execute tasks and responsibilities emanating from the United Nations Security Council Resolution 1540 of 2004 and conventions regarding non-proliferation of weapons of mass destruction.

It featured sessions moderated by NCPW Member Abdellatif Ali Al Abdulla.

Presenters from the committee were Secretary-General First Lieutenant Abulaziz Hamdan Al Ahmad,

Radiation Expert Dr Salwan Kamal Aboud, and members Dr Ahmed Hassan Al Hamadi and Engineer Sultan Jassem Al Mouslemani; and SFS-Q Senior Assistant Dean for Faculty Affairs Dr Henrick Barth. Students learned about the committee’s goals and achievements, issues surrounding weapons of mass destruction, Biological Weapons Convention of 1975, Chemical Weapons Convention of 1997, UN Security Council Decision 1540 of 2004, and measures adopted in the Conventions and the Treaty on Non-Proliferation of Nuclear Weapons of 1970.

NCPW Chairman Major General Staff (Pilot) Nasser Mohammed Al Ali said: “We believe in the necessity of cooperation and integration between universities and the committee for the prohibition of weapons to cover weapons of mass destruction treaties along with their academic and applied aspects to reach a safe world free of these deadly weapons. We look forward to continuing our collaboration with universities and scientific research centres in the fields of training and awareness.”



The workshop follows an agreement signed between QU and NCPW on this May 10 (photo above) which will provide opportunities for college students to engage on the issue through training workshops, internships, debates, participation in conferences and other forums, and awareness campaigns.



## Ebola survivors suffer complications

Source: <http://www.thenewdawnliberia.com/news/8487-ebola-survivors-suffer-complications>

Sept 23 – More than a year after the Ebola outbreak that left about 4000 Liberians dead, survivors here are said to be experiencing a series of health complications, including severe body pains, visual problems, impotency, miscarriage and still birth, among others.

Some 3000 Ebola survivors, including women and children, have been documented across the country since the disease was defeated last year [2014]. The Principal Investigator for the Ebola Natural History Study at the Ministry of Health, Dr. Masoka Fallah, said that due to health complications, some survivors have begun to lose their jobs.

Briefing reporters on Tue 22 Sep 2015 at the Ministry of Information on Capitol Hill, he said that to establish a trend of these health problems survivors are faced with, an historical study was launched on 17 Jun 2015 at the John F. Kennedy Memorial Hospital in Monrovia.

The study is being conducted by the Liberia-United States Joint Clinical Research Partnership or PREVAIL. Dr. Fallah added that through an appeal by former Health Minister Dr. Walter Gwenigale, the National Institute of Health has been helping the Liberian government in conducting the study, which will

last for 5 years to establish causes for the complications and find solutions.

He said the Ministry of Health will have to survey the entire population to find out whether these sicknesses are common among Liberians, including close contacts or relatives of Ebola survivors.

Therefore, a month ago, the ministry brought an eye specialist to examine eyes of survivors, targeting about 1500 of them.

Dr. Fallah disclosed that a total of 743 persons have enrolled in the study, among them 415 females and 328 males with 663 survivors. The Principal Investigator said the Health Ministry is working along with the Ebola Survivors Network to engage in social mobilization to encourage more survivors into the study, while stressing: "We need to attack the problems the survivors are faced with before it becomes serious problem."

For her part, the director for operation at the National Institute of Health based in the United States, Dr. Laura McNay, described the 1-year partnership with the Ministry of Health as great, adding that they were able to train many Liberians in clinical research. The World Health Organization has declared Liberia Ebola-free and formally certificated the country twice.

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## WHO situation report (data to 20 Sep 2015)

Date: Wed 23 Sep 2015

Source: <http://apps.who.int/ebola/current-situation/ebola-situation-report-23-september-2015>

There were 2 confirmed cases of Ebola virus disease (EVD) reported in the week to 20 Sep [2015], both of which were in Guinea. Case incidence has remained below 10 cases per week since the end of July this year [2015]. Over the same period, transmission of the virus has been geographically confined to several small areas in western Guinea and Sierra Leone, marking a transition to a distinct, 3rd phase of the epidemic. Improvements to rapid and accurate case investigation and contact tracing, rapid isolation and treatment, and effective engagement with affected communities have all played a crucial part in reducing case incidence to its current low level. A refined phase-3 response coordinated by the

Interagency Collaboration on Ebola will build on these existing measures to drive case incidence to zero and ensure a sustained end to EVD transmission. Enhanced surveillance capacity to rapidly identify a reintroduction (either from an area of active transmission or from an animal reservoir), or re-emergence of virus from a survivor, improved testing and counseling capacity as part of a comprehensive package to safeguard the welfare of survivors, and the increased use of innovative technologies -- from vaccines to rapid diagnostic tests - are central to the phase-3 response framework. Accordingly, an increased emphasis will be



placed on the monitoring and evaluation of these additional phase-3 measures in the coming weeks.

After recording 14 consecutive days with zero confirmed cases, 2 new confirmed cases were reported from Guinea during the week ending 20 Sep [2015]: a 10-year-old girl who died after moving from the Ratoma area of Conakry to Forecariah, and a 24-year-old woman who was identified as EVD-positive in the Dixinn area of Conakry. Neither case was a registered contact, although both cases have a strong epidemiological link to a probable case thought to have died from EVD at the end of August [2015]. Investigations incorporating genetic sequencing of Ebola virus from both confirmed cases suggest they are part of the Ratoma chain of transmission, the only chain of transmission known to be currently active (past 21 days) in Guinea.

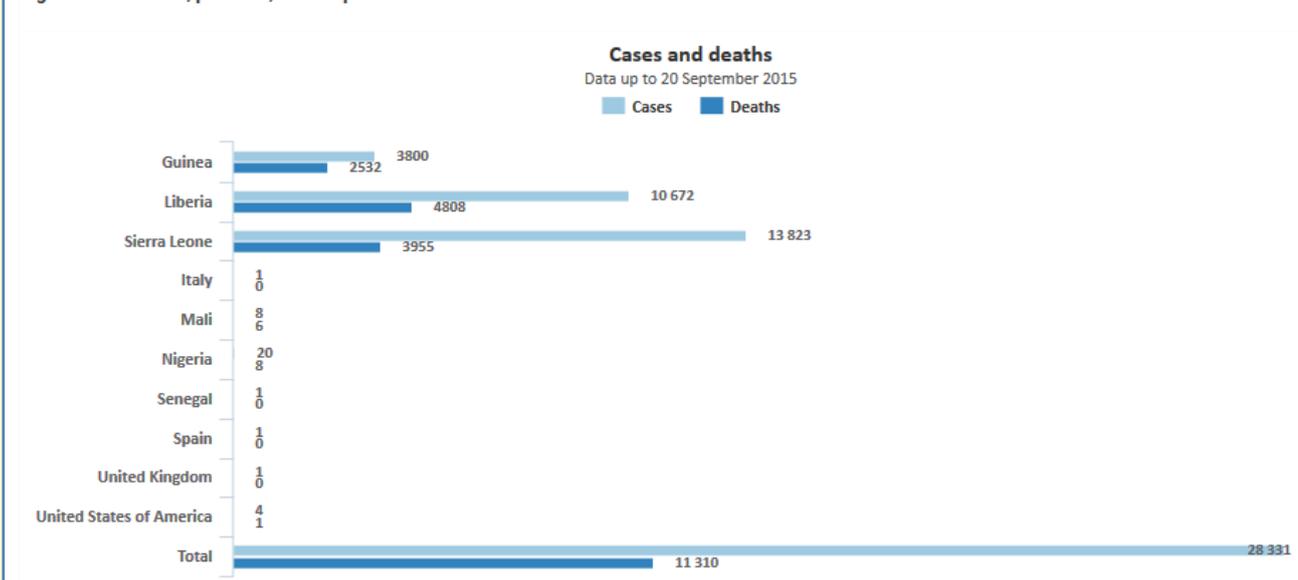
No new confirmed cases were reported from Sierra Leone in the week to 20 Sep [2015]. Over 700 contacts have been identified in association with the previous week's reported case from Bombali: a 16-year-old girl identified as EVD-positive after post-mortem testing. Investigations into the origin of her infection

areas. A total of 719 samples were tested by 8 operational laboratories in Guinea in the week to 20 Sep [2015]. Analyses of the geographical distribution of samples collected indicate that 21 of 34 Guinean prefectures did not collect any samples from either live or dead suspected cases of EVD over the 1-week period. Over the same period, 1887 samples were collected from 100 per cent (14 of 14) of districts in Sierra Leone and tested by 9 operational laboratories. In Liberia, 1435 samples were collected from 100 per cent (15 of 15) of counties in the week to 20 Sep [2015], although the capacity of the country's 3 operational laboratories is not currently sufficient to rapidly test all samples. Surveillance in the 3 countries will be enhanced in line with the phase-3 response framework.

**Countries with widespread and intense transmission**

Since the beginning of the outbreak, there have been a total of 28 295 reported confirmed, probable, and suspected cases of EVD in Guinea, Liberia, and Sierra Leone (figure 1) up to 20 Sep [2015], with 11 295 reported deaths

Figure 1: Confirmed, probable, and suspected EVD cases worldwide



have not yet concluded, but preliminary findings suggest that a survivor may have been the source.

Robust surveillance measures are essential to ensure the rapid detection of any reintroduction or re-emergence of EVD in currently unaffected

(this total includes reported deaths among probable and suspected cases, although outcomes for many cases are unknown). Two new cases, both from Guinea, were reported in the week to 20 Sep [2015].



The total number of confirmed cases is similar in males and females (table 2). Compared with

affected in Guinea, and approximately 4 times more likely in Liberia and Sierra Leone.

Table 5: Ebola virus disease infections in health workers in Guinea, Liberia and Sierra Leone

Country	Cases	Deaths
Guinea	196	100
Liberia*	378	192
Sierra Leone	307	221 <sup>‡</sup>
<b>Total</b>	<b>881</b>	<b>513</b>

Data are confirmed cases and deaths only, apart from deaths in Sierra Leone, which include confirmed, probable, and suspected deaths. \*Data are until 9 May. <sup>‡</sup>Data as of 17 February.

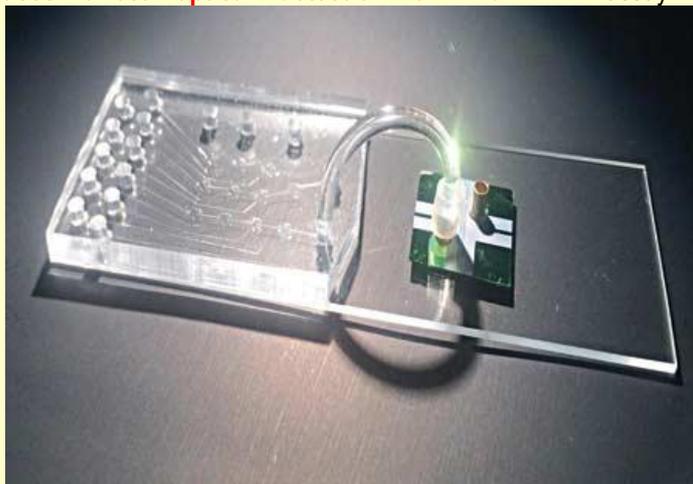
children (people aged 14 years and under), adults aged 15 to 44 years of age are approximately 4 times more likely to be affected in Guinea and Liberia, and 3 times more likely to be affected in Sierra Leone. Adults aged 45 years and above are approximately 5 times more likely to be

No new health worker infections were reported in the week to 20 Sep [2015]. Since the start of the outbreak, a total of 881 confirmed health worker infections have been reported in Guinea, Liberia, and Sierra Leone; there have been 513 reported deaths (table 5).

## Chip-based technology enables reliable direct detection of Ebola virus

Source: <http://www.medicalnewstoday.com/releases/300088.php?tw>

Sept 28 – **A team led by researchers at UC Santa Cruz has developed chip-based technology for reliable detection of Ebola virus and other viral pathogens. The system uses direct optical detection of viral**



**molecules and can be integrated into a simple, portable instrument for use in field situations where rapid, accurate detection of Ebola infections is needed to control outbreaks.**

Laboratory tests using preparations of Ebola virus and other hemorrhagic fever viruses showed that the system has the sensitivity and specificity needed to provide a viable clinical assay. The team reported their results in a paper published September 25 in *Nature Scientific Reports*.

An outbreak of Ebola virus in West Africa has killed more than 11,000 people since 2014, with new cases occurring recently in Guinea and Sierra Leone. The current gold standard for Ebola virus detection relies on a method called polymerase chain reaction (PCR) to amplify the virus's genetic material for detection. Because PCR works on DNA molecules and Ebola is an RNA virus, the reverse transcriptase enzyme is used to make DNA copies of the viral RNA prior to PCR amplification and detection. "Compared to our system, PCR detection is more complex and requires a laboratory setting," said



senior author Holger Schmidt, the Kapany Professor of Optoelectronics at UC Santa Cruz. "We're detecting the nucleic acids directly, and we achieve a comparable limit of detection to PCR and excellent specificity."

In laboratory tests, the system provided sensitive detection of Ebola virus while giving no positive counts in tests with two related viruses, Sudan virus and Marburg virus. Testing with different concentrations of Ebola virus demonstrated accurate quantification of the virus over six orders of magnitude. Adding a "preconcentration" step during sample processing on the microfluidic chip extended the limit of detection well beyond that achieved by other chip-based approaches, covering a range comparable to PCR analysis.

"The measurements were taken at clinical concentrations covering the entire range of what would be seen in an infected person," Schmidt said.

Schmidt's lab at UC Santa Cruz worked with researchers at Brigham Young University and UC Berkeley to develop the system. Virologists at Texas Biomedical Research Institute in San Antonio prepared the viral samples for testing.

**The system combines two small chips, a microfluidic chip for sample preparation and an optofluidic chip for optical detection. For over a decade, Schmidt and his collaborators have been developing optofluidic chip technology for optical analysis of single molecules as they pass through a tiny fluid-filled channel on the**

**chip. The microfluidic chip for sample processing can be integrated as a second layer next to or on top of the optofluidic chip.**

Schmidt's lab designed and built the microfluidic chip in collaboration with coauthor Richard Mathies at UC Berkeley who pioneered this technology. It is made of a silicon-based polymer, polydimethylsiloxane (PDMS), and has microvalves and fluidic channels to transport the sample between nodes for various sample preparation steps. The targeted molecules--in this case, Ebola virus RNA--are isolated by binding to a matching sequence of synthetic DNA (called an oligonucleotide) attached to magnetic microbeads. The microbeads are collected with a magnet, nontarget biomolecules are washed off, and the bound targets are then released by heating, labeled with fluorescent markers, and transferred to the optofluidic chip for optical detection.

Schmidt noted that the team has not yet been able to test the system starting with raw blood samples. That will require additional sample preparation steps, and it will also have to be done in a biosafety level 4 facility.

"We are now building a prototype to bring to the Texas facility so that we can start with a blood sample and do a complete front-to-back analysis," Schmidt said. "We are also working to use the same system for detecting less dangerous pathogens and do the complete analysis here at UC Santa Cruz."

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## Easy Test for Anthrax, Multi-Drug Resistant Anthrax Infections; Blood-Based Biomarkers for Biothreat Pathogens

Source: <http://www.hstoday.us/single-article/easy-test-for-anthrax-multi-drug-resistant-anthrax-infections-blood-based-biomarkers-for-biothreat-pathogens/da4ce2862598b0878578e9255567eb17.html>

Oct 02 – With the Office of the Assistant Secretary for Preparedness and Response's (ASPR) Biomedical Advanced Research and Development Authority (BARDA) support in the form of \$5.5 million for the base period (16 months) and up to a total of \$42.9 million over 10 years if all options are exercised, First Light Biosciences, Inc. of Bedford, Massachusetts will **pursue the development of an anthrax diagnostic test for use in a doctor's office, hospital, clinic or field setting that will provide results within 20 minutes.**

In addition, the platform will also have the ability to test for multi-drug resistant anthrax infections.

Diagnosing anthrax infections quickly would aid doctors and other healthcare workers in providing life-saving antibiotics, anthrax antitoxins, and other necessary supportive care to infected patients. Anthrax victims initially exhibit flu-like symptoms, so it is vital after an event to distinguish victims in the



early stages of anthrax infection from those with similar symptoms.

The diagnostic device that First Light Biosciences is developing will also be able to provide rapid antimicrobial susceptibility testing results within three to four hours, allowing for the early identification of drug-resistant anthrax. The earlier such infections are identified, the more quickly appropriate alternative therapy can be provided.

Meanwhile, also with support from BARDA, SRI International of Menlo Park, California is pursuing the development of clinically useful panels of blood-based biomarkers that could lead to faster and more accurate diagnostic tests for melioidosis, glanders and plague.

Operating under a \$2.5 million base period (18 months) and up to a total of five years and \$9.1 million if all options are exercised, SRI is developing a way to diagnosing biothreat pathogen infections quickly would help doctors and other healthcare workers isolate and provide necessary antibiotics and other supportive care to infected patients. The first phase of the contract will focus on melioidosis, followed by glanders and plague.

**The test that First Light Biosciences is developing, called the MultiPath, detects the presence of anthrax within drops of the patient's blood on a test cassette.**

Under the agreement, First Light Biosciences also will conduct studies necessary to apply for

innovation, acquisition, and manufacturing of vaccines, drugs, therapeutics, diagnostic tools and non-pharmaceutical products for public health emergency threats. These threats include chemical, biological, radiological and nuclear (CBRN) agents, pandemic influenza and emerging infectious diseases.

SRI International's development of a diagnostic ability to quickly detect biothreat pathogen infections will be based on studies necessary for initial biomarker development, identification and characterization, as well as clinical sample analysis and evaluation.

The pathogen responsible for melioidosis, *Burkholderia pseudomallei*, is widely found in



water and soil in many tropical and subtropical regions. Infections vary from mild disease to overwhelming septicemia with up to 90 percent fatality rate within 24 to 48 hours after symptom onset. The current public health response to melioidosis infection is testing by cell culture with test results available no earlier than two to three days after sampling. Identification of biomarkers specific to infection can significantly accelerate the

development of diagnostic assays with faster test results. The development of clinically useful panels of blood-based biomarkers is part of BARDA's

Food and Drug Administration (FDA) approval. The new test is part of BARDA's comprehensive integrated medical countermeasures portfolio approach to the advanced research and development,

development of diagnostic assays with faster test results. The development of clinically useful panels of blood-based biomarkers is part of BARDA's



comprehensive integrated portfolio approach to the advanced research and development, innovation, acquisition and manufacturing of

vaccines, drugs, therapeutics, diagnostic tools and non-pharmaceutical products for public health emergency threats.

## U.S. government rejected dozens of risky pathogen studies in past few years

Source: <http://news.sciencemag.org/biology/2015/10/u-s-government-rejected-dozens-risky-pathogen-studies-past-few-years>

Oct 02 – A new analysis might offer some comfort to those worried that U.S. studies of dangerous pathogens are proliferating unchecked. **Federal officials report that over 8 years, they rejected two-thirds of proposals for some 90 studies that fall into a category of studies considered so risky to public health that they require special review.** But one onlooker, although praising the results, says the definition of restricted studies should be expanded to include controversial influenza experiments not now covered by the rules.

The **report**, published online on 8 September in the journal *Health Security*, summarizes reviews conducted by an office within the Centers for Disease Control and Prevention (CDC) in Atlanta. That office, CDC's Division of Select Agents and Toxins (DSAT), oversees the use and handling of certain viruses, bacteria, and toxins that appear on a government list of "select agents" that could potentially be used as bioweapons. In 2005, in the wake of the post-9/11 anthrax attacks, the federal government began requiring DSAT to review two types of select agent studies.

**One category involves making a select agent resistant to drugs or chemicals.** Researchers sometimes intentionally create this resistance in order to select out clones of bacteria that carry a desired trait. (Those not carrying the desired trait are killed by the treatment, removing them from the study population.)

**The second "restricted experiment" category involves adding a gene for a select agent toxin to a microbe.** This is often done in order to enable the bacteria to produce large amounts of a toxin, such as botulinum, for experimental purposes.

Both types of experiments carry risks, analysts say. If a resistant bug escapes from the laboratory, for instance, doctors may not be

able to easily treat anyone who becomes infected. And engineering bacteria to produce toxins could be an early step toward producing a stock of bioweapons.

From 2006 through 2013, DSAT received 618 requests for approval of restricted experiments from 109 government, academic, and private organizations. DSAT found that most of the proposed experiments didn't meet the restricted definition—for example, because the toxin was not that potent or because other antibiotics could control the drug-resistant strain.

**Of the 91 studies that did fit the definition, officials declined to approve 61.** Reasons for rejection included the laboratory having inadequate biosafety equipment and procedures, and that no alternative drug existed to treat a select agent that would be engineered to resist existing treatments.

**All 61 of the rejected studies involved inserting drug-resistant traits into bugs. In about half the cases, the agents were *Burkholderia mallei* or *Brucella abortus* bacteria, which can cause disease in farm animals as well as humans.**

Do the results mean scientists are being too careful and asking DSAT for approval when they don't need to? DSAT director and study co-author Robbin Weyant says it's better to be safe than sorry. "It's a matter of due diligence," he says. "We encourage regulated entities that have research activities involving any kind of selection or cloning component to go ahead and send their protocols to us. We try to be very timely and provide a quick turnaround."

The DSAT program is "the one small bright spot" in the government's oversight of risky pathogen research, says molecular biologist Richard Ebricht of Rutgers University's Waksman Institute of Microbiology in Piscataway, New



Jersey, who has long argued that regulation of such experiments is too lax. But Ebright would like to see federal officials expand the definition of restricted experiments so that it covers a controversial type of experiment in which high-risk avian influenza, Middle East respiratory syndrome, or SARS viruses are tweaked to make them more likely to spread and cause disease in humans. The government paused funding for such “gain-of-function” studies a year ago and is now conducting [a complex, months-long review of their risks](#).

At the moment, however, it appears that most paused experiments would not require DSAT review. (But federal officials recently proposed adding H5N1 avian influenza, one target of the funding pause, to the list of select agents.)

One reason to expand CDC’s definition, Ebright says, is that select agent rules have legal force and apply to all labs, even those without federal funding. The drawback, he

says, is that the high-level interagency committee that advises DSAT on these experiments works behind closed doors: “The process is opaque.”

Weyant says that’s for good reason: Publicly disclosing “sensitive details” could “open up security risks at the institution that sent [the proposed experiments] to us,” he said.

Also noteworthy in the *Health Security* paper is that the number of entities, or organizations, registered with DSAT has dropped 15% from 2006 to 2013, from 336 to 284. Ebright suspects that after the “megaburst” of biodefense funding after 9/11, more labs initially geared up “than could be accommodated,” and some have now moved on to other research. But he says the modest decline doesn’t assuage his concerns that the sheer number of labs doing biodefense work is raising risks that a dangerous pathogen could escape into the environment.

### Related articles of interest:

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The Role of Practical Advice in Bioterrorism News Coverage



Kristen Alley Swain

Health Security. September/October 2015: 327-338.

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## Nigeria: The Next Ebola (a Stitch in Time... )

Source: <http://allafrica.com/stories/201510071007.html>

Consider a threat that is explosive, without bombs; that can pile up IDPs faster than any civil war. A threat by terrorists that cannot be seen by the naked eye, that attack, not one-to-one like foot soldiers, but in billions-to-one.

### Such is bioterrorism

Bioterrorism is a deliberate release of viruses, bacteria, fungi or toxins from living organisms to cause illness or death in people, animals, or plants. Harmful agents can be spread through the air, water, or in our food.

**Imagine 36 Sawyers (the index Ebola patient) landing in each of our 36 states, at the same time. Frightening?**

Imagine it was a deliberate, planned and calculated act. Many countries are now

The Center for Diseases Control, CDC, in Atlanta is probably the most notable public health institution in the world. This expansive facility stands beside Emory University Hospital where I spent my early professional years in the USA. Many are not aware of the magnitude of the role the CDC and the US Government played (visibly and invisibly) in First Consultants Medical Center's success with Ebola; a battle now to be immortalized in a movie. But then the USA has long recognized the serious threat a rogue runaway bio-organism can pose to the security of a nation.

**Three decades ago cyberterrorism was considered imaginative and pessimistic; not today. In recent years much the same has been said about bioterrorism. Its significance and potential is now recognized by many countries.**

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### What is Nigeria's Medical Defense Strategy, MDS?

After our success with Ebola, we need to put a Medical Defense Strategy in place... as a national emergency.

Our MDS will necessitate active partnerships between the executive, legislative and judicial arms across Federal, State and local governments.

From our skirmish with Ebola we have learned that interaction between public health policy makers and clinical health professionals must be deliberate and supportive.

We have learned that funding should be spread to staff and training as well, rather than

developing strategies, military style, to guard against the threat of infectious diseases to national security; a threat that can aggravate or provoke social fragmentation, destabilize trade and commerce, and undermine national confidence. An infectious disease threat transcends military power and national borders.



lopsidedly on infrastructure and equipment. We have learned that quarantine means more than holding people in isolation, but animals and property can be held or also destroyed. The core pillars of a defense strategy are preparation, prevention, and policing. Surveillance is vital. It is defined by the WHO as: continuing scrutiny of all aspects of the occurrence and spread of disease that are pertinent to effective control. Surveillance can be external (land, air and sea border control, internal (national notifiable disease surveillance systems; laboratory based detection and reporting networks) or syndromic (Real-time symptom based monitoring by clinicians in the field). Surveillance does not necessarily have to be accurate but it must be practical, uniform and rapid. It triggers an alarm. However a robust response must be ready to follow. Funding has to be made available to state and local governments to hire staff, equip and train them. Public health professionals such as epidemiologists, programmers and biostatisticians, will be needed.

Laboratory services will need to be strengthened, especially in the local areas, as well as expansion of the larger labs in the regional centers. Medical Response Capacity, MRC - measures the ability of our health facilities (primary health clinics, state, general and teaching hospitals both public and private) to handle a sudden increase in patients; a surge capacity. In England (2003) there were 6.3 ICU beds to 100,000 people; Germany (1999) has 8.3; the USA had 24. During a pandemic, beds may need to be opened in hotels, homes and malls. These must be staffed. In Nigeria, there is a major and desperate need for Intensive Care Units; a shortage that remains bewildering considering the demands for these services and the availability of trained Nigerian doctors and nurses in this field. Preparation for an infectious disease outbreak must be considered a national priority for the incoming Federal Minister of Health.

A stitch in time... ..

## Saudi Arabia using biological weapons in Yemen - says Iran security official

Source: <http://en.abna24.com/service/iran/archive/2015/10/07/713977/story.html>

Oct 09 – Secretary of Iran's Supreme National Security Council (SNSC) Ali Shamkhani blasted Saudi Arabia for using biological weapons against Yemen, and called it an act of genocide.



**"The Saudi government's use of weapons which contain toxic and pathogenic gases in air and missile strikes against residential areas is aimed at genocide and breaking the legitimate resistance of the brave Yemeni people,"** Shamkhani said in a meeting with a delegation of Yemen's high council of revolution in Tehran on Tuesday. He also described massacre of innocent Yemeni women and children and the inhumane siege

imposed on the nation by the Saudi-led coalition as a war crime, and said, "Negotiations among Yemeni groups and preventing foreign meddling in the country is the only way to create understanding and restore security and stability to Yemen."

The head of the Yemeni delegation, for his part, appreciated Iran's effective support for the Yemeni people, and underscored his country's firm resolve to fight against the foreign aggression.

In relevant remarks in June, a senior leader of Ansarullah revolutionary movement blasted



Saudi Arabia for its continued use of internationally prohibited weapons, including chemical ordinance, against the Yemeni people.

**"Saudi Arabia is still using chemical bombs against the Yemeni people,"** said Hashem Adnan al-Basouri.

He underlined that Riyadh hits residential areas under the control of Ansarullah with chemical weapons. "A report by the human rights watch showed that Saudi Arabia has used poisonous gas in four airstrikes on different parts of Sa'ada province," al-Basouri added.

Saudi Arabia has been striking Yemen for 195 days now to restore power to Hadi, a close ally of Riyadh. **The Saudi-led aggression has so far killed at least 6,445 Yemenis, including hundreds of women and children.**

Hadi stepped down in January and refused to reconsider the decision despite calls by Ansarullah revolutionaries of the Houthi movement.

Despite Riyadh's claims that it is bombing the positions of the Ansarullah fighters, Saudi warplanes are flattening residential areas and civilian infrastructures.

**EDITOR'S COMMENT:** Allegations without proving data is just politics – especially when biological warfare agents are concerned.

## Researchers develop rapid method for water, air, and soil pathogen screening

Source: <http://www.homelandsecuritynewswire.com/dr20151009-researchers-develop-rapid-method-for-water-air-and-soil-pathogen-screening>

Oct 09 – **Researchers at Ben-Gurion University of the Negev (BGU) and the Massachusetts Institute of Technology (MIT) have developed a highly sensitive, cost-effective technology for rapid bacterial pathogen screening of air, soil, water, and agricultural produce in as little as twenty-four hours.**

According to Ezra Orlofsky, Ph.D., who led the research while working on his doctorate at the BGU Zuckerberg Institute for Water Research, "Rapid and reliable pathogen detection in field samples is critical for public health, security and environmental monitoring. Current methods used in food, water or clinical applications rely on labor and time-intensive culturing techniques while activities such as dairy farming, wastewater and runoff treatment necessitates real-time monitoring of pathogens in environment samples."

The study, published online in the *Water, Air & Soil Pollution*, defines an accurate, inexpensive, high-throughput, and rapid alternative for screening of pathogens from various environmental samples. "This is the first study to comprehensively assess pathogen concentrations in such a broad variety of environmental sample types while achieving multiple pathogen detection with complete

parallel testing by standard (or traditional) methods," Orlofsky explains.

"We accurately identified *Salmonella* (*S. enterica*) in environmental soil samples within twenty-four hours, while traditional methods take four to five days and require sorting," Orlofsky says. "We also successfully identified a sometimes-fatal infection, *Pseudomonas aeruginosa*, in aerosols generated by a domestic wastewater treatment system. The results suggest that the developed method presents a broad approach for the rapid, efficient and reliable detection of relatively low densities of pathogenic organisms in challenging environmental samples."

To evaluate the technology, a variety of environmental samples, including aerosols, various soil types, wastewater and vegetable surface (tomato), was concurrently spiked with *Salmonella enterica* or *Pseudomonas aeruginosa*. The researchers chose these pathogens because they are leading causes of illness, have high survival potential in the environment and are considered difficult to detect accurately at low concentration.

"When applied to non-spiked field samples, our method outperformed the standard



methods substantially, while detecting pathogens within a day of receiving the samples,” says Orlofsky. “Since this focused and economical screening procedure tells us exactly where to look within a day, we don’t need to monitor hundreds of samples and sub-samples over several days.”

The two techniques used concomitantly are an evolved “MPN-type enrichment” (“Most Probable Number”) used in microbiology testing, coupled with “qPCR,” (quantitative polymerase chain reaction) widely used in molecular biology to monitor the amplification of DNA in real time.

“We considerably shortened previous protocols, do not use any name-brand expensive re-agents for DNA extraction and purification, and increased the procedure and

workflow to segue easily from raw sample to qPCR assays,” says Orlofsky.

While detection in soil, water and vegetable samples was highly sensitive (as low as one cell per test), the researchers believe additional steps are required to further improve the detection levels such that they reflect low pathogen concentrations (especially ones with low infective doses) in aerosols.

The researchers recommend applying this method in the future to other pathogens such as *Legionella pneumophila* (Legionnaire’s Disease), *Staphylococcus aureus* (Staph infection), and *Campylobacter jejuni*, the second most common cause of foodborne illness.

— Read more in Ezra Orlofsky et al., “Rapid MPN-Qpcr Screening for Pathogens in Air, Soil, Water, and Agricultural Produce,” [Water, Air, & Soil Pollution](#) (September 2015)

## New compound found to cure Ebola in monkeys

Source: <http://www.medicalnewstoday.com/articles/300864.php?tw>

Oct 12 – **A treatment administered to monkeys 3 days after being infected with Ebola virus resulted in 100% survival of the monkeys**, according to research findings presented this week at the IDWeek conference in San Diego, CA.

**The results of the tests could lead to the development of the compound, known as GS-5734, as a treatment for the deadly virus.**

Ebola virus causes severe hemorrhagic fever in humans and nonhuman primates, with high fatality rates. The largest outbreak to date occurred recently in West Africa, where the World Health Organization (WHO) reported over 11,000 deaths and 28,000 confirmed cases.

There is currently no licensed vaccine or therapy against Ebola virus.

**In studies, GS-5734 was found to be active against a broad spectrum of viral pathogens, including Lassa virus, Middle East respiratory syndrome (MERS), Marburg virus and multiple variants of Ebola virus, including the Makona strain that caused the most recent outbreak in West Africa.**

The work is the result of the continuing collaboration between the US Army Medical Research Institute of Infectious Diseases (USAMRIID) and Gilead Sciences of Foster City, CA, according to Travis Warren, PhD, a principal investigator at USAMRIID.

Scientists at the Centers for Disease Control and Prevention (CDC) also contributed by performing initial screening to find molecules with promising antiviral activity.

In the first stages, a small-molecule antiviral agent was identified, which led to further refinement, development and evaluation of GS-5734.

**Primates cured and internal damage reduced**

Led by USAMRIID Science Director Sina Bavari, PhD, the research team used cell culture and animal models to assess the compound's efficacy against several pathogens, including Ebola virus.

**When tested, not only were the primates completely cured of Ebola virus, they also exhibited a substantial reduction in viral load and a marked decrease in the physical signs of disease,**



including internal bleeding and tissue damage.

The compound is a novel nucleotide analog prodrug, which works by blocking the viral RNA replication process. If the virus can be prevented from making copies of itself, the body's immune system has time to take over and fight off the infection.

According to Bavari: "This is the first example of a small molecule, which can be easily prepared and made on a large scale, that shows substantive post-exposure protection against Ebola virus in nonhuman primates. In addition to 100% survival in treated animals, the profound suppression of viral replication greatly reduced the severe clinical signs of disease."

Bavari adds that the effectiveness of the treatment, together with its broad-spectrum antiviral activity, suggests that it is worth pursuing further development of the compound for treatment of Ebola and other viruses.

Tomas Cihlar, PhD, of Gilead Sciences, says that the company is currently conducting phase 1 clinical studies of the compound in healthy

human volunteers to establish the safety and pharmacokinetic profile.

The team hopes that the US Food and Drug Administration (FDA) consider allowing the use of the "animal efficacy rule" in order to develop the safety and pharmacokinetic profile. This mechanism makes it possible to develop a drug based on efficacy findings from adequate and well-controlled animal studies, in cases where it is not feasible or ethical to conduct human trials.

Research on Ebola virus is carried out under maximum containment conditions, in Biosafety Level 4 laboratories. Investigators wear positive-pressure "space suits" and breathe filtered air as they work.

USAMRIID is the only organization in the Department of Defense with Biosafety Level 4 capabilities, and its research benefits both military personnel and civilians.

*Medical News Today* recently reported on a study suggesting that Ebola can [persist in water for up to 8 days](#).

## Ebola treatment beds prevented 57,000 Ebola cases and 40,000 deaths in Sierra Leone

Source: <http://www.medicalnewstoday.com/releases/300896.php?tw>

Oct 13 – **The introduction of thousands of Ebola treatment beds by the UK and Sierra Leone governments and NGOs prevented an estimated 57,000 Ebola cases and 40,000 deaths in Sierra Leone**, according to new r



esearch published in the *Proceedings of the National Academy of Sciences*.

The UK played a leading role in the response to the crisis in Sierra Leone. This focused on increasing the number of available treatment beds which isolated the ill to prevent further infections in the community, changing

behaviour so people suspected of having Ebola sought treatment early, and making burials safe.

Lead author Dr Adam Kucharski, Lecturer in Infectious Disease Epidemiology at the London School of Hygiene & Tropical Medicine, said: "Our findings show the unprecedented local and international response led to a substantial decline in Ebola transmission. Given the rapid growth of the outbreak in Sierra Leone, if those beds hadn't been in place to isolate the ill and avert further infections, the epidemic could have been much worse."

Figures from the World Health Organization state there have been 13,945 reported cases of Ebola in Sierra Leone to date,<sup>1</sup> with an estimated 70% of infections resulting in death during 2014.<sup>1</sup> With many cases in Sierra Leone potentially going unreported, the real figure is likely to be much higher.



Between September 2014 and February 2015, more than 1,500 treatment beds were introduced in Ebola holding centres and community care centres, and a further 1,200 in Ebola treatment units, to support the overstretched health system in Sierra Leone.

**Using mathematical models, researchers estimated the potential impact additional treatment beds had in bringing about the decline of the Ebola outbreak.** They separated out the effect of beds from other factors that reduced transmission, such as behaviour change, community engagement, improved case finding and increase in safe burials.

Taking into account both reported and presumed unreported cases, the researchers say 57,000 Ebola cases were prevented up to February 2015 as a direct result of the introduction of treatment beds. Given that the Ebola case fatality rate in Sierra Leone was near 70%, the researchers estimate this averted 40,000 deaths.

**However, they estimate that had the beds been introduced just one month earlier, an additional 12,500 reported and unreported cases could have prevented.** If only 60% of Ebola cases were reported (as has been stated in field studies), this figure equates to 7,500 reported cases<sup>1</sup> - more than half of the total number of cases recorded by the World Health Organization.

Study co-author Professor John Edmunds of the London School of Hygiene & Tropical Medicine, said: "There has been much criticism of the international community's slow response to the Ebola outbreak. Our analysis suggests putting treatment beds in place just one month

earlier could have further reduced the size of the outbreak and potentially saved thousands of more lives. The way we prepare for, and respond to, future outbreaks of Ebola and other infectious diseases needs to be strengthened."

Beginning in December 2013, the world's largest ever Ebola epidemic primarily affected Liberia, Guinea and Sierra Leone in West Africa. Liberia has recently been declared Ebola free, while Guinea and Sierra Leone have very few cases left.

The study authors have played an active role throughout the Ebola crisis, providing data to assist governments and NGOs in planning their response. The London School of Hygiene & Tropical Medicine is involved in many aspects of the ongoing Ebola response, including clinical trials of vaccines and convalescent plasma treatment, and work to strengthen global response to infectious disease epidemics.

This new research by Dr Kucharski and colleagues was funded by the Research for Health in Humanitarian Crises (R2HC) Programme, managed by Enhancing Learning and Research for Humanitarian Assistance (ELRHA). The £8 million R2HC programme is funded equally by the Wellcome Trust and DFID.

The researchers chose to focus on the impact of beds due to limited available data on other control measures in some districts of Sierra Leone. They note that with better data on the timing and role of different interventions - both clinical and non-clinical - it would be possible to obtain more accurate estimates about the precise contribution of different factors to the decline of the epidemic.

## **Serological Evidence of MERS-CoV Antibodies in Dromedary Camels (*Camelus dromedaries*) in Laikipia County, Kenya**

By Sharon L. Deem, Eric M. Fèvre, Margaret Kinnaird, A. Springer Browne, Dishon Muloi, Gert-Jan Godeke, Marion Koopmans, and Chantal B. Reusken

*Published: October 16, 2015 (DOI: 10.1371/journal.pone.0140125)*

Source: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0140125>

Middle East respiratory syndrome coronavirus (MERS-CoV) is a recently identified virus causing severe viral respiratory illness in people. Little is known about the reservoir in the Horn of Africa. In Kenya, where no human MERS cases have been reported, our survey of 335 dromedary camels, representing nine herds in Laikipia County, showed a high seroprevalence (46.9%) to MERS-CoV antibodies. Between herd differences were present (14.3%– 82.9%), but was not related to management type or herd isolation. Further



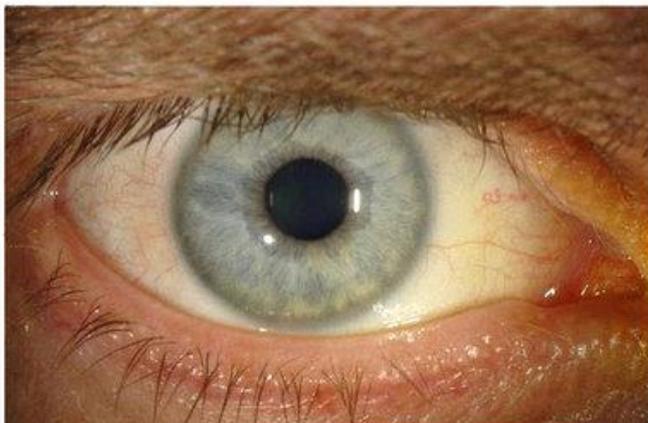
research should focus on identifying similarity between MERS-CoV viral isolates in Kenya and clinical isolates from the Middle East and elsewhere.

▶ Read the full paper at source's URL.



## So It Turns Out There's A Lot We Don't Know About Ebola

Source: [http://www.npr.org/sections/goatsandsoda/2015/10/17/448380921/so-it-turns-out-theres-a-lot-we-dont-know-about-ebola?utm\\_medium=RSS&utm\\_campaign=world](http://www.npr.org/sections/goatsandsoda/2015/10/17/448380921/so-it-turns-out-theres-a-lot-we-dont-know-about-ebola?utm_medium=RSS&utm_campaign=world)



Dr. Ian Crozier survived Ebola, only to have his normally blue left eye turn green because of inflammation. Though the rest of his body was Ebola-free, his eye was teeming with the virus. Emory Eye Center

"If there's anything that this outbreak has taught me, it's that I'm often wrong," says Dr. Daniel Bausch.

He's talking about Ebola. He's one of the world's leading experts on the virus — an infectious disease specialist at Tulane University and a senior consultant to the World Health Organization.

And as he makes clear, he's still got a lot to learn.

The virus came roaring back into headlines this past week. A Scottish nurse who survived Ebola is back in isolation in London, being "treated for Ebola," according to the Royal Free Hospital. The hospital says the patient's "condition has deteriorated and she is now critically ill."

And two new research papers found that the virus can live in a male survivor's semen for up to nine months, and that one man passed it to his sexual partner months after he was released from the Ebola ward.

"If you look back at the classic teaching about Ebola and survivors, it was that once you get better from this disease, even though it may take a while to recover, you made a full

recovery and that kind of was the end of it," says Bausch.

And now, with an estimated 17,000 survivors, researchers are discovering all kinds of twists and turns. The semen study is particularly puzzling to Ilhem Messaoudi.

"It's an explosive virus. It replicates like crazy ... and it destroys everything in its path," says Messaoudi, a viral immunologist and professor of biomedical sciences at the University of California, Riverside, who is studying how the virus works in the human body. "So, how is it just hanging out in the testes for like nine months?"

There hasn't been much research — in animals or humans — about what happens after survival. What we do know is mostly from past outbreaks of the virus, in particular, two studies looking at past survivors of the disease and comparing their health to Ebola-free friends and family.

Research on 19 survivors of a 1995 outbreak in Kikwit in the Democratic Republic of the Congo [found that](#) most had joint pain and vision problems after the virus. One lost sight. Studies from the 1970s and



1980s had, like recent research, found the virus persisting in the semen and eyes of survivors.

Researchers following 49 survivors of a 2007 Ebola outbreak in Uganda [found that](#) — even two years after the illness — they had eye problems like inflammation and blurred vision as well as joint pain, difficulty sleeping, difficulty swallowing and even hearing loss, memory loss and confusion.

A third [study](#) examining 105 survivors of the 2014-15 outbreak in Guinea found that about 90 percent had chronic joint pain and 98 percent had poor appetites or an aversion to food. They also reported difficulty with short-term memory, headaches, sleeplessness, insomnia, dizziness, abdominal pain, constipation, sexual dysfunction, and decreased libido and exercise tolerance.

Bausch says, aside from arthritis and eye inflammation, it's still unclear which issues are directly related to the Ebola virus and which could be caused by the physical and emotional toll on the body. But something is going on.

**"It's clear that there is a post-Ebola syndrome,"** he says.

Individual cases have opened a window into where the virus goes, and what it's capable of — even after a survivor's body has eliminated it from the bloodstream.

One well-reported example is Dr. Ian Crozier, who survived Ebola contracted in Sierra Leone, only to have one of his normally blue eyes turn green. Though the rest of his body, including his tears, was Ebola-free, his eye was teeming with the virus. The infection almost blinded him. In a few other [cases](#), Ebola hid out in the uterus. Most women who were pregnant when they got the virus miscarried. But, Bausch says, "a few women have survived with pregnancies intact." When they went into labor, the babies were stillborn and often anatomically abnormal. For months, the recovered mothers had carried babies stricken with Ebola.

**How could healthy survivors who tested negative for Ebola still harbor the virus?** As Messaoudi explains, it's because the immune system, which is capable of wiping out the virus in the bloodstream, doesn't reach every nook and cranny of the body.

"The immune system is a little heavy-handed at times," she says. Inflammation caused by the

immune system's activity could cause serious damage in places like the eyes, brain, placenta, fetus, testes, joint spaces and central nervous system. Messaoudi likens members of the immune system to the Navy SEALs. "They are trained killers," she says, "so if you drop them in the wrong place and they misread their orders, it could lead to really big damage."

**So, for the most part, the immune system stays away from those sites, making them great spots for viruses to hide out.** (That's what other viruses do, like hepatitis B, and herpes viruses, including chicken pox, which hides in neurons for years and has the potential to re-emerge as shingles.)

But those viruses are different from Ebola, says Messaoudi. "Acute viruses like influenza, Ebola, yellow fever, West Nile [virus] — they infect, they replicate, and they're cleared. That's just how we've always thought of them. I've never heard of a yellow fever reservoir or a West Nile reservoir. Maybe they exist, and we just don't know about it."

Messaoudi says **one of the most confusing things about the Ebola virus is its size.** It's a "no-frills virus" with a tiny genome, she says. Viruses that can hide in immune-privileged places and live for years usually have a lot more genes that allow them to quietly survive.

But Ebola is managing to scrape by in some corners of survivors' bodies, and those places are, by nature, hard to get to. "It presents a huge challenge, because how do we get enough antivirals into these sites?" says Messaoudi. Getting to fluid in the spine requires a spinal tap. Patients with the virus inside their eye might need a fine needle to go straight into the space between the iris and the cornea. **"So how do we eradicate those reservoirs?" she asks. "And why do some people end up developing these reservoirs and other people don't?"**

Bausch says these questions are important scientifically but not necessarily in terms of disease control. For example, there's a small possibility that the arthritis that so many survivors report is from the virus itself, sitting inside joint spaces. But that would not pose a public health risk.

"Because how do you get infected from someone's joint space? You don't," he says.



But there are some potentially worrisome sites where the virus holds on, like in semen.

As data on survivors trickles in, Bausch says, "There is a sense across WHO and U.N. systems that we need to have renewed efforts in terms of not only caring for survivors but recognizing that there are still transmission issues that may relate to survivors. And that's a tough thing for people to take on, both in terms of the logistics, but also just emotionally."

"The whole thought over the course of this outbreak and previous Ebola outbreaks is: You get down to zero cases, and then you count 42 days, and then you say it's over," he says.

**Cases where Ebola lingers in the semen, eyes or even uterus of survivors push the outbreak's finish line farther away.**

"We've always known that it wasn't completely over," says Bausch. There's always the possibility that whatever first seeded this outbreak, likely a fruit bat, is still out there. "So, we've always known that there was the potential for reintroduction from the wild. But I

think more recently and with these data coming in, we're understanding that there's also this potential for reintroduction from persistent virus production in humans, most notably from sexual transmission" — even though experts still think sexual transmission is rare.

Meanwhile, he says all the evidence points to survivors clearing their systems of Ebola virus over time. But, says Bausch, it's probably not the day that they walk out of the Ebola treatment unit.

**To see just how long the virus might linger, the U.S. National Institute of Allergy and Infectious Diseases and the Ministry of Health of Liberia have launched a five-year project to follow 1,500 survivors of the latest outbreak along with 6,000 of their close contacts. They'll monitor health issues, organ and eye function, and possibly bodily fluid content. It will be the largest controlled study of Ebola survivors to date.**

## Critically ill Ebola nurse in UK may be rare case of relapse

Source: <http://www.komonews.com/news/national/Critically-ill-Ebola-nurse-in-UK-may-be-rare-case-of-relapse-333045381.html>

Oct 15 – **The World Health Organization says it's possible in rare instances for patients who survived Ebola to develop the lethal disease again, when the virus lingering in the body starts to replicate at high levels.**

That might explain what has happened to a Scottish nurse (photo) now being treated in



London's Royal Free Hospital. Pauline Cafferkey was admitted Friday for an "unusual late complication" of Ebola after having recovered from the disease in January, the hospital said. On Wednesday, it said Cafferkey was critically ill after her condition deteriorated and that she was now suffering from

Ebola, not just a complication.

WHO spokeswoman Dr. Margaret Harris said Thursday that the U.N. health agency has

heard of several similar cases, although they are not well documented.

"What we have seen is that in some people, the virus lies dormant at a site and then for some unknown reason, starts to reproduce again," she said. "We think it's a minority of people, otherwise we would have seen cases all over the place."

Harris said it's unclear whether those people might then be infectious to others. British tabloids made much of the fact that Cafferkey was photographed standing near the prime minister's wife recently after accepting an award in London.

To date, Ebola has killed more than 11,000 people in West Africa and left some 17,000 survivors in the region, many of whom have poor access to health care.

Harris said a significant number of recovered Ebola patients are still suffering ill effects from the virus. In some areas of Sierra Leone, half of the Ebola survivors have serious eye problems that only developed



after they were discharged from the clinic, she said.

"We still have very little information about the impact of Ebola lingering in the body at different sites," she said, noting it was unclear whether the persistent virus might be responsible for survivors' ongoing medical problems or if those can be attributed to the acute illness that patients recovered from months earlier.

Scientists say the Ebola virus can sometimes hide for months in parts of the body not covered by the immune system but acknowledged that Cafferkey's case was unusual.

"Pauline seems to be an anomaly," said Dr. Nathalie MacDermott, a clinical research fellow at Imperial College London. "Everything we

know about Ebola suggests there are long-term effects but not necessarily any that are life-threatening."

MacDermott hypothesized that Cafferkey's relapse might have been triggered by her immune system.

"If the immune system is distracted, say by fighting off another infection, that might give the virus a foothold to start replicating again out of control," MacDermott said. "It is unusual that it would be able to spiral out of control and (produce) an acute infection again but it's not impossible."

MacDermott said other diseases like herpes also recur when a person's immune system is weakened, and said it was possible that similar cases to Cafferkey's were going undetected in West Africa.

