



CBRNE

November 2015

NEWSLETTER TERRORISM

E-Journal for CBRNE & CT First Responders



PART A



CBRNE-Terrorism Newsletter – 2015©

November 2015

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- Full page (A4) 100€
- Double pages (A4X2) 200€

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Editorial

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

Editor-in-Chief

CBRNE-Terrorism Newsletter



Dear Colleagues,

At least 129 dead; 352 injured – 99 in critical condition; three terrorist groups in an urban terrorism operation within 23 minutes in seven different locations in Paris France; eight terrorists involved – 7/8 blown themselves activating their suicide vests. This is an outline of what happened in France in November 3, 2015.

Surprised? Yes and no! Yes for the people around the globe. No for the security analysts that closely follow international security issues. Yes for those operating under the cliché “it will not happen to us!” No for those able to connect the dots and make predictions even if most of the times are proved not accurate.



Currently there is no reason to investigate what went wrong. We have done it so many times that it is burned out – kind of European Amnesia. Problems identified never become lessons' learned and perhaps we have to plan accordingly for many reasons. On the other hand it would be wise first to identify who is the enemy and who is against that enemy. Because “*If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle.*” (Sun Tzu, *The Art of War*). And if you do not know who is fighting next to you, you cannot deploy your forces effectively. Then we have to rehearse our knowledge on global geopolitical chess capabilities. Until now we used to believe that only big powers know how to play this chess game but it was proven that this is not the case. Finally we have to be honest to each other and to our world: what is the main cause triggering current and most probably future similar or even worse incidents. It is quite obvious that both religion and money are the biggest motivators igniting conflicts and terrorism through time. Finally we have to define terrorism on a global basis – surprisingly we have not done this so far and same applies for the discrimination between safety and privacy.

Regarding the Paris incident itself: I was kind of pissed readings about “gunmen” and “extremists” instead of “terrorists”; or questioning if it really was a terrorist attack. What I did not hear or read so far was the resemblance of 2015 Paris attack with Mumbai's multi terrorist attacks in 2008 – a copy & paste attack for which we have warned so many times and I have included in all my threats' analysis for mega events (i.e. Rio2016 or Expo2020). Not to mention Beslan School Number One (N. Ossetia – 2004) and Dubrovka Theater (Moscow – 2002) sieges.

It seems that we currently rely more and more on modern technologies instead of field intelligence and what comes with it. But all experts should be able to recognize that the “enemy” is highly adaptive and responds with old fashion modus operandi using traditional weapons and explosives and ordinary means of attack like knives, hatchets or cars. On the other hand a word about “experts”: “Experts 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.” (*Experts are often fallible, so expert advice should be examined carefully – Homeland Security News Wire; Oct 16, 2015*).

Paris attack will reveal many gaps and bring into surface certain embarrassing issues but if we do not do something about them then a repetition of the recent terrorist attack in the capital of France will be more than expected. Some of these issues:

- ✓ Who created the Islamic State and why? Read both history and news on the Internet – guess who...
- ✓ Who armed and trained Islamic State? Read both history and news on the Internet – focus on US (munition delivery Nov 2015) or France (Milan missiles; APILAS rocket launchers; 12.7mm automatic rifles)...
- ✓ Who is favored from uncontrolled illegal immigration tsunami? Search for demographic problems, cheap labor and similar within EU nations and USA (read more in below articles).
- ✓ Why EU is not involved in the peace processes or negotiations related to what is happening in planet's hot spots? No realistic or polite recommendation on this issue but it is most probably connected with issues above and below.
- ✓ Why Europe has not a unified immigration policy? No realistic or polite recommendation on this issue but it is most probably connected with issues above and below.
- ✓ Why Europe is fighting Orthodox Russia instead of embarrassing such a great nation and join forces with it? No realistic or polite recommendation on this issue but it is most probably connected with issues above and below.
- ✓ Who is continuing doing business with Islamic State? According to a Thomson Reuter's study (October 2014 – Islamic State: The economy terrorist funding; by Jean-Charles Brisard and Damien Martinez) Islamic State possesses assets of more than US\$2 trillion (annual income amounting to US\$2.9 billion) mainly from oil (38%) and natural gas (17%). Check also new Decision 2013/186 relaxing certain key restrictions of Decision 2012/739 on Syrian oil embargo.
- ✓ What is the real problem with Syria and Assad's regime (or with late Kaddafi's regime)? No good sources on the Internet – but valuable insights can be obtained by talking with people from these two countries to learn how life was there (health, food, services etc.) apart from disseminated propaganda
- ✓ Do we really want to reshape our current civilization status and submit to multiculturalism and what comes with it? Read more on the news from France, Germany, Sweden, UK to have an idea of pros and cons.

So, what changes will be apparent in the day after Paris attack? Before speculating on this we must recall Europe's reactions following London and Madrid terrorist attacks in the last 10 years. Well, most probably Europe will change mainly because one terrorist attack is never enough to reshape things. Unfortunately this change is submitted to local/national limitations proving that EU is nothing more than a multinational financial company based on the good old principle that “money rule”! Apart from that it is expected that the current immigration crisis will be confined to the “gates of Europe” – Italy and Greece. And if Italy has the strategic depth to intercept incoming illegal immigrants' flows from Africa at international waters, Greece does not possess this luxury due to very close proximity to Turkish coastline and given attitude and future ambitions of Turkish government. In simple words it will be Greece that will face the biggest problems and if you add to this the ongoing financial turmoil in the country you can only imagine how explosive this mixture would be. An additional problem might also arise with Cyprus: its proximity with combat zones in the nearby Middle East might cause problems in this EU country just recovering from similar financial adventures. The only heavy industry in Greece – tourism – is expected to be highly affected in 2016 since massive invasions of Greek touristic islands is not expected to cease due to the fact that millions of Syrians (not only) are on the way to Greece as if we speak now. Paris attack proved (so far) that at least two



of the dead terrorists got their valuable papers to travel to EU by presenting themselves as innocent immigrants travelling via the Greek Island of Leros – proving that the infiltration threat (so much denied) is real!

Finally, based on the expected fierce attack of France (with or without the military collaboration with other European nations) along with ongoing Russian military and supposed US involvement against Islamic State and Syria, these retaliations that will surely corner Islamic State to its limits and might open the Aeolus Bag that will lead to the use of chemical or radiological improvised weapons against Western targets either in the broader area or internationally. It would be an expected reaction of a cat really cornered with no escape route. There is an ongoing debate on this issue but the general feeling is that this possibility is quite realistic going beyond the state of threat. Why is that? There are 6 reasons why CBRNe Islamic State is a reality: (1) Religious terrorist organizations tend to regard WMD usage as not only morally justified but expedient for the attainment of their goals; (2) Access to financial resources (as mentioned above); (3) Increased number of safe havens in both Syria and Iraq; (4) Accessibility of CBRN arsenal (Syria, Iraq, Libya); (5) University educated foreign jihadists potentially provide with the requisite scientific expertise to develop and use CBRN weapons; (6) Overall mentality and incredible disrespect of human life already displayed in various ugly ways. The main conclusion is that the threat is real and need to be addressed seriously in order to ovoid (the usual) future surprises!



In November 20, 2015 I delivered a lecture entitled “CBRNe Islamic State – A hoax or reality?” at the 2nd IW CBRNe Workshop in Rome, Italy organized by the University of Rome Tor Vergata (home of “CBRNe Master Courses”). My conclusion when preparing the presentation was that the threat is real and that we should be prepared for the worst. The day before (Nov 19) both French President Oland and Prime Minister Vans warned of the possibility of a “chemical” and “biotoxin” attacks against Paris and other European (and international) targets! My only objection with that was the fact that the possibility of an urban dirty bomb is as strong as a CB attack. A word I haven’t heard so far. At the same time all hospitals and first responding agencies were ordered to have their own stockpiles of antidotes against nerve agents. Reading behind lines this might indicate that these entities were not adequately prepared similar incidents if happened today (in a broader view). I have spent almost eleven years lecturing worldwide about the unpreparedness of the hospital sector on CBRNE response. My overall conclusion is that despite all my lectures attracted attention and many questions along with comments about doing something, the overall preparedness status remains poor. I only hope that no such incident occurs anywhere in the world despite the fact that unexpected always happens. But do we have the right to call “unexpected” something that we are expecting to happen? Are budget reductions a reliable excuse of doing nothing to fill the gap? Do we need a real incident to



change the mindset of those fanatically support the “it will not happen to us!” attitude? Should we always trying to catch up instead of being on-time prepared?

This sort analysis is not neither complete nor detailed but I think that it reflects some facts and truths that we must start taking seriously. It would be easy to comment on just operational issues i.e. Special Forces waiting for 3 hours before raiding Bataclan Theater or inability of police crew to intercept escaping terrorists from Charlie Hebdo offices or lack of invisible security net around possible targets (President Oland was in the stadium attacked) or the standard statement that “terrorists were known to security authorities”, but that was not my intention. Instead I would like only to stress the necessity for joint cooperation in all levels but mainly on intelligence gathering and sharing. Without that it is impossible to stop a terrorist attack in its final stage. We must reshape the way we are currently confronting threats and start thinking as terrorists. If we do not do that then we will continue to be a few steps behind them taking care of own ruins – again and again!

Take care First Responders and try to be actively involved in security matters because you know how it is in real life! Bureaucrats, desk officers, policy makers and academia have no idea about the enemy out there! As for the medical First Responders: you are the last hope of victims! Learn how to protect yourselves against conventional and asymmetric threats in order to be able to help others! Because if you are victimized as well then victims might be killed twice!

The Editor-in-Chief



Greek island – If only each and every life-jacket could tell the story of those using them!



Gunmen stage new assault on migrants at sea

Source: <http://www.terrorismwatch.org/2015/10/gunmen-stage-new-assault-on-migrants-at.html>



Oct 23 - Athens (AFP) - **Unidentified gunmen have staged a series of new sabotage attacks on boats carrying migrants cross the Aegean Sea, Human Rights Watch said on Thursday.**

Quoting witnesses, the New York-based rights group said there had been **eight incidents** in which gunmen "intercepted and disabled the boats carrying asylum seekers and migrants from Turkey toward the Greek islands".

The most recent incidents were on October 7 and 9.

According to a 17-year-old Afghan called Ali, a speedboat with five men armed with handguns had rammed their rubber dinghy on October 9.

"At first when they approached, we thought they had come to help us," he told HRW. "But by the way they acted, we realized they hadn't come to help. They were so aggressive. They didn't come on board our boat, but they took our boat's engine and then sped away," he said.

He said the men attacked three other boats in quick succession before speeding off toward the Greek coast.

"They spoke a language we didn't know, but it definitely was not Turkish, as we Afghans can understand a bit of Turkish," he said.

Similar allegations were made by both migrants and rights groups during the summer. The latest attacks took place near the island of Lesbos, HRW said.

A Greek coastguard source said the claims were under investigation but despite searches, they had not been able to locate the alleged perpetrators.

In August, the coastguard arrested three men on the island of Samos suspected of preying on migrants seeking to cross over from Turkey. They were dressed like members of the Greek coastguard and wore hoods, the coastguard said.

At the time, several refugees from Syria and Iraq on the island of Kos told AFP they had been attacked by masked gunmen at sea, with some claiming the assailants stole their fuel and even their motors.

Some accused the Greek coastguard of assaulting them.

Rising influx

Over half a million migrants and refugees have arrived in Greece, most of them fleeing violence in war-torn Syria.

The influx has shown little sign of letting up and has threatened to



overwhelm the authorities, particularly on the Greek islands.

On Wednesday, the International Rescue Committee said 16,000 people were stranded on the island of Lesbos owing to a registration bottleneck.

"Food is in short supply, as is access to water, toilets or suitable shelter," the IRC said. Greece's interior ministry on Thursday said it needed an additional 330 million euros (\$375 million) to upgrade registration centres on the islands.

It said the response of EU states who had been expected to provide additional border staff fell far below requirements.

Out of 775 staff requested by EU border agency Frontex, only 48 had been pledged by six out of the 28 member states, the ministry said.

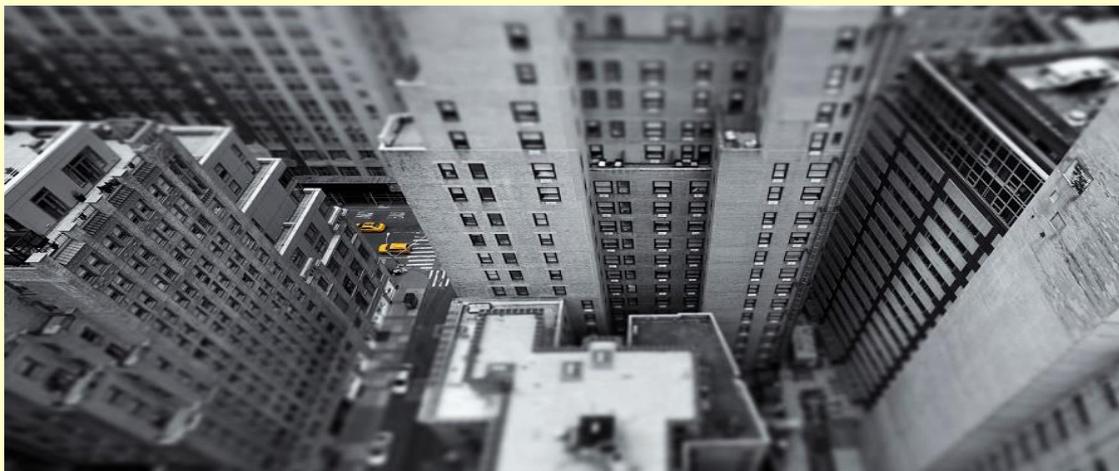
"We are making every effort to carry out our responsibilities," the ministry said in a note. "Our response time can only be equivalent to the response time of the rest of Europe," it said

EDITOR'S COMMENT: This is strange – Greek media made no report on that at all! The overall role of HRW should also be explored – making allegations without proofs is not the right way to help those in need.



Policing Algorithm to Reduce Crime

Source: <http://i-hls.com/2015/10/policing-algorithm-to-reduce-crime/>



Oct 21 – **Can math help keep our streets safer?** A new study by a UCLA-led team of scholars and law enforcement officials suggests the answer is yes.

A new study by a UCLA-led team of scholars and law enforcement officials suggests the answer is yes. **A mathematical model they devised to guide where the Los Angeles Police Department should deploy officers, led to substantially lower crime rates during a recent 21-month period.** "Not only did the model predict twice as much crime as trained crime analysts predicted, but it also prevented twice as much crime," said Jeffrey Brantingham, a UCLA professor of anthropology and senior author of the study.

How long did it take them to develop something so sophisticated, you ask? Six years of mathematical research and a decade of police crime data were needed to develop this model. The program predicts times and places that serious crimes will occur based on historical crime data in a given area. A key to its success, Brantingham said, is that the algorithm behind the model effectively "learns" over time, much the same way that your video streaming service knows what movie you're going to watch tomorrow, even if your tastes have changed.

Beginning in 2011, the researchers analyzed crime trends in the LAPD's Southwest division and in two Kent divisions to determine whether their model could predict, in real time, when and where major crimes would occur. Their analysis in Los Angeles focused on burglaries, theft



from cars and theft of cars. In Kent, they studied patterns for those crimes as well as violent crimes including assault and robbery.

The researchers tested the computer model by pitting it against professional crime analysts, seeing which could more accurately predict where crimes would occur. **The results were staggering. In Los Angeles, the mathematical model correctly predicted the locations of crimes on 4.7 percent of its forecasts, while the human analysts were correct just 2.1 percent of the time.**

Based on those results, the researchers estimated that **using the algorithm would save \$9 million per year in Los Angeles**, taking into account costs to victims, the courts and society. Brantingham said the mathematical model's success rate could be improved even further, but emphasized that it cannot replace the police force. Rather, it's intended to help police officers do their jobs better.

"We're not trying to explain everything," he said. "But there are many aspects of human behavior that we can understand mathematically."

Europe fast becoming Eurabia!

Source: <http://indiatomorrow.co/world/3958-europe-fast-becoming-eurabia>

Oct 23 – The Syrian government sells passports and birth certificates at affordable prices. Many migrants have no passport, no ID, and refuse to give fingerprints.

- Because Islam is the heart of the culture of people formerly colonized, Europeans rejected criticism of Islam, saying it would blend smoothly into a multicultural Europe. They did not demand the assimilation of the Muslims who came to live in Europe. Much of the time, Muslims are not assimilated -- and often show signs of not wanting to assimilate.
- Any criticism of Islam in Europe is treated as a form of racism, and "Islamophobia" is considered a crime or a sign of mental illness.
- European people still have the right to vote, but are deprived of most of their power: all important political decisions in Europe are made behind closed doors by technocrats and professional politicians in Brussels or Strasbourg.
- Europe has renounced force, so to many, it appears weak, vulnerable and easily able to be overpowered.
- The sudden arrival of hundreds of thousands more Muslims most likely prompts Europeans to think that the nightmare will get worse; they see, powerlessly, that their leaders speak and act as if they have no awareness of what is happening.
- Central European leaders and people, who have already lived under authoritarian rule, seem to be thinking that entering the European Union was a huge mistake. They came to what was then called the "free world." They do not seem willing to be subjected again to coercive decisions made by outsiders.
- Illegal Muslim migrants will live on social benefits until the bankruptcy of welfare states.
- In all 28 countries of the European Union, birth rates are low and the population is aging. People under thirty account for only 16% of the population, or 80 million people. In the 22 Arab countries, plus Turkey and Iran, people under thirty account for 70% of the population, or 350 million people.

The flow of illegal migrants does not stop. They land on the Greek islands along the Turkish coast. They still try to get into Hungary, despite a razor wire fence and mobilized army. Their destination is Germany or Scandinavia, sometimes France or the UK. Some of them still arrive from Libya. Since the beginning of January, more than 620,000 have arrived by sea alone. **There will undoubtedly be many more: a leaked secret document estimates**

that by the end of December, there might be 1.5 million.

Journalists in Western Europe continue to depict them as "refugees" fleeing war in Syria. The description is false. **According to statistics released by the European Union, only twenty-five percent of them come from Syria; the true number is probably lower.**

The [Syrian](#) [government](#)



sells passports and birth certificates at affordable prices. **The vast majority of migrants come from other countries: Iraq, Afghanistan, Pakistan, Eritrea, Somalia, and Nigeria.**

Many do not seem to have left in a hurry. Many bring new high-end smartphones and large sums of cash, ten or twenty thousand euros, sometimes more. Many have no passports, no ID, and refuse to give fingerprints.

Whenever people flee to survive, the men come with whole families: women, children, elders. Here, instead, more than 75% of those who arrive are men under 50; few are women, children or elders.

As Christians are now the main targets of Islamists (the Jews fled or were forced out decades ago), the people escaping the war in Syria should be largely composed of Christians. **But Christians are a small minority among those who arrive, and they often hide that they are Christians.**

Those who enter Europe are almost all Muslims, and behave as some Muslims often do in the Muslim world: they harass Christians and attack women. In reception centers, **harassing Christians and attacking women** are workaday incidents. European women and girls who live near reception centers are advised to take care and cover up. **Rapes, assaults, stabbings and other crimes are on the rise.**

Western European political leaders could tell the truth and act accordingly. They do not. They talk of "solidarity," "humanitarian duty," "compassion." From the beginning, Chancellor Angela Merkel of Germany said that illegal migrants were welcome: she seemed to change her mind for a moment, but quickly **slid back**. In France, President François Hollande **says** the same things as Angela Merkel.

After the heartbreaking image of a dead child being carried on a Turkish beach was published, thousands of Germans and French initially spoke the same way as their leaders. Their enthusiasm seems to have faded fast.

The people of Central Europe were **not enthusiastic** from the beginning. Their leaders seem to share the feelings of their populations. None spoke as **explicitly as Viktor Orbán,**

Prime Minister of Hungary. He said out loud what many of his countrymen seemed to think. He **spoke** of "invasion" and asked if there were another word to describe the massive and often brutal entry into a country of people who have not been invited to do so. He added that a country has the **right to decide** who is allowed to enter its territory and to guard its borders. He stressed that those who enter Europe are from a "different culture," and suggested that Islam might not be compatible with European Judeo-Christian values.

Western European political leaders harshly **condemned** his remarks and the attitude of Central Europe in general. They decided to take a **hard line approach**, including: forcing recalcitrant countries to welcome immigrants, setting up mandatory quotas that define how many immigrants each EU country must receive, and threatening those countries that declined to obey. Martin Schulz, President of the European Parliament, **said** that Europe was built in a spirit of "burden sharing," and that EU breakup was a risk that could not be excluded.

An acute division, in fact, is emerging between the leaders of Western Europe and the leaders of Central Europe. Another division is growing between the populations of Western Europe and their leaders.

Those who rebuilt Europe after World War II thought that an "enlightened" elite (themselves) could make a clean sweep of the past and build a dream society where peace and perpetual harmony would reign.

Because they thought democracy had brought Hitler to power, they decided to restrict democracy.[1] Because they thought nationalism was the cause of the war, they decreed that nationalism was harmful and that the cultural identities in Europe had to disappear and be replaced by a new "European identity" that they would shape.[2]

Because Europe had a colonialist past and Europeans had believed in the superiority of their cultures, they claimed that Europe should redeem its guilt and affirm that all cultures were equal. And because Islam was at the heart of the culture of people formerly colonized, the Europeans rejected all criticism of Islam, and said that



it would blend smoothly into a [multicultural Europe](#). They did not demand the assimilation of Muslims who came to live in Europe in increasing number.

Because the Europeans thought poverty had led to the rise of Nazism, they built welfare states that were supposed to eliminate poverty forever.

Because two world wars had started in Europe, the Europeans decreed that from now on, Europe would renounce the use of force, and solve all conflicts through diplomacy and appeasement.[3]

We now see the results.

European people still have the right to vote, but are [deprived](#) of most of their power: all important political decisions in Europe are made behind closed doors, by technocrats and professional politicians, in Brussels or Strasbourg.

Cultural identities in Europe have been eroded to such a point that saying that Europe is based on Judeo-Christian values has become controversial.

Any criticism of Islam in Europe is treated as a form of racism, and "Islamophobia" is considered a crime or a sign of mental illness.

Islam has not melted into a smooth multiculturalism; it is creating increasingly distressing problems that are almost never brought to light.

Muslim [criminality](#) across Europe is high. Consequently, the percentage of [Muslims in prisons](#) in Europe is high. In France, which has the largest Muslim population in Europe, the prison population is [70% Muslim](#). Many European prisons have become [recruitment centers for future jihadis](#).

Muslim riots may occur for any reason : police [upholding](#) the law, a Soccer League [celebration](#) or in [support of a cause](#).

Welfare states have created a government-dependent class in Europe of many people who live permanently on social benefits. These people are often Muslim. Much of the time, they are [not assimilated](#) – and often show signs of [not wanting to assimilate](#). Many reside in virtually autonomous, so-called no-go zones (e.g. [France](#), the [UK](#), and [Germany](#)).

Europe has renounced force; to many, it therefore appears weak, vulnerable and easily able to be overpowered.

Populations of Western Europe [increasingly think](#) that the dream society that had been promised has turned into a nightmare. The sudden and often brutal arrival of hundreds of thousands more Muslims most likely prompts Europeans to think the nightmare will get worse. They see, powerlessly, that their leaders speak and act as if they have no awareness of what is happening.

Central European leaders and their people, who have directly experienced authoritarian rule, seem to be thinking that entering the European Union was a huge [mistake](#). When the Soviet Union collapsed, they became members of the EU to join what was called then the "free world." They do not seem willing to be subjected again to coercive decisions made by outsiders.

After living under the Soviet yoke, they preserved their desire for freedom and self-government, and evidently will not now agree to give them up. They know what submission to Islam could mean. Bulgaria and Romania were occupied by the Ottoman Empire until 1878. Hungary was under the boot of Ottoman rule for more than a hundred and fifty years (1541-1699).

Polls show that a majority of Muslims living in Europe [want the application of sharia law](#) and [clearly reject any idea of assimilation](#).

Hundreds of thousands of Muslims living in Europe have [joined](#) fundamentalist Islamic organizations. Thousands have joined jihadist movements and are now fighting in Syria or Yemen. Many have [returned](#) and are [ready to act](#) against Europe.

Illegal Muslim migrants are likely to join the Muslims already living in Europe; and they will remain Muslim. They will live on social benefits until the bankruptcy of welfare states. They will reside in the "no-go zones," and the "no-go zones" will continue to grow. Their occupants come from countries where Christians and women are mistreated; in Europe, they are already mistreating Christians and women.



They come from countries where Western civilization is despised and where hatred of Jews is inescapable -- and this **remains so** among Muslims already living in Europe. For more than two decades, almost all **assaults against Jews** in Europe were committed by Muslims.

Many of those who arrive, **according to** European intelligence sources, are already radicalized.

A **project to overwhelm Europe** by a huge wave of migration was already **described by the Islamic State** in documents discovered this February. It is hard to rule out that the Islamic State plays a role in what is happening. Turkish authorities are ignoring the **massive departures** taking place from their coast. If they really wanted the current process to stop, they **could stop it**. That is clearly not what they do. The Islamic State could not survive without **Turkish help**. Daily flights on Turkish Airlines bring illegal migrants to Istanbul; they continue **unhindered** to Europe. The Russians, in their military intervention in Syria, similarly

does not seem interested in stopping what is occurring.

Angela Merkel **said** in Strasbourg, on October 7, that migrants entering Europe today are attracted to Europe, for the reasons Europeans migrants who arrived in America a century ago were attracted to America: to "realize a dream," presumably of opportunity.

In all 28 countries of the European Union, birth rates are low and the population is aging. People under thirty account for only 16% of the population, or 80 million people. In the 22 Arab countries, plus Turkey and Iran, people under thirty account for 70% of the population, or 350 million people.

Jews are fleeing Europe in increasing numbers. "Native" Europeans are starting to flee as well.

In 1972, in his book "*The Camp of the Saints*," French writer Jean Raspail described flooding Europe with Muslim migrants crossing the Mediterranean. At the time, the book was a work of fiction. Today, it is reality.

[1] Christopher Booker, Richard North, *The Great Deception, The Secret History of the European Union*, Bloomsbury Academic, 2005.

[2] Neil Fligstein, *Euroclash: The EU, European Identity, and the Future of Europe*, Oxford University Press, 2009.

[3] Wolfram Kaiser, *Christian Democracy and the Origins of European Union*, Cambridge University Press, 2007.

Delta Scientific MP5000 Portable Crash Barriers Used During Pope's US Visit

Source: <http://www.hstoday.us/single-article/delta-scientific-mp5000-portable-crash-barriers-used-during-pope-s-us-visit/f71cf76abee5cefdad242c7e05fee497.html>

Oct 14 – Delta Scientific, a manufacturer of counterterrorist vehicle control systems used in the United States and internationally, announced that 18 Delta Scientific 12- and 16-foot (3.7 - 4.9 meter) **MP5000 mobile deployable vehicle crash barriers helped police and security personnel protect Pope Francis from vehicle bomb attack and errant drivers as he traveled to various venues** in Washington, D.C., Philadelphia and New York between September 22-27. Global Access Control Systems (Pittsburgh) provided the barriers.

At each location, the totally self-contained MP5000's were **towed into position and controlled vehicle access within 15 minutes**. No excavation or sub-surface preparation was required. Once positioned, the mobile barricades unpacked themselves by using hydraulics to raise and lower the barriers off their wheels. DC-powered pumps then raised or lowered the barriers. **The shorter mobile deployable vehicle crash barriers carry a K4 rating (M30 per new ASTM rating), stopping 7.5 ton (6400 Kg) vehicles traveling 30 mph (48 kph). The longer MP5000 meets K8 rating requirements, stopping the same sized vehicle at 40 mph (64 kph).**





DELTA SCIENTIFIC 20 FT MP5000 CRASH TEST

"At almost every major event, from political conventions to G-20 and NATO meetings, Delta's portable MP5000 barriers are protecting participants from harm," said Greg Hamm, Delta Scientific vice president of sales and marketing. "During the Papal visit engagements, which were witnessed by millions, not one vehicle got into position to cause harm."



Over 1,000 of the MP5000 mobile deployable vehicle crash barriers are being utilized throughout the world. The high security portable barricade system is easily towed into place by a light three-quarter-ton pickup truck. Many of the MP5000s are being used in the Middle East to protect US troops from truck bomb attack.

Both the operation of the barrier as well as deployment and retrieval are push-button controlled. A standard system includes a battery-operated power unit, replenished from either a solar array or local low voltage source.



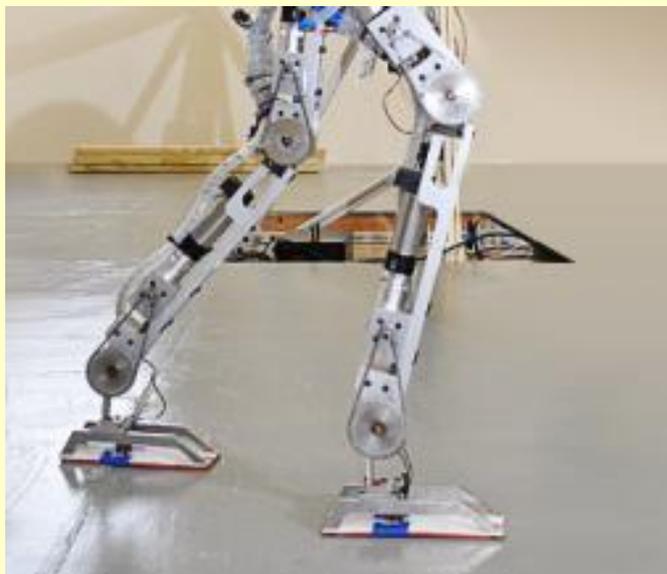
Optionally, a Delta Hydraulic Power Unit operated on a locally supplied power or full manual system, or combination, is available. Both the locally powered and battery powered hydraulic pumping unit can be sized to provide pass-through rates suitable for most inspection and identification station requirements.

Operating modes include full automatic, remote-hard line, remote-radio, card reader, key switch, local guard push button controls or via master and slave control panel.

Walking robots a step nearer

Source: <http://www.homelandsecuritynewswire.com/dr20151028-walking-robots-a-step-nearer>

A study by engineers at Oregon State University suggests that they have achieved the most realistic robotic implementation of human walking dynamics that has ever been



done, which may ultimately allow human-like versatility and performance.

The system is based on a concept called “spring-mass” walking that was theorized less than a decade ago, and combines passive dynamics of a mechanical system with computer control. It provides the ability to blindly react to rough terrain, maintain balance, retain an efficiency of motion, and essentially walk like humans do.

As such, this approach to robots that can walk and run like humans opens the door to entire new industries, jobs and mechanized systems that do not today exist.

The findings on spring-mass walking have been reported for the first time in *IEEE Transactions on Robotics*, by engineers from OSU and Germany. The work has been supported by the National Science Foundation, the Defense Advanced Research Projects

Agency (DARPA), and the Human Frontier Science Program.

OSU reports that the technologies developed at OSU have evolved from intense studies of both human and animal walking and running, to learn how animals achieve a fluidity of motion with a high degree of energy efficiency. Animals combine a sensory input from nerves, vision, muscles and tendons to create locomotion that researchers have now translated into a working robotic system.

[Operational model of walking legs // Source: tamu.edu](#)

The system is also efficient. Studies done with their ATRIAS robot model, which incorporates the spring-mass theory, showed that it’s three times more energy-efficient than any other

human-sized bipedal robots.

“I’m confident that this is the future of legged robotic locomotion,” said Jonathan Hurst, an OSU professor of mechanical engineering and director of the Dynamic Robotics Laboratory in the OSU College of Engineering.

“We’ve basically demonstrated the fundamental science of how humans walk,” he said.

“Other robotic approaches may have legs and motion, but don’t really capture the underlying physics,” he said. “We’re convinced this is the approach on which the most successful legged robots will work. It retains the substance and science of legged animal locomotion, and animals demonstrate performance that far exceeds any other approach we’ve seen. This is the way to go.”

The current technology, Hurst said, is still a crude illustration of what the future may hold. When



further refined and perfected, walking and running robots may work in the armed forces. As fire fighters they may charge upstairs in burning buildings to save lives. They could play new roles in factories or do ordinary household chores.

Aspects of the locomotion technology may also assist people with disabilities, the researchers said.

“Robots are already used for gait training, and we see the first commercial exoskeletons on the market,” said Daniel Renjewski, the lead author on the study with the Technische Universitat Munchen. “However, only now do we have an idea how human-like walking works in a robot. This enables us to build an



entirely new class of wearable robots and prostheses that could allow the user to regain a natural walking gait.”

There are few limits to this technology, the researchers said.

“It will be some time, but we think legged robots will enable integration of robots into our daily lives,” Hurst said. “We know it is possible, based on the example of animals. So it’s inevitable that we will solve the problem with robots. This could become as big as the automotive industry.”

And much of this, the scientists said, will be based on the “spring-mass” concept, which animals have been perfecting through millions of years of evolution.

The robots being constructed at OSU were designed to mimic this “spring-legged” action of bipedal animals. With minor variations, muscles, tendons and bones form a structure that exhibits most of the required behavior, and conscious control just nudges things a little to keep it going in the right direction. The effort is smooth and elastic, and once understood, can be simulated in walking robots by springs and other technology.

ATRIAS, the human-sized robot (photo) most recently created at OSU, has six electric motors powered by a lithium polymer battery about the size of a half-gallon of milk, which is substantially smaller than the power packs of some other mobile robots. It can take impacts and retain its balance. It can walk over rough and bumpy terrain.

Researchers said in their new study that this technology “has the potential to enhance legged robots to ultimately match the efficiency, agility and robustness of animals over a wide variety of terrain.”

In continued research, work will be done to improve steering, efficiency, leg configuration, inertial actuation, robust operation, external sensing, transmissions and actuators, and

other technologies.

Other collaborators in the development of this technology have included Jessy Grizzle at the University of Michigan and Hartmut Geyer at



Carnegie Mellon University. Scientific work on the motion of animals was done with Monica

Daley at the Royal Veterinary College, which guided the robot's development.

Syria's civil war, Europe's refugee crisis the result of spikes in food prices

Source:

Oct 28 – The disintegration of Syria and Europe's refugee crisis are only the latest tragic consequences of two spikes in food prices in 2007-08 and 2010-11 that triggered waves of global unrest, including the Arab Spring. Researchers at the New England Complex Systems Institute (NECSI) have traced these spikes and spiraling crises to their root causes: deregulated commodity markets, financial speculation, and a misguided U.S. corn-to-ethanol fuel policy which removes nearly five billion bushels of corn from markets each year. With world food prices currently in retreat, now is the time to change policies.

NECSI reports that in a paper published in the *Proceedings of the National Academy of Sciences*, NECSI researchers explain how the Arab Spring was triggered by sudden spikes in global food prices. When food becomes scarce, desperate people riot. Riots destabilized Syria and other poor countries, testing governments and sometimes leading to their fall. Many causes for the rapid rises in food prices have been suggested, but NECSI quantitatively determined that speculation caused these sharp rises in price. Additionally, the mandated conversion of corn into ethanol was linked to a steadier rise in food prices that has a serious impact on hunger worldwide.

Remarkably, the paper uses fundamental physical methods, invented for quantum field theory and developed in statistical physics and complex systems science, to determine the implications of policies intended to alleviate world hunger. This paper also provides strong validation for the role of nontraditional behavioral agents in large deviations from equilibrium market prices. This is evidence that speculation and trend following causes bubbles and crashes, a long standing controversy in economic theory.

Physical methods can be used to identify the most important behavior-affecting factors in a complex system. In this case, they point to the



role of speculators and ethanol in world food prices. The fitting of actual prices to theory has a p value of 10^{-60} , and the out of sample fit is as good as many theories' in-sample fit, $p < 0.001$. This demonstrates the incredible accuracy that is possible for this kind of theoretical analysis of real world problems.

The ethanol mandates and the Commodities Futures Modernization Act of 2000, which allowed speculation in the commodities market, are both disastrous policy decisions that should be rolled back. However, as NECSI's president Yaneer Bar-Yam points out, "Because of large profits for speculators and agricultural interests, a very strong social and political effort is necessary to counter the deregulation of commodities and reverse the growth of ethanol production."

As NECSI has demonstrated, short-sighted market policies in the United States sparked food riots, which triggered the Arab Spring, which destabilized Syria. The millions of internally displaced Syrians and migrants fleeing civil war and ISIS are just the latest event in a



worldwide chain reaction. If nothing is done to restore stability, this will not be the

last disaster.

— *Read more in Marco Lagi et al., "Accurate market price formation model with both supply-demand and trend-following for global food prices providing policy recommendations," [Proceedings of the National Academy of Sciences](#) (16 September 2015).*

Germany May Soon Have 8 Million Muslims, Islamic Political Party

By Raheem Kassam

Source: <http://www.meforum.org/blog/2015/10/professor-germany-may-soon-have-8-million-muslims>

Oct 23 – **A German political expert has warned that a successful Islamic political party is not a far off thought given Germany's rapidly changing demographics.**

In an interview with the *Neue Osnabrücker Zeitung* newspaper, Professor Jürgen W. Falter, who specialises in political extremism, noted that Chancellor Angela Merkel's position on immigration may soon change, claiming "Pandora's box is opened too far".

Professor Falter said: "I do not think that the position of Mrs. Merkel, with time, will be held. Her words are rowing forward, but below the surface, back already... certainly this has something to do with the fact she sees that she has to get the genie back in the bottle... a Pandora's box is opened too far."

"[Her migration policy] was probably not meant the way it has arrived. But it sounded like an invitation to the entire world, unlimited refugees are welcome."

His views on the rise of the Alternative für Deutschland are also worthy of note, claiming that it was destined to become a small, regional party before the migrant crisis, but that now it can flourish without really doing much at all.

And he warned about the rise of an Islamic political party in Germany – small versions of which may already have been witnessed elsewhere in Europe, such as with Tower Hamlets First in East London and the Respect Party in Bradford, both in the United Kingdom. He posits that despite Mrs. Merkel's kind welcoming of many Muslims, it is unlikely they would vote for a party with the word "Christian" in its name:

There's doubt, first of all against the [Christian Democratic] Union (CDU), because it still bears "Christian" in its title. Even reduced to their basics, the CDU and CSU [Christian Social Union] are relatively strong names. This is naturally, for devout Muslims, not the party of first choice.

Currently a large number of [Muslims] are believed to be active in rather simpler professions. In addition once they are integrated into the working life, they are more likely to vote for left-wing parties or possibly even for an established Islamic party.

Currently, we have about five million Muslims living in Germany. Suppose there comes another million, plus family reunification. Then there will be between seven and eight million. This is not an entirely fanciful number. That would be in far enough for a minority party.

In context: Angela Merkel's party achieved 18 million votes in the 2013 federal elections, with the second party, the SPD, receiving 11 million votes. The third largest party, the Left Party (*Linkspartei*), got 3.7 million votes, the Greens 3.6 million, and the more libertarian FDP 2 million.

While there may be seven or eight million Muslims in Germany in the next few years, a significant percentage of these will be under the voting age, so any Islamic political party would be unable to acquire that number of votes. It may, however, have the capacity to outperform the FDP, the Greens, and even the Left Party, maybe even making itself large enough to force itself into a governing coalition.



Raheem Kassam is a Shillman-Ginsburg fellow at the Middle East Forum and editor-in-chief of Breitbart London.

Drone Jammer

Source: http://www.army-technology.com/downloads/whitepapers/jamming/drone-jammer/?WT.mc_id=WN_WP



The EAGLE108 tactical jammer was designed to neutralise unauthorised drones / quadcopters from entering secured fields and campuses.

The EAGLE108 is based on detection and jamming units. The system scans for drones by using an array of directional antennas.

Once a threat is detected, the system sends an automatic command to the jamming unit and starts to block all radio communication channels, including GPS signals and video link.

The system detects the general direction of the drone and transmits a specific beam directly to

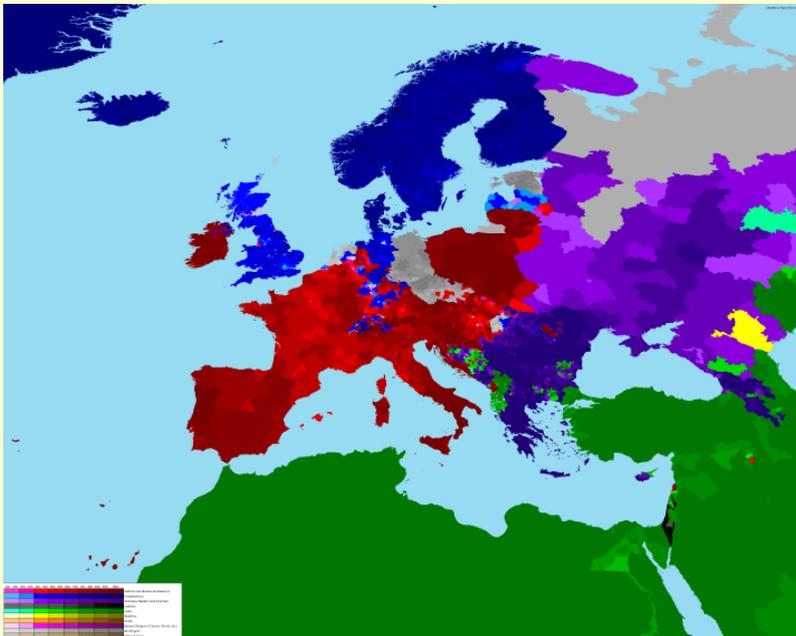
the drone. At this point the drone will drift away and lose communication with its operator.

► [Download](#) to find out more.

Incredibly Detailed Map Of The World's Religions

Source: <http://brilliantmaps.com/religion-world-map/>

The incredibly detailed map of the world's religions was created by reddit user scolbert08. To see the full resolution version just click on it.



It shows what the biggest religion is by census area in each country, along with its level of support. For example, in large parts of British Columbia the most common answer on the census is no religion, but the intensity of that feeling varies widely.

Another important thing to note is that while Christianity is divided between Catholicism, Protestantism and Orthodox denominations, Islam is not similarly

divided between Sunnis and Shias.

Also, the map likely wildly overstates the religiosity of Scandinavians, since the data is based on state Church records and everyone is assigned to a church at birth. Actual church attendance is much lower than the map would suggest.



Other interesting things to note:

- The Catholic bit of Antarctica is based on Chilean census data for Villa Las Estrellas
- Omman's Hindu population comes from migrant workers who outnumber locals.
- The Buddhist area in Russia is Kalmykia.

Muslim Intimidation Pervasive in British Prisons

By Johanna Markind

Source: <http://www.meforum.org/5615/islam-british-prisons>

Nov 03 – Recent media reports of government investigations indicate that throughout the United Kingdom's category A prisons – those holding the most serious offenders – of

According to the UK's most recent census – in 2011 – roughly 2,706,066 or 4.8% out of a population of 56,075,912 identified as Muslim (although, given that the UK's total



population is elsewhere identified as 63.2 million, the actual Muslim percentage may be closer to 4.28%).

Based on the 4.8% figure, Muslims appear to be overrepresented in the British prison population by 3.01 times their percentage of the population.

Back in 2002, 5,502 of the UK's 70,778 prisoners, or 7.8%, were Muslim. According to the

2001 census, Muslims constituted 3.0% of the total UK population. In other words, Muslims were overrepresented in the UK prison population by 2.59 times their percentage of the population. So the current numbers may represent an increase in degree of overrepresentation (only "may," because population data for 2014 is unavailable, given that the last census was three years earlier), but not a huge one.

More noteworthy is the fact that, compared to Muslim incarceration rates in France and the United States, the UK rate is actually low. Muslims are overrepresented in the French prison population by 7.5 times their percentage of the population; they make up 60% of the French prison population but only 8% of the general population. In the United States, although their overall percentage is smaller, Muslims are overrepresented in the prison population by 11.25 times their percentage of the population; they make up 9% of the US prison

Belmarsh, Long Lartin, Woodhill and Whitemoor, gangs of Islamist extremists intimidate non-Muslim prisoners. Muslim inmates pressure non-Muslims to convert and extort money from prisoners who do not. It is unclear how long the problem has been going on. Media previously reported about pressure to convert three and a half years ago.

According to the UK's Independent Monitoring Board, Muslims are overrepresented in Whitemoor prison, a maximum security facility holding about 450 inmates. Muslims make up about half of the total population of that facility. The board also noted, Muslim gangs make up the "biggest power bloc," and "some prisoners and staff found the Muslim presence overwhelming."

Demographics

As of December 2014, 12,225 of the UK's 84,691 prisoners were Muslim. That is to say, Muslims made up 14.4% of the UK's prison population.



population but only .8% of the general population).

Questions Remaining

Will the UK government act to protect non-Muslim prisoners from intimidation by Muslim prisoners? Will it sanction the Muslim gangs and their accomplices? Or will it simply accept second-class status for non-Muslims, as the UK's justice system seems in danger of doing? Will it explore the factors leading to overrepresentation of Muslims in the prison population? One must wonder whether the overrepresentation is at least partly the result of intimidation against other prisoners to convert.

Given that Muslims are able to exert so much pressure in prisons for serious offenders, and make up about half of the prison population at one of them (Whitemoor), are Muslims particularly overrepresented in more serious offenses? If so, why?

Finally, given these reports, and the even greater overrepresentation of Muslims in French and US prisons, will authorities in France and the US investigate whether Islamist extremists in their prisons are likewise pressuring and or extorting non-Muslim prisoners, and whether Muslims are especially overrepresented among more serious criminals?

Johanna Markind is associate counselor at the Middle East Forum



Russian Plane Crash Charlie Hebdo Cartoon Is 'Blasphemy,' Russia Says Over Magazine's Latest Edition

Source: <http://www.ibtimes.com/russian-plane-crash-charlie-hebdo-cartoon-blasphemy-russia-says-over-magazines-latest-2172878>

While world leaders offered opposing theories on what brought down Russian Metrojet Flight 9268 over Egypt, killing all 224 aboard, Russian media Friday focused on cartoons of the incident published by the French satirical

Secretary Dmitry Peskov said. "It is pure blasphemy."

The cartoons were published in the latest edition of Charlie Hebdo and quickly drew angry reactions from Russians on social media, with the head of the Rodina Party calling the cartoons "Russophobic art." One of the cartoons shows a member of the Islamic State group, also known as ISIS, covering his head while debris from the Metrojet plane falls around him with the caption reading, "Russia's air force intensifies its bombing."

Left – DAECH: Russian Air Force intensifies bombings.

Right – The dangers of Russian low cost flights; (bottom): I should have chosen "Sir Cocaine"



magazine Charlie Hebdo, Russian media reported. Russian President Vladimir Putin's press secretary called the cartoons "blasphemy."

"This has nothing to do with democracy, self-expression or whatever," Press

The editor of Charlie Hebdo, Gérard Briard, criticized the Kremlin's reaction to the cartoons.

"We are a secular, democratic and atheist newspaper. The term blasphemy has no meaning for us," he said speaking with the Russian branch of French radio station



RFI, according to the Moscow Times. “The Kremlin is using this to detract attention from other problems.”

Russia began airstrikes over Syria Sept. 30 with the U.S. and other Western states saying the Kremlin was working to prop up the regime of Syrian President Bashar Assad instead of targeting ISIS.



Investigators were still working to establish the cause of the Saturday downing of the Metrojet flight from Egypt to St. Petersburg. American and British authorities have said a terrorist attack was a possible cause of the downing of the aircraft while Russian and Egyptian authorities have shied away from this explanation.

Charlie Hebdo has long published controversial cartoons including ones of the prophet Muhammad as well as other airplane disasters including the search for missing Malaysia Airlines Flight MH370. The magazine was the target of a terrorist attack in January in which 12 people died, making it one of the worst domestic terrorist acts in France.

EDITOR'S COMMENT: Too much democracy and freedom is bad for our health!

Wave of refugees a major boost to German economy, society: Economists

Source: <http://www.homelandsecuritynewswire.com/dr20151106-wave-of-refugees-a-major-boost-to-german-economy-society-economists>

Nov 06 – **Marcel Fratzscher, the head of the German Institute for Economic Research (DIW), has said that Germany stands to gain from the wave of migrants arriving in the country. The long-term economic gains from the large number of refugees arriving in Germany, he said, will far outweigh the considerable immediate costs Germany faces.**

Fratzscher told the *Guardian* that the hundreds of thousands of newcomers this year as well as the hundreds of thousands more expected in coming years, offer a major opportunity for Germany, and that the country's strong financial position makes it ideally placed to welcome them.

“In the long run the refugees are an incredible opportunity for Germany,” Fratzscher said. “Because of the surplus in the public budget, and a labor market that's doing incredibly well, there's probably never been a better moment in

the last seventy years for Germany to deal with the challenge.”

DIW says that in a [study](#) published on Thursday, Fratzscher and co-author Simon Junker conclude that while the current situation, with thousands of refugees continuing to arrive daily, poses a daunting economic and social challenges, **the benefits of absorbing the refugees will clearly start to outweigh the costs “within the next five to ten years.”**

The authors recognize “the chaos and fears” in some parts of Germany and the “huge logistical challenge” the country faced, but Fratzscher insists that the government's open-door policy would change German society for the good.

The *Guardian* notes that Fratzscher is one of the leading voices of a growing number of German senior public policy analysts and economists who argue that because of Germany imminent demographic crisis – a shrinking



and aging population – the refugees can help German society.

The DIW report reaches similar conclusions to those of a recent report by the [Macroeconomic Policy Institute](#), which said the refugees would boost the German economy and “act almost like a stimulus program” by forcing long overdue investments in Germany’s weakened infrastructure.

David Folkerts-Landau, chief economist with Deutsche Bank, agrees, saying that the influx of refugees has “the potential not just to invigorate our economy but to protect prosperity for future generations.”

Joachim Möller, head of the Institute for Employment Research, has told the *Guardian* that one reason for hope is the young age of most of the refugees. **“Because the majority of them are under-25, there’s a lot of potential there.”**

The economists and public policy analysts who highlight the positive contribution the refugees can make to the German economy reject calls by other policymakers for introducing a special refugee tax or raising the pension age to cover the costs of the crisis.

“Such measures would be wrong and counterproductive, and would only help stoke unfounded fears in the population, that Germany can’t afford or manage these refugees, that they take money from us, steal our jobs and lower our wages,” Fratzscher said. He warned: “It’s clearly easier to gain political support at the moment by stoking fears.”

Fratzscher noted that some German economists and policy makers were uncomfortable highlighting the refugees’ positive contribution for fear of being criticized for treating the refugees issue as solely an economic issue, ignoring its political and cultural aspects.

“Few people dare to speak out on this issue, because it’s highly emotional and whatever you say you will get criticized,” he told the *Guardian*. “Until now the most prominent voices have been those that look exclusively at the government perspective, and focus on what the refugees cost now, which admittedly in the short term is enormous, rather than looking at what the refugees that come now provide to the country and the economy in the long run.”

Government economists estimate that each refugee costs the public purse about €12,000 a year until he or she begin to earn a living – if they are allowed to stay. The total cost to Germany so far this year of dealing with the wave of refugees has been about €10 billion, or about 0.3 percent of the country’s GDP.

Fratzscher says that these are costs the country can easily afford.

“Because we have a surplus in the federal, state and local budgets of about €15 billion this year, there’s enough money to bear those costs, and the same holds for next year,” Fratzscher said.

“Financially, the government is in an incredibly unique position to shoulder that burden.”

He noted that Germany’s coming demographic crisis, which would see the country’s working population shrink by around 4.5 million over the next decade unless a sufficient number of immigrants is allowed, offers great opportunities for new arrivals to be integrated into the workplace.

“There will be a lot more open positions. Companies are already looking for many skilled and unskilled workers and that problem is only set to intensify,” he said.

“The opportunity is for refugees to not only fill the gap, but as we know every person who finds a job and pays taxes makes a contribution to economic productivity and output. We will see that the benefits will outweigh the costs within five to ten years. This is not me being an optimist, I’m just looking wider than this myopic, short-term perspective, that in the long run, refugees will be a net gain for the economy.”

DIW says that the study based its calculations on one million refugees arriving this year, a similar number next year, and half a million each year until the end of 2018. It assumes that 40 percent of those will end up staying in Germany for twenty years or longer.

“But even if they go back after four years, we should not think it’s bad to invest in people’s integration, education and training,” Fratzscher said. “There will be those who go back sooner, but we also have many Germans who do that. Lots of German doctors train here and then go to Switzerland where the salaries are better, and many



qualified people from other European countries have come here with a good training, which didn't cost Germany anything, so it goes both ways."

Fratzscher stressed the boost to the German economy from the building boom, which would result from the construction of new kindergartens, schools, and social housing, after years in which much German

infrastructure had been neglected, with money put into social welfare spending instead.

"It's a wake-up call for a fundamental shift in the thinking about our economy and our country," Fratzscher said. "We need to recognize that we must invest now in our future and that it will pay off in 10, 20, or 30 years' time," he said.

— Read more in Marcel Fratzscher and Simon Junker, *Integration von Flüchtlingen — eine langfristig lohnende Investition* (DIW Wochenbericht Nr. 45, November 2015)

710 000 migrants entered EU in first nine months of 2015

2015-10-13

Source: FRONTEX (<http://frontex.europa.eu/news/710-000-migrants-entered-eu-in-first-nine-months-of-2015-NUIBkk>)

The total number of migrants who crossed the EU's external borders in the first nine months of this year rose to more than 710 000 with the Greek islands on the Aegean continuing to be the most affected by the unprecedented inflow of people. This compares with 282 000 recorded in all of last year.

In the month of September, the number of detections at EU's external borders stood at 170 000 last month compared to 190 000 recorded in August.

The Greek islands, especially Lesbos, continued to face a massive migratory pressure, with the number of detections in the January-September period reaching 350 000. In September, the number of people detected in the Eastern Mediterranean region was mostly flat at nearly 49 000. Syrian refugees remained the dominant nationality among the arriving migrants.

EDITOR'S COMMENTS: (1) Dangerous statements from official lips; (2) Germany will profit and solve its demographic crisis while the "Gates of Europe" (countries) will continue to be f... up by the immigration tsunami?; (3) One might comment with a dose of maliciousness that Germany could be one of the dark supporters/abettors of ongoing chaos in Syria and elsewhere...

Chaos on the streets of London: Million Mask March anarchist - in a£500 jacket - trashes police car as fireworks are aimed at horses inclashes outside Buckingham Palace and Hunger Games premiere

Source <http://www.dailymail.co.uk/news/article-3305777/Bottles-hurled-police-men-knives-paint-grenades-lock-picks-arrested-Trafalgar-Square-hundreds-anti-inequality-protestors-march-London.html>

Nov 05 – Thousands of protesters wearing sinister Guy Fawkes masks brought chaos to the streets of London last night.

Hundreds of anarchists were held back by police outside Buckingham Palace. They aimed fireworks at the police horses and also tried to dazzle them with laser pointers.

Another group targeted the UK premiere of the new Hunger Games film in Leicester Square, moments after Hollywood stars including Jennifer Lawrence and Julianne Moore had walked the red carpet.

Meanwhile, one anarchist was filmed smashing up a flaming



police car - while wearing a Colmar ski jacket that cost around £475.



Elsewhere, officers were forced to brandish their batons after clashes turned violent as the vandals marauded through the streets, setting off smoke bombs and daubing graffiti. A total of 44 people have been arrested and at least three officers have been taken to hospital with injuries.



It came hours after Anonymous, the anarchist hacking group behind the 'Million Mask March' warned 'police are not your friends'. Russell Brand and Vivienne Westwood had joined the group's supporters on a November 5 protest last year that saw spectacular clashes with police.



Earlier, three men carrying knives, gas canisters and lock picks were arrested in Trafalgar Square after a police stop and search. Police had held three people at about 2.30pm after spotting a group of men acting suspiciously.

Strict restrictions were placed on the protesters, who had agreed to march from Trafalgar Square to Whitehall. But violence erupted as crowds broke away from the main collective, gathering outside Buckingham Palace and Leicester Square.

Officers began to make more arrests after the protest's 9pm deadline expired. Forty-four people have now been arrested, with 27 detained for public order offences and two for assaulting a police officer.

A line of police dog-handlers guarded the entrance to the BBC as some protesters ran up Regent Street, trapping staff and customers in designer stores as they launched fireworks indiscriminately. Other activists ended up in Mayfair, where windows were smashed and bins upturned.

Demonstrators also ended up in Mayfair's Conduit Street, where windows were smashed.



Staff and customers also became trapped inside a designer shop off Regent Street as the protest raged outside.

Video footage taken tonight shows a protester, his face covered, smashing up a flaming police car near Green Park, in central London. Moments later, another activist climbs on top of the car and starts jumping up and down before being pulled away by a bystander.

It is understood the anti-capitalist protester was wearing a jacket worth hundreds of pounds as he carried out his campaign of destruction. The jacket, believed to be from brand Colmar, where padded jackets start at £260. He is believed to be wearing one that costs £475.

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jacket, believed to be from brand Colmar, where padded jackets start at £260. He is believed to be wearing one that costs £475.

Some activists screamed 'Whose streets? Our streets' as confused tourists looked on and took pictures. Others carried placards bearing the message: 'One solution: Revolution.'

Terry Small, 20, from Plymouth, emerged from a crowd with blood pouring from his head. He alleged he had been hit a number of times by an officer with a baton.

Ahead of the march, the Metropolitan Police said they had 'strong reason to believe' that peaceful protest is the 'last thing on the minds of many of the people who will come along'. Last year, 10 people

were arrested over vandalism to public buildings and violence towards police officers.

Scotland Yard said the march must not continue after 9pm and must be limited to a section of the West End including Trafalgar Square, where it started, and Westminster. Police said past events have seen 'high levels of anti-social behaviour, crime and disorder'.

Chief Superintendent Pippa Mills said: 'It is



unacceptable that a small minority should believe they have the right to break the law, harass people, damage buildings and attack police officers.



'My message to those people planning on attending on Thursday night is if you want to take part in peaceful protest, that is your right and we want to work with you. If you want to

break the law then we will police you. Where offences are committed, we will investigate them and make arrests.'

We belong to the West...



Nov 2015 – As soon as the new US Ambassador in Nicosia, Cyprus Kathleen Ann Doherty resumed her duties she organized a reception at the Merit Lefkosa Doherty Hotel to honor Turkish occupational forces in Cyprus. The Commander of Turkish occupational forces General Ilyas Bozkurt, the Commander of Turkish security forces Erhan Uzun and many other officers were present in the event.

First “East of Suez” UK Naval Base In 40 Years Begins Construction In Bahrain

Source: <http://i-hls.com/2015/11/first-east-of-suez-uk-naval-base-in-40-years-begins-construction-in-bahrain/>



Nov 07 – UK foreign secretary Philip Hammond and his Bahraini counterpart Foreign Minister Khalid bin Ahmed Al Khalifa held a groundbreaking ceremony last weekend, to mark the beginning construction of a new permanent naval base in Bahrain. Construction of the new base, HMS



Juffair (named after Britain's Bahraini naval base that operated in the middle of the twentieth century), "marks a watershed moment in the UK's commitment to the region. The presence of the Royal Navy in Bahrain is guaranteed into the future, ensuring Britain's sustained presence east of Suez. The new facility will enable Britain to work with our allies to reinforce stability in the Gulf and beyond," Hammond said at the ceremony.

This will be the first British naval base constructed in the Persian Gulf in over 40 years, after a wave of closures by a cash-strapped Labour government from the late 60s onwards.

In 1968, asserting its anti-colonialist commitment, Harold Wilson's government announced Britain's withdrawal from all bases east of Aden (Yemen, then under British administration). The "East of Suez" declaration, as it has become commonly known, marks for many the end of the British Empire. Bahrain announced its independence from Britain in 1971. Almost five decades later Britain is set to return to the Gulf.

In many ways, the return is only formal – Britain never left. It has strong, long-standing security ties with many of the Gulf states, including Qatar, Saudi Arabia, UAE and Oman. Until now, British Navy ships docked and were serviced at the American base at Mina Salman, near which the new Royal Navy base is to be located. Gulf states served a vital role in Allied operations in Afghanistan. Four British mine-hunter ships are already based in Bahrain,

and others rely on facilities in the kingdom.

The project has not been without controversy. It was first announced last December amid allegations that the base serves as a "reward" for British silence of human rights abuses in the



turbulent state. Further, questions over the legality of the base have been raised by Bahraini opposition. According to the state's constitution, all treaties "relating to state territory" must be passed through the parliament. However, the Bahraini parliament has yet been consulted, says Jawad Fairooz, an opposition activist now based in London.

British Labour Party leader, Jeremy Corbyn, is expected to oppose the base as well, as the base would be "deeply upsetting for those who suffered human rights abuses by the government of Bahrain" and would "exacerbate tensions in the region."

Hammond told BBC News that "Bahrain is not perfect by any means," but insisted that Britain is helping the Gulf state to change. A government spokesperson previously said that the "UK government is supporting the government of Bahrain in its reform

programme, including work to help Bahrain strengthen its human rights and justice sector. We welcome the progress Bahrain is making in this area with the support of NGOs and will continue to provide assistance to them." At the

ceremony, Hammond praised Bahrain's commitment and tangible efforts for the benefit of the region and its people.

According to analysis at The Economist, the move demonstrates the strong ties between Britain's current government and the Gulf monarchies, with whom it maintains substantial investment and trading relations. Defence analysts have reported that Bahrain is keen on sourcing Typhoon combat jets, which are built by British firm BAE Systems.

Ostensibly, the aim of HMS Juffair is to serve in operations against ISIL and other terrorist organisations in the region, which Hammond called the "great challenge of our time." However, fears of further destabilisation are rife. Rather than provide security, the move suggests "a narrow and myopic" definition of regional stability, says Shashank



Joshi of the think-tank RUSI. Last year, Gareth Stansfield and Saul Kelly, in a report for RUSI, argued that the force Britain could deploy in the Gulf might be "large enough to get us into

trouble, but too small to get us out of trouble once it starts".

The base is expected to be completed by autumn 2016. It will provide port facilities for the Royal Navy's latest Type 45 destroyers and two new

generation aircraft carriers, to be built by the end of the decade. Construction costs of \$23m are to be paid mostly by the Bahraini Royal family, with Britain covering running costs.

New algorithm allows autonomous drone to zip through trees at 30 mph

Source: <http://www.gizmag.com/algorithm-autonomous-drone-trees/40302/>



A new algorithm has allowed an autonomous drone to avoid obstacles such as trees when traveling at higher speeds (Credit: MIT/CSAIL)

A commonly-held reservation when it comes to drones is their propensity to smash into things. Researchers at MIT's Computer Science and Artificial Lab (CSAIL) are not the only ones working on this problem, but they have made one of the more promising advances in the area so far. The team has found a way to streamline the computational algorithms needed for a drone to map its surroundings, giving its autonomous aircraft a major turbo boost when avoiding obstacles.

Current approaches to obstacle avoidance systems for drones involve using onboard cameras and processors to snap images and analyze the surroundings at regular intervals, say every one or two meters (3.3 or 6.6 ft). This requires a lot of processing power and means that the drones struggle to

move faster than 8 or 10 km/h (5 or 6 mph) without specialized processing hardware. CSAIL PhD student Andrew Barry took a seemingly counterintuitive approach to speed things up.

His thinking is that when a drone is moving at faster speeds, the environment doesn't appear to change all that much between frames. **So he instead designed his algorithms to take readings only every 10 meters (32 ft) instead.**

"You don't have to know about anything that's closer or further than that," Barry says. "As you fly, you push that 10-meter horizon forward, and, as long as your first 10 meters are clear, you can build a full map of the world around you."



Working with a US\$1,700 drone built with off-the-shelf components and featuring a camera on each wing and a pair of processors you might find in a cell phone, Barry and his team put this technique to the test. The aircraft was launched into the countryside, where it made its way autonomously through a set of trees while traveling at 48 km/h (30 mph).

CSAIL says the system runs 20 times faster than existing software, extracting depth information at a rate of 120 frames per second. The team is now looking to develop the

software further so it can work at more than one depth and in denser surroundings, such as thick forest.

"As hardware advances allow for more complex computation, we will be able to search at multiple depths and therefore check and correct our estimates," says Barry. "This lets us make our algorithms more aggressive, even in environments with larger numbers of obstacles."

The team has made the software open-source and available online [here](#).

Germany runs out of pepper spray as residents brace for immigrant crime wave

Source: <http://hotair.com/archives/2015/11/11/germany-runs-out-of-pepper-spray-as-residents-brace-for-immigrant-crime-wave/>



Nov 11 – I wonder if Hillary Clinton is still sticking by her call, made in September, to admit tens of thousands of Syrian “refugees” into the United States with all due haste. Her former boss, Barack Obama, has still been holding to some slightly more modest numbers in the range of ten thousand. Neither of those plans may even come close to appeasing some elements of their base, such as one writer at The Atlantic who tosses all those pesky numbers out the window and proclaims that we should just take in all of them. Yes... *all of them*.

What could possibly go wrong? Well, in Germany they're already starting to find out just how bad things can get. There have been protests bordering on riots in the streets over there which garner very little coverage in American news outlets, but the German people are approaching panic levels in some areas. Crime is on the rise and the villages taking in seriously large numbers are concerned about

their national identity being subsumed. Their preparations for the worst are running into snags as well. **We find one example at Zero Hedge, where we learn that you basically can't even buy pepper spray in the country any more.**

Despite occasional videos of angry Germans protesting at what has become the biggest “foreign invasion” of Europe since World War II, the German popular response to the wave of migrants, which is now expected to top 1 million in 2015 has been relatively calm. Fear (and anger), however, are building beneath the otherwise calm surface.

According to a report by Focus, following a 600% surge in sales over the past two months, Germany has run out of pepper spray, and the irritating substance can now only be purchased after weeks of waiting.

Focus says that according to pepper spray manufacturers, “frightened Germans” have bought out all the available inventory. The alleged reason, according to the German publication: “die Flüchtlingskrise”, or the refugee crisis.

Focus goes on to say that in private, Germans are equipping themselves “massively.”

It appears that “*die Flüchtlingskrise*” is a phrase being heard on the lips of many, many Germans these days, and for good reason. Things have



long since reached crisis proportions and people are frightened. This isn't some rampant xenophobia run amok, but rather a rationale response to an existential threat. And if the German government doesn't want to listen to their own people, maybe they should check in with their allies in Italy. You'll never guess who they just caught trying to sneak into the country disguised as a poor, beleaguered Syrian "refugee" this month. (Daily Caller)

Italian authorities arrested a convicted Tunisian terrorist with links to ISIS as he tried to enter the country on a boat carrying Syrian refugees. Ben Nasr Mehdi was first arrested in Italy in 2007 after getting exposed as the mastermind behind planned attacks on Italian soil on behalf of a now ISIS-affiliated group. Mehdi was deported last year after completing his seven-year prison term in Italy. It appears he planned to finish what he started in 2007 and carry-out his Jihadist calling.

Yep. We have our first confirmed instance of a known, previously convicted terrorist trying to take advantage of the crisis and cross over into Europe to cause more havoc. And if that's the one guy who you *did* manage to intercept, how many more have already made it in? How many are in Germany? How many are looking longingly across the water seeing a chance to finally make it into the United States thanks to the generous nature and open hearts of Barack Obama and Hillary Clinton?

If you'd like one more thought piece to peruse on this subject today, there's a good one [which actually posted last week at the WaPo](#). This is not a situation which is confined to Germany and Italy by any means. Various national leaders are already either closing up their borders or looking nervously back and forth between their neighbors to see who might jump

on the nationalist bandwagon next. And if your neighbor does it and you don't, the human flood will crash all the harder against your doors.

Hungary already has proved that it can largely insulate itself from the refugee crisis by deploying razor wire and threatening lengthy prison sentences for anyone who dares cross it. The country's moves have shifted the burden of the refugee crisis to its neighbors — and are now tempting leaders in those nations to build their own fences.

The U.N. refugee agency said Monday that a record 218,394 people crossed the Mediterranean to reach European shores in October — about as many as the total from all of last year. As the numbers rise, officials in countries across central and southeastern Europe are eyeing one another nervously, fearing that a sudden closure of any one border could unleash a domino effect across the region that would leave tens of thousands of people stranded and angry, far from their intended destinations in the continent's north.

The situation in Syria is a mess, but it is not our mess to clean up. And we certainly don't have any obligation to suddenly throw open the doors to tens or hundreds of thousands of migrants from one of the most terror-rich regions on the planet. If we do, we can expect to see the same crisis situation which is taking place in Europe right now. Of course, we can just elect Hillary Clinton next year and continue the same policies that Barack Obama is pushing.

And in that case you might want to stock up on pepper spray right now. And for those of you who aren't liberals, a few trips out for extra ammunition likely wouldn't be amiss either.

Hamtramck elects first majority-Muslim City Council

Source: <http://www.detroitnews.com/story/news/local/wayne-county/2015/11/06/hamtramck-elects-first-majority-muslim-city-council/75272654/>

Nov 06 – Saad Almasmari ran for a seat on the Hamtramck City Council this year with a simple yet powerful goal in mind.

"I like to serve my community," the 28-year-old Yemeni immigrant said. "I like everything in

Hamtramck. ... The thing I like most in Hamtramck is the diversity."

On Tuesday, Almasmari earned the highest number of votes — 1,176, or 22 percent — among



the six candidates who sought three, four-year terms on the council.

With his election, Muslims now fill four of the six seats on the panel, he said. **It's now believed to be the first City Council in the country boasting a Muslim majority,** said



Dawud Walid, executive director of the Council on American-Islamic Relations' Michigan chapter.

"The Michigan Muslim

community is becoming more civically and politically engaged," Walid said Thursday. "In some areas where Muslims are having an extremely difficult time, we are making progress in this area on a number of different fronts."

The shift in leadership is another signal that Hamtramck, once known as a predominately Polish Catholic community, has in recent years welcomed a more diverse demographic.

Muslims are "a significant population in the city and they've been arriving here and transforming the city for a generation now," said Sally Howell, a University of Michigan-Dearborn associate professor who has studied the group and written a book, "Old Islam in Detroit: Rediscovering the Muslim American Past."

"It's good to see them gain representation equal to their numbers on the City Council. That's a great opportunity for them and for the city to imagine a new future."

The election strides come after years of controversy. In 2013, the Al-Islah Islamic Center met resistance from Hamtramck's zoning board over its proposed remodeling of

its building. And in 2004, some residents heatedly objected to an ordinance the council ultimately approved to allow mosques to broadcast the Islamic call to prayer onto public streets.

The U.S. Census Bureau doesn't track religion, but Howell estimates Hamtramck, which has around 22,000 residents, is roughly half Muslim. As Poles and others left the city in the last several decades, she said, it attracted many immigrants, including those from Yemen, Bangladesh and Bosnia. Between 1990 and 2000, the city's Arab population jumped more



than fivefold, while its traditional Polish population dropped by more than a third.

"Hamtramck is famously a city that was known for being a real stronghold for the Polish community," Howell said. "Hamtramck was important to the Poles for the same reason it's important to these Muslim groups today in that they got to have a place where they could be the hegemonic voice. ... People were happy to have Hamtramck as a place that could really represent them. And I think that this is true today for the newer immigrants."

Alasmari relocated to the United States in 2009 and settled in Hamtramck, where his father-in-law lived. He gained citizenship in 2011 and is pursuing a degree in business administration from Wayne State University while running his own ice cream company.

Now on the council, he hopes to secure more financial resources



for the city and push to revitalize the area around Jos. Campau.

Almasmari stresses that faith wasn't a selling point during the election campaign, and his Muslim colleagues — Mohammed Hassan, Anam Miah and Abu Musa — are focused on representing all Hamtramck residents.

"Although we are Muslims, we are going to serve everyone regardless of their religion, ethnicity or skin color," he said.

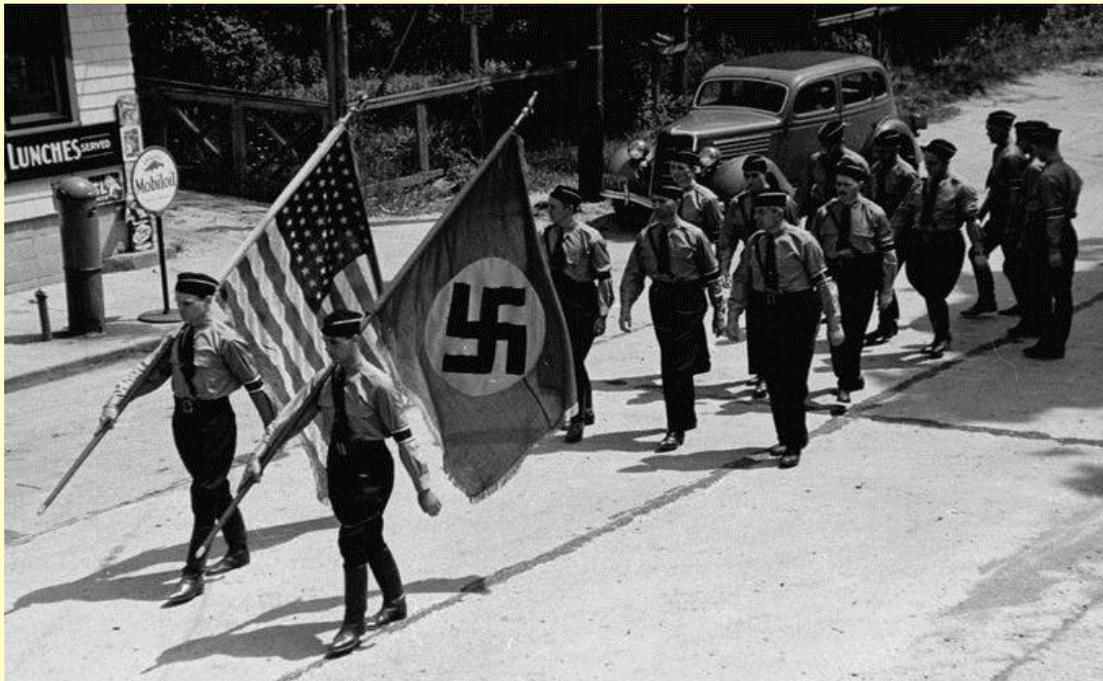
That spirit is what's needed to push the city forward in tough economic times, said longtime

activist Bill Meyer, executive director of OneHamtramck LLC, a group that uses culture to unite the community.

"They more than anybody want to prove that they can solve the problems of the city for everybody and work for everybody's benefit," he said. "Hamtramck, I think, was saved in a large part due to the presence of Muslims. So for that they need to be praised, thanked, supported and worked with. ... We have to help everybody to work together."

Nazi Past of Long Island Hamlet Persists in a Rule for Home Buyers

Source:



Members of the German-American Bund marching near Camp Siegfried in Yaphank, N.Y., circa 1937. Credit Rex Hardy Jr./The LIFE Picture Collection -- Getty Images

Oct 19 – Here in this rural Long Island community, a Nazi summer camp once held parades before American flags and banners bearing swastikas. Nearby streets were named after Adolf Hitler, Joseph Goebbels and other leaders of Nazi-era Germany.

While the parades are gone and the streets have been renamed, one thing has not changed: The original owners of this tract of land kept a clause in its bylaws requiring the homeowners to be primarily "of German extraction." That has kept this community of 45 families almost entirely white.



It has also left one family frustrated and headed to court to challenge the bylaws. Philip Kneer and Patricia Flynn-Kneer, a couple who lived in a two bedroom, ranch-style home along the main road, are suing the community organization that owns the land under their house, the German American Settlement League, alleging that the league's housing practices are discriminatory and violate the [Fair Housing Act](#). The complaint was filed on Monday in Federal District Court in Central Islip.



The couple, both of German descent, originally agreed in 1999 to enter the community under its rules. But in subsequent years, a mix of both moral and practical concerns came to trouble them.

[Adolf Hitler Street](#) ran through Camp Siegfried in 1938. Credit Bettmann/Corbis

The family wanted to sell their home. But the league's covenants kept residents from advertising their homes on the open market. Even a for-sale sign was banned. Only members of the league, along with their friends, are told. The consequence: A white neighborhood that stays that way, the Kneers said.

"You feel like a caged animal here," Mr. Kneer said on a recent afternoon. "It's terrible for

everyone — for the kids, for us and even for our dogs."

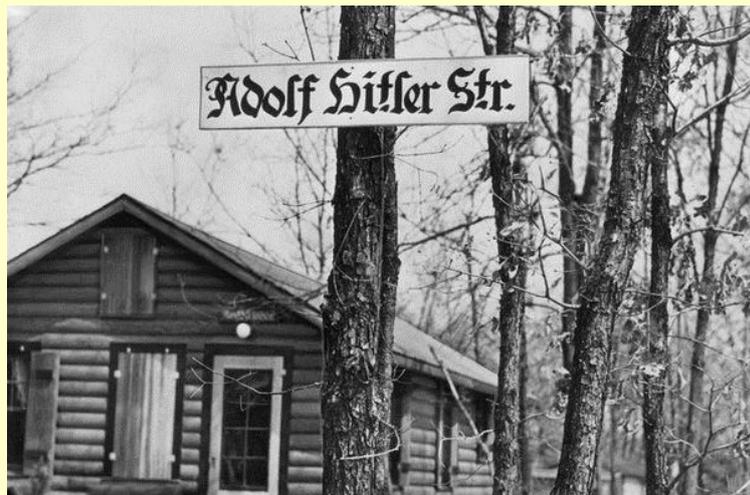
The persistence of such covenants, decades after the Fair Housing Act was passed, is a reminder of how deeply discrimination was embedded in the nation's real estate industry, and how the ghosts of that past linger in the homes of today.

The Kneers' complaint includes photographs of a rally in the 1930s of the Italian Black Shirts, supporters of Benito Mussolini that occurred a short walk from their yard. A recent picture of a Nazi medallion topping a German flag in the community clubhouse was included to draw a line between past and present.

Robert G. Schwemm, a lawyer who teaches at the University of Kentucky, said enforcement of these kinds of covenants remained an issue, especially in closed communities where few know how homes change hands and where residents want things to remain the same.

Still, he said the case of Yaphank, a hamlet in the town of Brookhaven in Suffolk County, was notable because the German requirement was in writing. "I've never seen anybody in the modern era try to act like this," he said.

Yet residents of Yaphank (pronounced YAH-pank) say that while the community remains primarily white, it has split from its racist past. "Most people don't even know any of this happened here; it hardly comes up," Robert Kessler, the settlement league president, said



of the Nazi rallies once held here.

After a letter sent from the Kneers' lawyer on Friday and inquiries from The New York Times, the league said it would discuss what to do about



the bylaws and if they were appropriate. Mr. Kessler called the rules “antiquated” and said they should be changed to allow homeowners more freedom to sell. But he said previous attempts to change the rules had been voted down.

Speaking on the porch of a shingled home that his father bought in 1945, Mr. Kessler said his community and its rules were misunderstood. “People in other parts of town look at us and think this is closed to non-Germans,” he said. “That’s just not true.”

The league began in the 1930s as an offshoot of the German-American Bund, a group of American Nazi sympathizers that operated nationwide. The tract homes in Long Island were first built as summer bungalows for Camp Siegfried, a pro-Nazi summer camp that drew hundreds of participants. Each summer children and adults traveled from around the state to Pennsylvania Station in Manhattan and took the early morning Camp Siegfried Special to Yaphank.

While World War II would turn American sentiment against Germany, Nazi sympathy was tolerated here, at least for a time. Photos from Camp Siegfried show children in German military uniforms raising the flag of the SS guards. One resident planted a hedge in the shape of a swastika. Hitler and Goebbels Streets were drawn up in an adjoining community called German Gardens.

During the war, the league was singled out by the Federal Bureau of Investigation, and when Hitler fell, the land was seized by the federal government. After legal wrangling, the league was able to recoup the land. It went from running a Nazi camp to being a co-op of sorts: The group retains collective ownership over the land and allows members to own homes there.

The Kneers first heard in 1998, shortly after they had married, that a home was for sale. A friend, whose mother had died in the house, wanted to sell the property. The couple remembered filling out an application and submitting to a background check and a credit check.

They also recalled a visit paid to Ms. Flynn-Kneer’s mother, whom they had listed as a reference, by members of the league. Part of the interview was conducted in German. “They were very impressed that she was from Berlin,” said Ms. Flynn-Kneer, who found the board’s interest unusual.

During a subsequent meeting between the couple and the board, the Kneers say the league president at the time said he had no questions after taking a look at them. Ms. Flynn-Kneer said she believed that was because “he wanted to see what I looked like.” (The league said that person had since died.)

Mr. Kessler said he doubted there would have been inquiries about the Kneers’ ethnic background, but acknowledged it could have happened “if they were asked by an old-timer.” Current applicants are not asked such questions, he said.

The Kneers joined the league and bought the home for \$70,000 — a steal on Long Island, even then. But they soon “started to notice that things weren’t like other neighborhoods,” Ms. Flynn-Kneer said. The area was entirely white, so far as they could tell. A neighbor had a black boyfriend who they said appeared unwelcome by much of the community. Mr. Kneer’s brother-in-law, who visited occasionally, was the only other black person who was ever seen there, they said.

In 2006, after the birth of their second child, they decided to put their home up for sale and move to a larger place. But the bylaws left them unable to advertise to the public, and they say they received no suitable offers. They made attempts to take a loan on the property to expand the home, but no banks would lend them money because it would be difficult to foreclose on them, given that the league owned the land.

The family asked the league to change the bylaws to allow them to advertise to the public.

“We kept getting told: ‘It will sell. The summer is coming,’” Mr. Kneer said. “But they wouldn’t change the bylaws. They want to keep everything just the way it was.”





A sign at the entrance to Yaphank. Credit Uli Seit for The New York Times

The Kneers eventually contacted Long Island Housing Services, a nonprofit that handles fair housing cases. The group will be a co-plaintiff in the lawsuit.

Residents say much has changed over the decades, if not the bylaws. While many of the mailboxes on this street still bear German names like Miethe and Korneffel, some of the younger residents include the spouses of league members who have Italian, Irish and Jewish ancestry. All of those interviewed said the community could hardly be described as nationalist now. The only events related to Germany were three annual parties in the clubhouse, like a recent Oktoberfest.

One resident, who asked not to be named because he did not want to cause conflict with his neighbors, expressed sympathy with the Kneers. The resident offered a reporter a tour of his home, which included a World War II-era concrete bomb shelter that a recent renovation had converted into a pantry. "Our hands are tied in selling this place," he said.

The resident said he felt the bylaws were a product of a more racist time that has passed, both in the nation and in the community itself.

"It was that way once, and that's why the bylaws are that way now," he said.

August Stahl, a former board member of the league who is also the brother-in-law of Mr. Kessler, said he would like to vote to change the bylaws. He said he believed those in favor of change were "slowly outnumbering" the older generation who had opposed changes for decades. Asked if he minded if nonwhites joined the community, he said, "So be it."

Andrew Wilson, a lawyer representing the Kneers with the firm Emery Celli Brinckerhoff & Abady, compared the couple to whistle-blowers against a company. "The path of least resistance for them would have been to move away and let the house get sold eventually like every other house that's been sold since the 1930s," Mr. Wilson said.

But the Kesslers said they felt betrayed by the Kneers, who suddenly moved out of the neighborhood on Friday without saying they would be returning with a lawsuit. Ms. Kessler walked up to her doorstep in tears and said, "They were like our grandchildren."

Mr. Kessler asked his wife to go back inside. He said that he did not want to face a lawsuit and that the league, which survives on small membership dues, had few resources to



defend itself in court. But he dismissed the idea that discrimination was the reason for the suit.

"They're just bitter they couldn't get the price they wanted for their home," Mr. Kessler said.

Abu Dhabi Police Creates GIS Center for Security

Source: <http://www.esri.com/news/arcnews/fall11/articles/abu-dhabi-police-creates-gis-center-for-security.html>

Abu Dhabi is one of the seven emirates that



comprise the United Arab Emirates (UAE) and is the capital. Like Manhattan in New York City—and having a similar skyline—Abu Dhabi is located on an island off the coast of the Arabian Peninsula. What was once a coastal town is now a sophisticated international metropolis where trees and parks are prominent. This city's extraordinarily fast development has naturally led to typical urban concerns, for example, fighting crime and providing safer communities, which are global challenges as well.

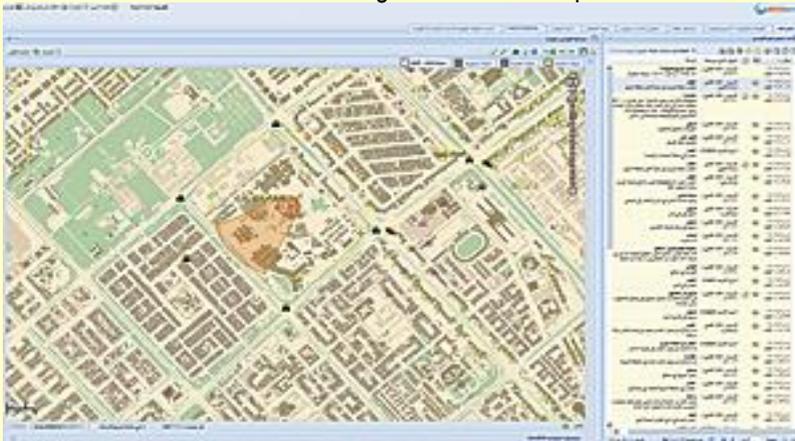
Fire simulation plume modeling in ADP

For Abu Dhabi Police (ADP), one of the main pillars for enhancing public confidence in the police and its services to citizens and visitors is information. The force uses GIS to bring together people and processes for making better decisions. Police headquarters in Abu Dhabi operates with other UAE police forces through the Ministry of Interior to achieve a safer society.

Abu Dhabi Police serves and secures four major districts: Abu Dhabi island, Al-Ain City, the external region, and the western region. ADP units include police patrol, emergency response, crime investigation, and traffic, as well as other specialties. The goal of Abu Dhabi Police is to become an intelligence-led, proactive police force that responds to the needs of society with the highest level of integrity and training.

Development

As directed by the vision of His Highness Sheikh Saif Bin Zayed Al Nahyan, Minister of Interior, over the period of two years, Abu Dhabi Police visited law enforcement agencies around the world, including agencies in Singapore, the United States, Japan, France, Germany, Finland, the United Kingdom, and Australia, to observe and compare how they use GIS for crime geoanalysis, public safety, protection, police investigations, and crisis and disaster management, as well as other purposes, including mission-critical operations.



The result was a comprehensive and ambitious vision to implement an enterprise GIS system that serves the emirate of Abu Dhabi and could be deployed and used by all UAE police and public safety forces. ADP was convinced that ArcGIS



would be ideal to build a modern GIS-enabled system that would support all parts of police service, including emergency field management, GIS task force management, command and control, and automatic vehicle location.

"ADP realized that geolocation and spatial capabilities are central to all aspects of police business and align with its strategic goals," says Maj. Gen. Ahmed Nasser Al Raisi, general director of central operations and champion of the GIS program for security in the UAE.

With this idea as its starting point, the GIS Center for Security (GISCS) section was created and is responsible for handling GIS data and applications for all ADP and emergency departments.

"A goal of the GIS Center for Security was to find an efficient method for bringing together information and analysis quickly and easily for the people who need it," says 1st Lt. Mohammed Saleh Almansoori, head of GIS Center for Security.

Challenges included locating the right maps, finding the closest and right police resources to respond to an emergency crisis, and sharing all information with other concerned police departments and multiple disaster teams.

"Historically, departments produced maps by manually combining data from separate databases to generate reports about emergency events," says Lt. Col. Nasser Sulaiman Al Maskari, command and control room head in Abu Dhabi Police and manager of Effective Response Strategic Goal. "The reports contained map data, such as incident location, location of some assets, locations of responders, points of interest, and more."

Abu Dhabi is the capital city of the United Arab Emirates, requiring a technology-savvy police department.

GIS solutions architect Mohamed Bisher Bashaireh, Abu Dhabi Police, adds, "ADP used to generate separate reports from a variety of police legacy systems, manually compare all the spreadsheet and map reports, and try to develop actionable information from them. This process took a long time."

To overcome these manual data challenges, GISCS implemented EmerGeo Fusionpoint software from Esri Partner EmerGeo Solutions,

Inc., of Vancouver, British Columbia, Canada. EmerGeo Fusionpoint is tightly integrated with the central GIS database served by ArcGIS for Server. In addition, GISCS's crisis information management system includes software based on ArcGIS to integrate five legacy systems:

- Command and control system for high-priority crimes
- Automated vehicle location for monitoring crisis vehicles
- Closed-circuit TV cameras for viewing live feeds around the city
- Contingency and security plans for large-scale event and disaster planning
- Human resources system for viewing specialized personnel information for deployment

In support of this ambitious vision, ADP also worked with EMC Corporation of Hopkinton, Massachusetts, to complete a state-of-the-art design of a police GIS virtual secured cloud. EMC, in turn, brought in VMware, Inc. (of Palo Alto, California), to provide an infrastructure that is secure, scalable, and available for an uninterrupted critical business that operates around the clock.

"GIS Center for Security identified the importance of a nationwide solution," says Nasser Al Raisi, "that would be used to enhance community safety and public security, which led ADP to invest in a federal security project aiming to leverage data sharing between the various ADP departments and concerned federal government partners."

Current Success

The first phase of the vision has become a reality: a world-class emergency management system is now used by both the police and emergency departments. The system has led to better information integration and use by staff who previously worked with multiple, separate information systems.

The new system can be used during large-scale natural disasters, as well as other events both major and minor, such as earthquakes, large industrial fires, and riots. It supports all phases of emergency management, including assessing risks, mitigation, response, and recovery. The system also enables careful evaluation after a major incident has occurred by



integrating data using the map common operational picture (COP) to analyze the effectiveness of the agency's response—taking advantage of nonpolicing GIS data from ADP partners and police forces across the UAE.

GIS-based software provides contingency plans and automatically brings together data and processes from multiple emergency and nonemergency applications. The software delivers a single unified view—the COP—of critical operational data to those who need it.

Future Growth

This secure infrastructure will be the foundation of all future projects at Abu Dhabi Police and other police forces throughout the UAE. The

Policing Operations Directorate of Abu Dhabi Police, along with GIS Center for Security, is currently evaluating a strategic project aimed for police task force management (TFM) to enhance response time and resource planning. This major project will enable various system users and decision makers to visualize data, ensuring efficient and effective resource allocation and utilization.

Says Mohamed Termah Abdul Rahim, GIS infrastructure architect and project manager of the GIS TFM project of Abu Dhabi Police, "The future implementation will take advantage of the already-designed, secured cloud environment."

Turkey's Refugee Politics

By Roderick Parkes

Source: <http://www.isn.ethz.ch/Digital-Library/Articles/Detail/?ots591=4888caa0-b3db-1461-98b9-e20e7b9c13d4&lng=en&id=194623>

Turkey's government recently overhauled its immigration laws in a process of exemplary transparency. It has also won plaudits for its high standard of care for Syrian refugees. And yet, Turkey is struggling to adopt a predictable and long-term approach to the refugee crisis.

The legacy of southern migration relations

Turkey has been praised for keeping its border open to Syrian refugees. But the government's border policy is as much the result of high-minded humanitarianism as of old regional ambitions: Ankara has spent years building a visa-free travel regime with southern neighbors, including Syria and Iran. With the region now on fire, this leaves a difficult legacy.

Turkey's readiness to control its borders may be influenced, first, by its ambivalent relationship with radical Sunni forces in Syria. In 2009, Ankara signed the first of its web of visa-free deals with Damascus. Thus Turkey, unlike the United Arab Emirates (which purposefully draws its immigrant labour primarily from South Asia), disregarded the risk of importing regional conflicts and sectarianism. Today, many Syrians fleeing the Assad regime view the open border as a sign of religious kinship, and Ankara struggles to secure the border for fear



The problem is not just the sheer volume of the flows: it is the way these impact on three specific mobility regimes – with Turkey's southern neighbors, with Turkey's own minority groups, and with the European Union.

that this will be interpreted as an act of hostility. Second, Turkey's border policy is also seen as being vulnerable to the 'weaponisation' of migration flows by other states. Governments of



the region have long used the threat of refugee flows to dampen enthusiasm for regime change or to draw concessions from neighbours; some are even suspected of peppering refugee flows with their intelligence services. Currently there is speculation that Moscow will exploit the threat of a new wave of (as many as three million) refugees from Syria in order to press the Justice and Development Party (AKP) government to rekindle relations with Damascus and Teheran and help restore order.

Third, Ankara treats some of Syria's Kurdish militias as allies only on condition that they stay out of the border zone west of the Euphrates. In the run-up to the general election scheduled for 1 November, the government has been highlighting its responsible approach to the Kurdish issue (not least in a bid to reduce the significance of Turkey's opposition HDP party). But AKP support for Kurdish forces remains predicated on the creation of a 'safe zone' in Syria and the possible construction of border fences – an echo of Ankara's policy during the first Gulf War, which received US backing.

The tension with minorities

Turkey has also been lauded for its generous offer of temporary protection to Syrian refugees. As the conflict rumbles on, however, Ankara must begin sorting those refugees who want only short-term protection from those in need of longer-term integration or resettlement to other countries. This shift will be difficult in a society which already suffers from many problems related to low social and physical mobility.

A small number of refugees are seeking only short-term protection. But keeping them in a permanent state of readiness to return home is costly. Turkey's migration directorate, the GDMM, has successfully focused resources on its 25 refugee camps. But the 260,000 inmates find themselves increasingly dependent on the state and cut off from family support networks. As for the 2 million refugees outside the camps, they can forge networks and retain their mobility, but they are becoming trapped by a combination of low wages and high rents. Poorer Turks also resent any perceived special treatment meted out to refugees.

The question how to integrate refugees in need of longer-term protection raises questions of fairness, too. Although most refugees will remain in Turkey for years, they must maintain the language and social skills necessary to return home to Syria. That ambiguity is hard to legislate for. If Ankara gives the refugees special cultural rights in areas like schooling, Turkey's ethnic minorities may demand similar exemptions. But, if the government integrates refugees into the social mainstream, it will face opposition too: critics claim that the AKP views Syrian refugees as a loyal clientele who will soon gain citizenship and voting rights.

When it comes to creating transit and processing areas for international resettlement, meanwhile, the government will encounter problems of territorial cohesion. Some of Turkey's ethnic communities already accuse the government of practising 'transmigration': a process whereby the state uses migration in order to alter a country's ethnic balance and boundaries. Turkey's Alawite minority complains about the large influx of predominantly Sunni refugees who are opposed to the (Alawite) regime in Damascus, and worries that its own influence is being purposefully diluted.

Turkey's European relations

Turkey's attempts to regulate the onward flow of refugees to Europe have also met with broad approval: Turkish authorities cooperate with Frontex, the EU border agency, and the Turkish Coast Guard has intercepted around 60,000 refugees seeking to cross the Aegean and arrested at least 70 smugglers. But the discussion with the EU has been politicised by broader questions of access.

Ankara wants to secure visa-free travel for all Turkish citizens to the EU. But its bid to win this headline commitment from the Union now risks obscuring the difficult administrative reforms which must pave the way to it. One prerequisite for visa liberalisation is greater trust between European and Turkish intelligence agencies – a field which remains difficult despite the shared problems associated with the refugee crisis. Moreover, Western visa regimes are anyway evolving away from mass liberalisation and towards greater



individualisation ('trusted traveller' programmes).

The question of EU membership also impinges on current talks. The EU has been discussing whether to classify Western Balkan states as 'safe countries of origin' (SCOs). This would entail a presumption that Balkan countries do not produce refugees, allowing the EU to handle the large number of unfounded asylum claims made by Balkan citizens via expedited procedures. But SCO status would also mark a recognition that Balkan states meet the human rights standards necessary to join the EU, and this may explain why talks with Turkey also focus on its SCO status rather than the more relevant status of 'safe third country' – that is, a country of transit to which it is safe to return Syrian refugees.

Issues of visas and EU accession have particular significance for Turkey's European diaspora. Overseas voters played a significant role in the June 2015 general election: according to calculations, they delivered about six seats to the AKP, but also helped push the (pro-Kurdish) opposition HDP over the 10% parliamentary threshold, resulting in 80 seats for the party, a hung parliament and the November elections. Turkey's parties are again reaching out to overseas voters with the promise of reduced air-fares and easier access to Turkish passports. The AKP government may also be wary of Kurdish asylum-seekers increasing their influence in Europe – another reason to pursue SCO status.

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Foreign Fighters and Their Return: Measures Taken by North African Countries

By Lisa Watanabe

Source: <http://www.isn.ethz.ch/Digital-Library/Articles/Detail/?ots591=4888caa0-b3db-1461-98b9-e20e7b9c13d4&lng=en&id=194607>

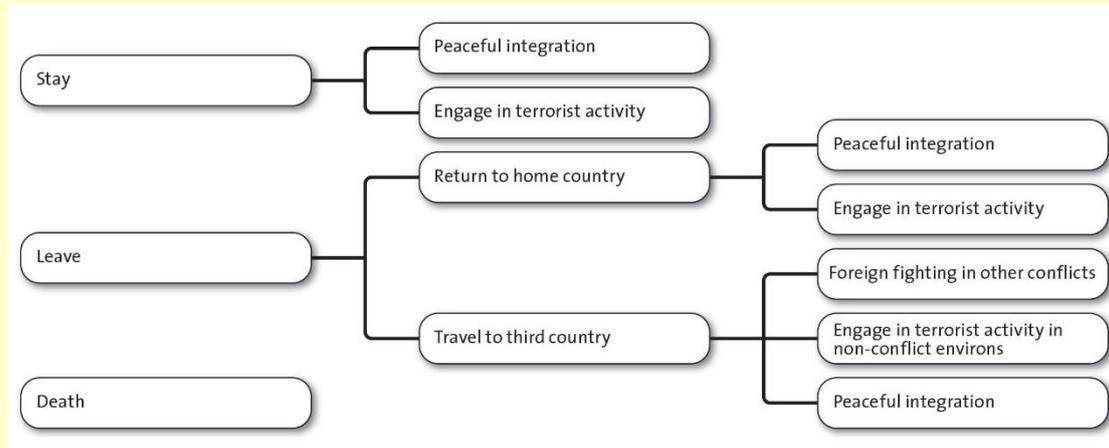
Nov 09 – While a great deal of Western attention has been focused on European and American citizens leaving their countries to fight in Syria/Iraq, the conflicts in Syria and Iraq have inspired many more individuals from the Middle East and North Africa (MENA) to become foreign fighters (FFs). Indeed, the



MENA region is the major source of FFs in Syria/Iraq, who for the most part join the so-called Islamic State (IS) or "Jabhat al-Nusra" (an offshoot of Al-Qaeda in Iraq). With regards to the North Africa, on which this report is focused, evidence of the threat posed



by returning FFs is nascent, yet tangible. There are signs that some FFs returning to their home countries are joining Salafist jihadi groups on their return and, in some cases, are actively engaged in recruiting individuals to fight in Syria/Iraq and/or facilitating their travel to the respective conflict zones. Many countries in North Africa did not initially adopt specific measures to prevent their nationals from leaving to fight in the Syrian conflict and, in some cases, even tacitly approved of their citizens going to Syria to fight against the Assad regime. However, concerns about their citizens going to Syria and Iraq to fight have since mounted. Only as “veterans” from Syria/Iraq began to return home, did most North



Possible foreign fighter pathways (click to enlarge) (Source: Based on Jeanine de Roya van Zuijdewijn and Edwin Bakker, “Returning Western Foreign Fighters: The Case of Afghanistan, Bosnia and Somalia, International Centre for Counter-Terrorism Background Note,” The Hague, June 2014, p. 10.)

African states take measures to address the challenges posed by FFs. Algeria appears to have been the exception, having already adopted measures to prevent its citizens from fighting in foreign conflicts. At the other end of the spectrum, the deterioration of the security and political situation in Libya has meant that the internationally recognized Libyan government has lacked the capacity significantly address the phenomenon of FFs. Moreover, since mid-2014, relevant capacity building assistance to Libya has been largely on hold.

► [Read the full paper at source's URL.](#)

Lisa Watanabe is a senior researcher in the Swiss and Euro-Atlantic Security Team of the Think Tank at the Center for Security Studies (CSS). She recently published the chapter, “Religion, Ethnicity, and State Formation in Algeria: ‘The Berber’ As a Category of Contestation” in State Formation and Identity in the Middle East and North Africa.

Behind the Photo of a Hospital Helping Paris Attack Victims That Went Viral

Source: <http://time.com/4115581/paris-hospital-photo-viral/>

In the hours that followed the deadly terrorists’ attack that claimed the lives of 129 people in Paris, the scale of the tragedy was painfully apparent in the harrowing photographs that emerged. One showed a dead body covered with a sheet on a familiar-looking Parisian street, another showed gruesome blood splatter on the windows of a café, and too many portrayed Parisians in a state of fear.

But that night, one photo stood apart, embodying a profession’s resilience in the face of adversity. Taken by Dr. Pourya Pashootan, it showed an overcrowded recovery room at the Saint Louis hospital as 40 doctors, nurses and anesthetists worked together to treat victims from the attacks.



The photo, shared on Facebook, has amassed hundreds of thousands of likes and shares, going viral at a moment when France needed to show its resolve against terror.



On a normal night, only a skeleton crew stays on call at the Saint Louis hospital, but that evening, as the death toll rose and the French authorities put its emergency response plan in action, hundreds of doctors and nurses across Paris answered the call of duty.

“Without thinking about the danger, without hesitation, we all showed up,” Dr. Pashootan tells TIME. “When I saw that, I found it beautiful. I took the photo and when I got home I felt it’d be a shame not to share it.”

After blurring some of the recognizable faces, Dr. Pashootan shared the photograph on his Facebook account. “I didn’t expect it to go viral,” he says. But within minutes, dozens of his contacts had shared the images on their own Facebook account. It snowballed from there.

“It’s a picture that speaks for itself,” says Dr. Pashootan. “It doesn’t need a caption. There aren’t a lot of photographs like that one. It shows an entire profession mobilized and ready to face the worst of events.”

In a country where gunshot injuries are extremely rare, Dr. Pashootan equates what he experienced on Nov. 13 to what you’d expect to see in a conflict zone. “It’s not the kind of scenes we’re used to seeing,” he says. “This felt like war.”



Morgan Advanced Materials Unveils Lightweight, High-Protection EOD, CBRNE Suit

Source: <http://www.hstoday.us/single-article/morgan-advanced-materials-unveils-lightweight-high-protection-eod-cbrne-suit/b979224c63b5e748e243bab4009d4998.html>

Oct 19 – Morgan Advanced Materials has announced the launch of a new, lightweight explosive ordnance disposal (EOD) suit, the [ERGOTEC 4025 Elite](#) developed by its Composites & Defense Systems business.

“Combining new technology, cutting edge materials and premium quality garment construction,” the company said, “the suit combines the highest levels of protection with the user mobility required for successful EOD missions.”

“The design of the ERGOTEC 4025 suit has focused on disposal strategies involving gathering forensic evidence, which requires high protection with flexibility to enable the user to perform such maneuvers as climbing or crawling,” said Morgan Composites and Defense Systems Development Director Martyn Cook. “We are confident that this is our most ergonomic, lightweight EOD suit yet.”

The ERGOTEC 4025 EOD is available to US law enforcement customers exclusively through Point Blank.

The company said, “The ERGOTEC 4025 features a new streamlined chemical, biological, radiological and nuclear (CBRN) facemask (patent applied for). Fitting under the suit’s helmet, the facemask, alongside the CBRN bodysuit, gloves and foot protection, acts as a critical CBRN shield while maintaining the helmet’s streamlined design.”

Another leading innovation, the company stated, “is the suit’s quick release mechanisms (patent applied for), allowing the user to self-extract from the suit in an emergency situation in less than 20 seconds.

Further advances include a decoupling breastplate with an innovative three-piece

design, providing high flexibility to users. An integrated back protector provides blunt trauma protection while delivering cooling air, and the suit’s cooling system fits neatly into the rear of the suit. Available in five different mix and match sizes and a range of colors, the suit can be customized to meet market needs.



'Chemical terror' fears after gas mask and weapons stash found in London park

Source: <http://www.express.co.uk/news/uk/615919/PICTURED-Chemical-terror-fears-gas-mask-weapons-stash-found-London-park>

Oct 30 – A gas mask was among a stash of weapons including knives and iron bars found in a London park, prompting fears it could have been hidden there ahead of a chemical terror attack in the capital. The Met Police Tweeted the picture (below) after officers carried out a sweep of an east London park earlier today.

The tweet said: "This cache of weapons and a gas mask were found in Beckton Park, Newham, during the Met's crackdown to stop knife crime."





The discovery of the mask led to speculation over why on Earth such an item would be stashed with dangerous weapons, which also included a baseball bat, metal hook, hammer and secateurs. A Met Police spokeswoman said the force had no idea what its intended use had been, but said officers on such operations had previously found guns in the past.



METPOLICE•TWITTER:Sword-like knife find during a separate sweep in alley in Highams Park, north-east London on Tuesday

Concerns over what the mask might be ranged from a terrorist carrying out a chemical attack or a gang member using it to protect themselves against CS gas spray during a street battle or just to intimidate others or conceal their identity.



It was also speculated it could be used as a way of getting extremely intoxicated on cannabis or marijuana smoke as a bong - a device used for the same purpose - was also found on the same job. The police spokeswoman was unable to rule out any of these uses, but suggested there was no intelligence to suggest it had been stored there for terrorist purposes.



METPOLICE•TWITTER: The mask close up with an orange bong and (circled) a Slinky



This cache of weapons and a gas mask were found in Beckton Park, Newham, during the Met's crackdown to stop knife crime.

Met Police

She said: "These are intelligence-led searches. We do now know what the gas mask was for, but there is nothing to suggest it was terrorism. officers do find unusual things other than weapons during these searches, and have previously found guns."

Bizarrely, also included in the stash was a "slinky" - the 1980s metal spring-toy which was able to walk down stairs."

Peter Kirkham tweeted: "Wow. I'm sure that Slinky could do some damage in the wrong hands."

Lee Critten added: "Finally living up to the reputation ay Newham. Glad I left."

METROPOLITANPOLICE: PC Alex Ware holds a 2-foot "zombie killer" knife discovered in Hackney in July

Terryble Tel Tweeted about



the mask: "It was only for protection of course."

The Met has increasingly been finding weapons hidden in parks, graveyards, and other areas. They are hidden by gang members, so they can avoid the risk of being caught in possession of them, but are easily accessible should they become needed while on the streets.

Items previously found have included Samurai swords and machetes.

During the Notting Hill Carnival in August officer found an array of weapons hidden in the streets around it.

HazMat Situational Awareness – Making sense of scent

Source: <http://www.hazmatnation.com/hazmat-situational-awareness-making-sense-of-scent/>

It is not that we as hazmaters want to smell a chemical agent but that we as professionals better know what it smells like. Besides PPE problems such as suit breakthrough or poorly fitting mask another good reason to have an idea of the scents that are associated with the bad stuff is the valuable information we receive from our witnesses/victims.

Understanding witness statements can be a vital key to helping us safely solve a hazmat/WMD problem. The book says if a witness (perhaps even as a last dying breath) states that it smelled like bitter almonds we



should draw a connection to Hydrogen Cyanide. What if a victim says it smelled like old boot? The book says Lewisite smells like geraniums. I had really no idea what geraniums smell like but Google images will at least give me a picture to look at.

For our own situational awareness (fancy for let's all get home safely) we need to have an idea of the properties of the stuff that can hurt us. Having a sense of what the scents are can only help us. Below is a table of some bad substances and what they are known to smell

like. Most of these may even knock you dead before the olfactory system tells the feet to run.

- Cyclosarin – Peach scent
- Soman – VapoRub scent
- Tabun – Fruity scent
- Lewisite – Geranium scent
- Hydrogen Cyanide – Almond scent
- Hydrogen Sulfide – Sulfur scent
- Sulfur Mustard – Garlic scent
- Phosgene – Mown Hay scent



Knowing the above is great except for one part. We can read scents and we can say and

memorize words but it's the smell that you need to know to save your life.

I had the opportunity to meet Rod Davis who is a retired fellow first responder (dodged bullets) who recognized that to make sense of the scents you must use your nose. Rod developed and put some cents into a system of cards which when rubbed and sniffed lets the nose experience the associated scents above without the dire consequences.

Another thing to remember and what was peculiar for me was that everyone may have a different

description of each scent as they experience it. I heard germanium scent described as grandma's garden and almonds as old boot. For my own situational awareness locker of life saving tips I took good whiffs of each card with my eyes closed and hope to have them committed to memory when I need the help. If a victim ever tells me it smelled like old boot it won't be the first time I heard it that way and I hope to draw the connection.





In wake of Syrian chemical attacks, scientists seek to improve sarin antidotes

Source: <http://blogs.nature.com/spoonful/2013/09/in-wake-of-syrian-chemical-attacks-scientists-seek-to-improve-sarin-antidotes.html>

Intramuscular Midazolam Best for Status Epilepticus

Source: <http://www.medscape.com/viewarticle/758782>

February 16, 2012 — A randomized trial confirms that prehospital administration of **midazolam** using an autoinjector stopped seizures more rapidly and reliably than intravenous (IV) treatment with lorazepam among patients in status epilepticus.

Upon arrival at the hospital, 73% of patients receiving intramuscular (IM) midazolam were seizure-free, compared with 63% of those treated with IV lorazepam.

► **NOTE:** Meridien Medical Technologies works on a Midazolam Autoinjector.



An Organophosphate Poisoning Antidote Capable of Crossing the Blood-Brain Barrier

Source: <https://techtransfer.universityofcalifornia.edu/NCD/22601.html>

Exposure to organophosphates (OP) can lead to inhibition of acetylcholinesterase (AChE), a build-up of acetylcholine in the body, and potentially death. Every year, there are over two million suicidal cases and over one million accidental cases of OP poisoning from insecticides worldwide. Furthermore, terrorist attacks in the past have involved the use of different nerve agents to induce organophosphate poisoning. Current antidotes can reactivate OP-inhibited AChE in the blood and peripheral tissue, but are often incapable of crossing the blood-brain barrier to reactivate inhibited AChE in the brain. Thus, there is a strong need for an antidote capable of efficient reactivation and blood brain barrier penetration.

Technology Description

Inventors at UCSD have developed a novel antidote that is highly effective, minimally toxic, to cross the blood brain barrier (BBB) to treat any immediate organophosphate toxicity



throughout the brain and body while preventing the persisting seizures that recur following exposure. The hydroxyimino-acetamido alkylamine antidote (**RS194B**) has a 2.5-fold higher average AChE reactivation rate constant (kobs) compared to the current antidote standard, 2-PAM. *In vivo* mice results show UCSD's antidote is less toxic than 2-PAM, and comparable to HI-6, the least toxic antidote on the market. The compound and its analogues are nucleophilic and neutral, specifically designed to rapidly penetrate blood-brain barrier with sustained half-life and to access the central nervous system. The ionization equilibria of these compounds favor oral bioavailability.

Applications

- Treating OP-poisoning from accidental and intentional exposure to insecticides
- Treating OP-poisoning from nerve agent exposure such as in terrorist attacks

Advantages

- Can rapidly penetrate the BBB as a neutral species with sustained half-life
- More efficient compared to 2-PAM
- Toxicity comparable to HI-6, the least toxic antidote on the market and lower than the current antidote standard, 2-PAM
- Likely to be oral bioavailable

Perspectives on the use of scopolamine as an adjunct treatment to enhance survival following organophosphorus nerve agent poisoning

Mil Med. 2010 Nov;175(11):878-82

By Koplovitz I and Schulz S

Source: <http://www.ncbi.nlm.nih.gov/pubmed/21121499>

Scopolamine (SCP) is an anticholinergic drug used clinically for decades to treat motion sickness, as a surgical preanesthetic, and as a smooth muscle antispasmodic. It has also been used experimentally as a pretreatment and/or treatment adjunct to mitigate the toxic sequelae of organophosphorus (OP) nerve agent intoxication. SCP has been reported to increase survival, prevent or terminate seizures, and reduce morbidity from nerve agent intoxication in a number of animal models. The purpose of this study was to evaluate the effect of atropine dose, pyridostigmine bromide (PB) pretreatment, and oxime selection on the efficacy of SCP as an adjunctive treatment to enhance survival following lethal nerve agent exposure in guinea pigs. The results indicate that the use of an effective oxime and/or PB pretreatment was a critical factor in determining the efficacy of SCP. SCP can also reduce the dose of atropine required for survival against lethal nerve agent intoxication.

Non-enzymatic pretreatment of nerve agent (soman) poisoning: A brief state-of-the-art review

Toxicology Letters, 1, 206, 35-40 (2011)

By Helden, H.P.M. van, Joosen, M.J.A. and Philippens, I.H.C.H.M.

Source: <http://repository.tudelft.nl/view/tno/uuid%3Af2903110-2594-41fb-afd7-57e77974be1d/>

The rapid onset of toxic signs following nerve agent intoxication and the apprehension that current therapy (atropine, oxime, diazepam) may not prevent brain damage, requires supportive pretreatment. Since the current pretreatment drug pyridostigmine fails in protecting brain-AChE, more effective pretreatment is necessary. A main focus of present-day pretreatment research is on bioscavengers, another is on centrally active reversible AChE-inhibitors combined with drugs showing anti-cholinergic, anti-glutamatergic, neuroprotective and non-sedating GABA-ergic activity. Strategies aimed at improving efficacy of pharmacological pretreatment will briefly be



discussed. **Galantamine**, given as a pretreatment or stand-alone therapy, emerged as one of the best medical countermeasures against nerve agent poisoning in guinea pigs. Other preclinical studies demonstrated effective pretreatment consisting of physostigmine combined with procyclidine, scopolamine or bupropion (all single injections), against nerve agent poisoning in guinea pigs. A long sign-free pretreatment with physostigmine (Alzet pump), combined with single injection of procyclidine just before soman poisoning, enhanced the efficacy of a post-poisoning therapy consisting of 3 autoinjector equivalents of HI-6, atropine and diazepam, considerably.

Sensitive surfaces decontamination – 2015 study

SX34 and the decontamination effects on chemical warfare agents (CWA)

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Abstract: -The decontamination of sensible surfaces contaminated by chemical agents is a key issue for the safety of population and security of structures. SX34 is an innovative decontamination product developed for sensible surfaces decontamination from biological and chemical agents. In this work the authors present the effects of SX34 on contaminated surfaces and its effectiveness compared to classic decontaminants. The electrical insulation on sensitive equipments is analyzed as innovative possible application of this product.

Source: <http://www.wseas.org/multimedia/journals/environment/2015/a445815-276.pdf>



Panopdecon: Deconstructing, decontaminating, and decontextualizing Panopticism in the Postcyborg era

Source: <http://wearcam.org/panopdecon.htm>

EDITOR'S COMMENT: A very interesting paper on fixed decon stations posted a few years ago. I am wondering what happened with this innovative project.



New Decontamination Resource - Information & Expertise

By Craig DeAtley

Source: https://www.domesticpreparedness.com/Medical_Response/Health_Systems/New_Decontamination_Resource_-_Information_%26_Expertise/

A new federal resource equips healthcare providers with a valuable information repository. This resource also offers a way to request technical assistance and provides a forum for peer-to-peer discussions. Decontamination is just one of the many in-depth topics addressed by subject matter experts in the healthcare field.

Nov 11 – Patient decontamination is a complex problem faced by emergency medical services (EMS) and hospital personnel. Preparing to manage this situation requires both groups to stay current with rule changes and best practice recommendations. In September 2015, the U.S. Department of Health and Human Services (HHS) Office of Assistant Secretary for Preparedness and Response (ASPR) launched an Internet-based program intended to advance public health disaster preparedness, and one topic included in its scope is patient decontamination.

Anatomy of an Information Gateway

[ASPR TRACIE](#) (Technical Resources, Assistance Center, Information Exchange) is an emergency preparedness information gateway that offers three forms of assistance:

- The [Technical Resources](#) section consists of topic-related collections of materials such as journal articles, textbooks, fact sheets, reports, plans, tools, templates, and webinars screened for inclusion by subject matter experts.
- The [Assistance Center](#) connects people seeking assistance via phone (toll-free number), email, and online with subject matter experts for technical consultation on a range of topics.
- The [Information Exchange](#) provides a password-protected forum where stakeholders can discuss and share information about present or pending health threats and best practices.

In developing ASPR TRACIE, HHS solicited the assistance of subject matter experts across a wide spectrum of specialties and locales to eventually address 65 topics that fall under the following seven primary subject areas:

- Emergency management foundations

- Healthcare coalition development and organization
- Disaster operations
- Disaster research and modeling
- Specific hazards/patient care topics
- Communications
- Disaster veterinary issues

One subsection within the “Specific hazards/patient care topics” contains a vast amount of information on [hospital victim](#) and [pre-hospital victim](#) decontamination. The types of resources categorized under the topic collections include:

- Must Reads
- Chemical Decontamination
- Education and Training
- Guidance Documents
- Lessons Learned
- Pediatric Considerations
- Plans, Tools, and Templates
- Radiological Decontamination
- Resource Allocation
- Responder Health and Safety

Each resource is annotated and includes a hyperlink that takes the user to the listed item for immediate viewing. The user also has the opportunity to rate the value of the resource, which is archived for future users. Also available in both collections is a section that lists agencies and organizations that have a page, program, or specific research on the subject.

Exchanging Information with Experts

The assistance center offers more personalized information about decontamination (and other topics) with in-house experts and external subject matter consultants answering questions received. Once the requested support is completed, the question(s) (without personal identification)



and answer(s) are then posted on the Information Exchange for other interested persons to access.

The Information Exchange is a password-protected site that is operational 24 hours a day and allows interested participants to connect with one another in near real-time conversations to:

- Discuss important issues they are confronting – for example, how responders plan to prioritize patients for decontamination in large-scale incidents or how to decontaminate patients with special needs
- Share lessons they have learned – for example, what works for doing dry decontamination and how to decontaminate non-ambulatory patients

- Share plans and other written material
- Decontamination is an often-practiced skill performed by hospital and fire/EMS personnel. New equipment, the best ways to perform decontamination, and specific state and federal performance expectations are just some of the information that those responsible for performing and supervising decontamination need to know. ASPR TRACIE provides three easily accessible ways for the prehospital and hospital practitioner to access peer-reviewed material, talk with experts online or in person, and chat with one another about decontamination as well as other disaster preparedness topics.

Craig DeAtley, PA-C, is director of the Institute for Public Health Emergency Readiness at the Washington Hospital Center, the National Capital Region's largest hospital; he also is the emergency manager for the National Rehabilitation Hospital, administrator for the District of Columbia Emergency Health Care Coalition, and co-executive director of the Center for HICS (Hospital Incident Command System) Education and Training. He previously served, for 28 years, as an associate professor of emergency medicine at The George Washington University, and now works as an emergency department physician assistant for Best Practices, a large physician group that staffs emergency departments in Northern Virginia. In addition, he has been both a volunteer paramedic with the Fairfax County (Va.) Fire and Rescue Department and a member of the department's Urban Search and Rescue Team. He also has served, since 1991, as the assistant medical director for the Fairfax County Police Department.

TOXI-triage

Source: <http://www.prometech.eu/projects/toxi-triage/>



TOXI-triage addresses all the requirements outlined in call DRS-2-2014 by assembling a new multi-disciplinary team from across Europe with proven world-class records of accomplishment.

The team is able to translate and merge advanced, proven technologies from clinical medicine with practices of search and rescue into an integrated concept of operation (CONOP) for triage in a catastrophic CBRN incident. The TOXI-triage project will develop and test new and existing technologies as an integrated capability with embedded sensors, drones, standoff detectors (including cameras), artificial intelligence and centralized communications (The Integrator).

These will enable and inform Command and Control using 'Traceability by Design' as the foundation for the management and recovery of information and documentation of medical care. The CONOP of TOXI-triage meets the needs of casualties and end users with an economic foundation of multiple use applications to enhance routine clinical medicine EU wide. These innovations will create opportunities for EU companies to develop new technologies and markets. It sustains the technology base for the future advances in CBRN triage capabilities such as an end user Field Toolkit for CBRN agents.



The TOXI-triage project is scheduled to start in Q2 2015 and will run for three years. Project partners include the Universities of Loughborough (UK), Helsinki (FI), Edinburgh (UK), Athens (GR), Hannover (DE), Paderborn (DE) and JYU (FI), the Police National CBRN Centre (UK), the Oslo University Hospital (NO), the Fire Rescue Brigades of Moravia (CZ) and South Savo (FI), the MoD of Greece, and industry partners GAS (DE), Airsense (DE), Envirionics (FI), UFZ (DE), T4i Engineering (UK) and ATOS (ES).

Sandia Decon Formulation for Mitigation and Decontamination of CBW Agents

Source: <http://www.sandia.gov/SandiaDecon/>



Sandia National Laboratories (SNL) has developed a non-toxic, non-corrosive aqueous formulation for rapid decontamination and mitigation of chemical and biological warfare (CBW) agents to protect civilian targets. The Sandia Decon Formulation can be deployed as a foam, liquid spray, or fog.

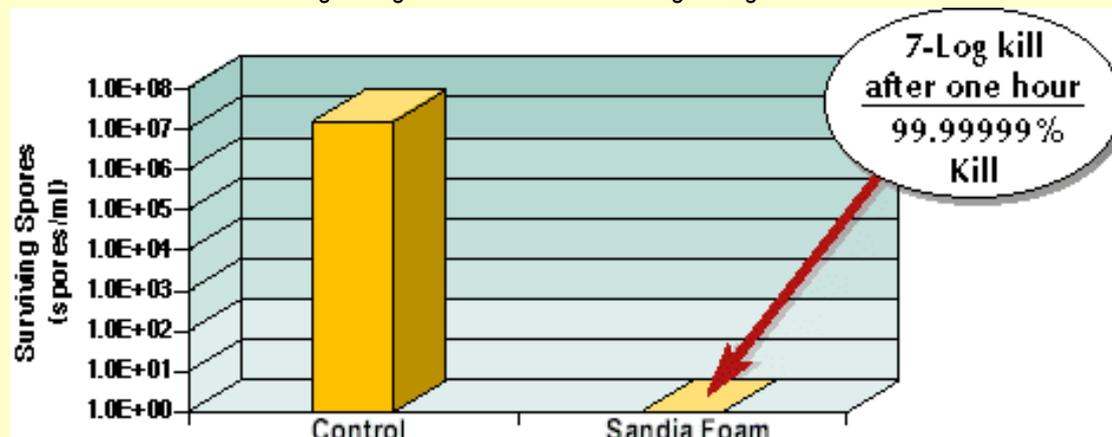
Decontamination Performance for Chemical Agent Simulants

At Sandia National Laboratories (SNL) we tested the decontamination performance of the Sandia Decon Formulation for chemical agent simulants. The chemical agent simulants used were diphenyl chlorophosphate (simulant for G-agents), 2-chlorethyl phenylsulfide (simulant for H-agents) and O-ethyl-S-ethyl Phenylphosphonothioate (simulant for VX). Testing was done via solution tests (i.e., the agent was added to our decontamination solution) and surface tests (i.e., the agent was placed on a surface which was then exposed to our formulation). The half-lives for the decontamination of these CW agent simulants were on the order of few minutes. We utilized NMR studies to demonstrate that destruction of the VX simulant occurred via exclusive cleavage of the P-S bond. The absence of P-O bond cleavage is important since such cleavage would potentially result in the formation of a toxic byproduct. Our decontamination technology does not generate such toxic or hazardous byproducts.

We confirmed our chemical agent simulant test results by contracting with a facility licensed to perform live agent testing. Live agent test results for foam decontamination of paper with GD, VX, and HD are depicted below. The half-lives for the decontamination of these CW agents by the foam is on the order of 2 minutes to 15 minutes.

Decontamination Performance for Biological Agent

At Sandia National Laboratories (SNL) we tested the decontamination performance of the Sandia Decon Formulation for biological agent simulants. The biological agent simulants used were Bacillus

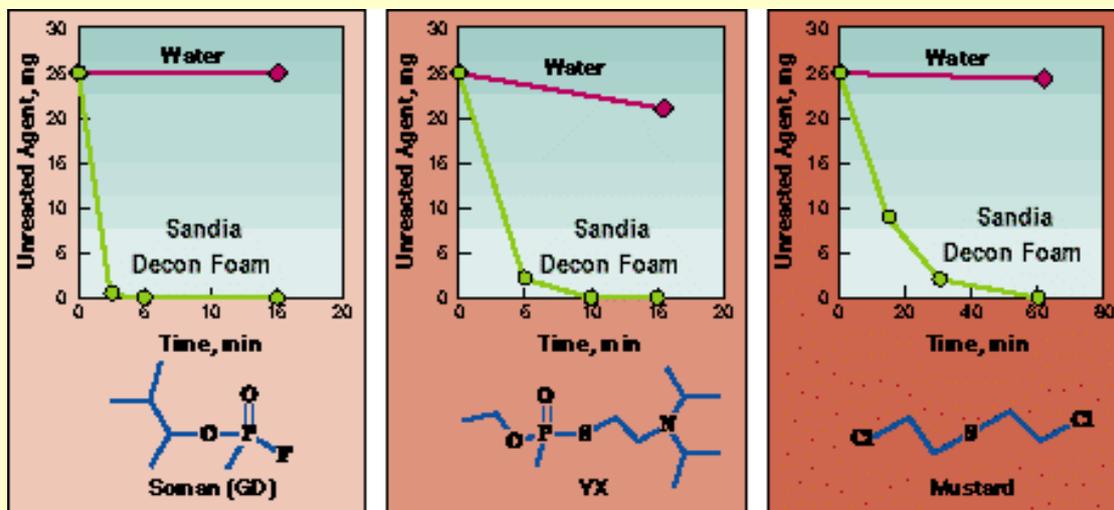


globigii (a simulant for anthrax spores), *Erwinia herbicola* (a simulant for vegetative bacterial cells), and MS-2 bacteriophage (simulant for viruses). For the *B. globigii* spores, a 7-log kill was achieved in an hour. Likewise, similar results for the vegetative bacterial cells and the viruses were achieved in 15 and 30 minutes respectively.

We confirmed our biological agent simulant test results by contracting with a facility licensed to perform live agent testing of anthrax. A solution test was performed (i.e., the spores were added to our decontamination solution). As evident in the figure below, a 7-log kill was achieved during a one hour exposure period.

Live Agent Tests for Chemical Agent Decon

We submitted the Sandia Decon Formulation to the Edgewood Chemical Biological Center (ECBC) for a Department of Defense sponsored study of our technology. ECBC is located at the U.S. Army Aberdeen Proving Ground in Maryland. The study included a small-scale reaction rate test wherein the liquid used to produce our foam attained complete destruction of chemical agents GD and VX within 10 minutes, and HD within one hour.



Decontamination of paper treated with chemical agent at 25mg/25 cm². Foam was applied on contaminated paper for a given duration. Residual simulant on the paper and in the foam were determined by GC and added to determine total unreacted agent.

Field Demonstration for Biological Agent Simulant Decon

We participated in a field test of the Sandia Decon Formulation at the U.S. Army Proving Grounds at Dugway, UT. This field test was designed to test the effectiveness of formulation in killing anthrax spores.



The anthrax simulant, *Bacillus globigii* was sprayed onto various panels (2' x 2') of materials which would commonly be found in a typical office building. Since the area to be decontaminated was relatively small and to show the versatility of our formulation, the formulation was deployed onto the panels as a spray (using a standard paint sprayer) rather than as a foam. After 20 hours exposure to the formulation, Dugway personnel tested the panels for surviving spores. The tests were

repeated on four consecutive days, and the results for the Sandia Decon Formulation are shown below.



SURFACE	CONTAMINATED (Surface average in CFU/in. ²)	DECONTAMINATED (ND = Not Detected)
Floor (painted concrete)	7.67E+07	ND
Floor (tile)	1.31E+07	ND
Floor (carpet)	1.23E+07	ND
Floor (wood)	7.30E+06	ND
Window (glass)	5.32E+04	ND
Painted wall below window	8.16E+04	ND
Left hand wall panels	4.70E+04	ND
Wall (stucco)	2.80E+05	ND
Painted wall above carpet	4.56E+04	ND
Carpeted wall	1.08E+06	ND
Door	3.13E+04	ND
Ceiling	8.49E+02	ND

B. globigii (anthrax simulant) spore kill during Dugway field tests

French army guards water facilities as France's fears of a CHEMICAL ATTACK intensify

Source: <http://www.express.co.uk/news/world/621076/French-army-guards-water-facilities-Paris-attacks-France-risks-chemical-war>

The precautions come after [French Prime Minister Manuel Valls warned jihadis could use chemical and biological weapons in an assault against France.](#)

Fears of biological warfare were raised after 12 protective suits used to protect people from chemical products and contaminative viruses such as Ebola were stolen from a Parisian hospital.

More than 30 protective boots made of chemical-resistant polyethylene along with gloves and anti-bacterial masks have also disappeared.

A spokesman for Necker hospital in southwest Paris said: "The disappearance of this limited amount of equipment was noticed on Wednesday and a complaint has been filed."

Eau de Paris (Paris Water), the capital's state-run water company, has banned access to six vital facilities to all but key personnel.

A spokesman said: "Our eight security agents are the only ones to be accredited by the Ministry of Defence and are in permanent contact with the terrorism cell of Paris police headquarters."

Troops are currently stationed around protective fences at water storage plants - which are equipped with sensors used to detect intruders.

Eau de Paris has also increased the amount of chlorine added to water at five key supply sites.





The water company spokesman said: "The water is always chlorinated for health reasons, but the dose injected has been raised. When the chlorine level drops, it means there is biological contamination."

Water and terrorism

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Received 31 July 2006; accepted in revised form 14 August 2006

Abstract

The importance of freshwater and water infrastructure to human and ecosystem health and to the smooth functioning of a commercial and industrial economy makes water and water systems targets for terrorism. The chance that terrorists will strike at water systems is real; indeed, there is a long history of such attacks. Water infrastructure can be targeted directly or water can be contaminated through the introduction of poison or disease-causing agents. The damage is done by hurting people, rendering water unusable, or destroying purification and supply infrastructure. More uncertain, however, is how significant such threats are today, compared with other targets that may be subject to terrorist attack, or how effective such attacks would actually be. Analysis and historical evidence suggest that massive casualties from attacking water systems are difficult to produce, although there may be some significant exceptions. At the same time, the risk of societal disruptions, disarray, and even overreaction on the part of governments and the public from any attack, may be high. This paper reviews the history of past attacks on water systems and the most pressing vulnerabilities and risks facing modern water systems. Suggestions of ways to reduce those risks are also presented.

Source: http://www2.pacinst.org/reports/water_terrorism.pdf



Table 3. Biological pathogens considered to be water threats.

Pathogen	Type	Weaponized	Stable in water	Chlorine tolerance
Anthrax	B	Yes	2 years spores	Spores resistant
Brucellosis	B	Yes	20–72 days	Unknown
<i>C. perfringens</i>	B	Probable	Common in sewage	Resistant
Tularemia	B	Yes	<90 days	Inactivated, 1 ppm, 5 min
Shigellosis	B	Unknown	2–3 days	Inactivated, 0.05 ppm, 10 min
Cholera	B	Unknown	Yes	“Easily killed”
Plague	B	Probable	16 days	Unknown
Q Fever	R	Yes	Unknown	Unknown
Hepatitis A	V	Unknown	Unknown	Inactivated, 0.4 ppm, 30 min

Source: modified from Valcik (1998).

B – bacteria; R – rickettsia; V – virus.



Chemical Weapons Only Effective against the Unprepared

By Jan Glarum

Source: <http://www.abetteremergency.com/blog/2015/11/chemical-weapons-only-effective-against-the-unprepared/>

Nov 20 – A recent [article](#) looks at Daesh and their ambition to stage attacks using chemical weapons. That anyone thinks this is a new revelation or surprise is what I find most disturbing. The second disturbing issue is the complete lack of attention now being paid to other terrorist groups, like al Qaeda that have not just gone away. Think of this as a marketing war for laxatives, one good ad spurs competitors to do better.

No one (even the great minds in all the government think tanks) should be stunned that any terrorist organization or wanna-be terrorist would be plotting to use chemical weapons against non-military targets. To quote the response of Sherlock Holmes when advised a secret terrorist organization was planning an attack...“That’s what secret terrorist organizations do isn’t it?”

That is the real issue here. You can be upset that chemical weapons are used in the future against civilian targets in the west, but don’t buy the shocked tirade that will come out of politician’s mouths. There is a reason chemical weapons were developed, deployed and have stuck around. They work but they only work if your target is not prepared. This country spent a great deal of money to educate and train public safety and health care providers how to prepare and respond to a chemical weapon attack decades ago. Most of the nation’s top experts in the field who trained me are long since retired or passed away. Many of those trained have since moved up in organizations or retired as well. I still offer courses but demand will explode *after* an attack takes place and that bothers me. People will suffer when they didn’t have to because we have ignored the threat.

I’m not clairvoyant, just not my first rodeo. I also have observed how many times the intelligence community has been caught off guard or underestimated an opponent. The way you defeat the value of using chemical weapons is to be prepared. The time to prepare is before they are deployed. Evaluate your organization’s capabilities today and decide what reasonable next steps should be taken. Stop focusing on degenerates within Daesh. Accept there are any number of bad actors who don’t like us who can and most likely will use chemical weapons at some point. How well we prepare between now and that day is completely up to us not them.

Jan Glarum is an author, educator and frequent speaker for EMS, Fire, Law Enforcement, Hospital and Public Health audiences. He is passionate about helping clients address their most challenging needs through innovative solutions. He has been involved in a wide array of planning events, including part of the Nike World Masters Games Planning Team, Executive Director of Development for the Portland



Metropolitan Medical Response System and Member of the Department of Defense's Integrated Product Development Team for Military Detection Equipment for Civilian Use.

EDITOR'S COMMENT: Jan is also the author of [Hospital Emergency Response Teams](#). This is one of the best books I have ever read regarding hospitals' preparedness and response. A hospital can continue to function during a disaster or terrorist attack if a Hospital Emergency Response Team (HERT) protects the facility by the establishing and staffing of an Emergency Treatment Area. For the first time, here is an entire text dedicated to developing a free-standing operational team capable of protecting the healthcare center and its employees. This unit, if properly designed, is mobile enough to operate at a remote site, offering services to less prepared facilities. Not only does the hospital gain operational capacity by creating such a team, it also goes a long way toward meeting JCAHO's accreditation requirements. This book covers information that in an emergency is crucial to emergency medical service personnel and hospital staff in the emergency department, nursing, clinician, and other technical or support positions. It is also required reading for community public safety personnel and those charged with community-level planning, allowing them to better understand hospital capabilities and needs in times of disaster. This is a book that ALL hospital people MUST READ.



BE PREPARED against Bio Chemical threats

By Jose Madeira (Managing Director at BLANCON)

Source: <https://www.linkedin.com/pulse/prepared-against-bio-chemical-threats-jose-madeira?trk=mp-author-card>

Aug 14 – One cannot protect 100% all the public spaces, for instance in a METRO or Airport or Railway Central station or Religious Centre but at least those officers in the Command & Control centre should be protected from any pandemics or CBRN (Chemical, Biological and Radiological/Nuclear) threats so that they are fit to carry on their crisis management job to the full extent of their ability thus limiting the damages and mitigating the effects of the disaster.

Besides current known pandemics and those to come in the future there are several threat agents that could be used in a terrorist attack against buildings and occupants. A sabotage carried by one person introducing a very small amount of a harmful product (industrial toxic agent or warfare agent) can cause tremendous damage in human lives. Different threat agents have different physical and toxicological properties. Some of them are more easily available and disseminated than others. The solution to mitigate the attack is early **detection** by sensors/detectors placed on the right spots and **protection** by filtration followed by **bio-decontamination**.

Many harmful agents are in the size region where the standard filters cannot remove those threats. Standard filters cannot remove bacteria, not to mention viruses. For example the size of a SARS virus is of the order of 0.06 mm.

And even buildings with HEPA installed filters (HEPA-High-efficiency particulate arrestance) are not capable of blocking all airborne hazardous particles that can be disseminated through a whole building or Airport hall. Special High Security filters have to be used to be on the safe side.

High Security Filters permanently activated or threat activation triggered shall be integrated in a system with **early** detection composed by small and efficient chemical and biological detectors.

The right design of **Detection&Protection** systems shall be based on a fair and accurate Risk Analysis based on real scenarios (not guess work or virtual modeling) so that the guidelines and recommendations from the analysis are trustworthy.

Is you building, your work place, Government building, Airport, Emergency Respond Centre, Military Hospital, well prepared to face the challenges of current times safeguarding the life of its occupants?



The Command & Control centers of Airports, METRO, Religious Centers etc, are prepared to allow the officers in charge to manage a crisis situation completely protected from the outside disaster scenario?

Ask these questions and demand accurate answers from the area managers. And with accurate we mean assurance that the systems of **Detection & Protection** can cope with these scenarios, in general divided into four categories:

- Fast acting chemical agents causing symptoms to appear within seconds or minutes after exposure
- Delayed acting chemical agents or biological toxins causing symptoms to appear for hours or days after exposure
- Slow-acting noncontagious biological agents
- Slow acting contagious biological agents

THE GREATEST THREATS ARE THE ONES YOU CANNOT SEE

Be critical and ask the right questions

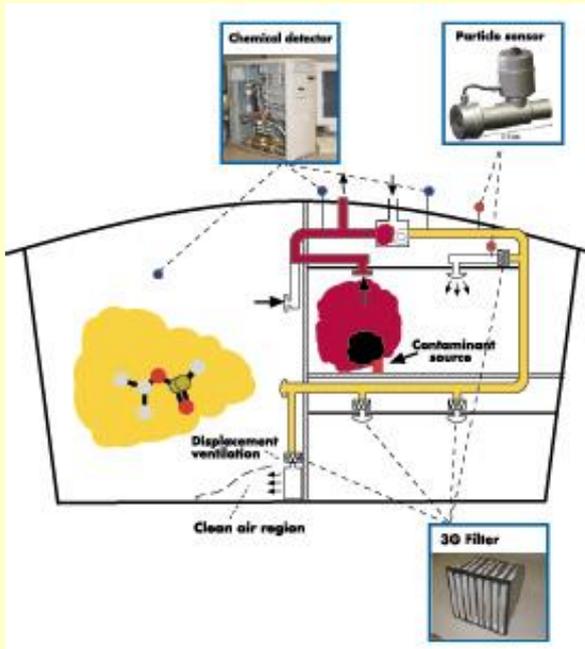
CBRN threats: First Stage Risk Analysis

By Jose Madeira (Managing Director at BLANCON)

Source: <https://www.linkedin.com/pulse/cbrn-threats-1st-risk-analysis-jose-madeira?trk=mp-author-card>

You have minutes to respond in CBRN.

Sep 08 – AIRSECURE system is a Risk-based Detection and Protective filtration system for mass transit hubs, government buildings, command centers, or any other critical infrastructure against airborne chemical, biological or radiological hazards/threats.



The fear of terrorist attacks against civil targets has increased recently. One of the most frightful scenarios is that airborne chemical, biological or radiological (CBRN) agents are used as weapons against unprotected civilians. Of particular concern are airports and fast trains railway stations and undergrounds, as an attack against such vulnerable targets may cause extensive injury and contamination. Of particular concern are occupants in buildings, since concentration of purposely released toxic agents may rapidly reach lethal levels in confined spaces. The Heating, Ventilation, and Air Conditioning (HVAC) systems in buildings can become an entry point and a distribution system for hazardous contaminants, including CBRN agents.

However mass transit hubs may be attractive targets because terrorists will very likely seek the target with high symbolic value and maximum impact. People also wait at the stations concourses and platforms enough time for increasing exposure time and thus the risk for lethal dosage will appear. The strikes at mass transit hubs will have the largest effects on the society and infrastructure.

Biological agents released at an airport, transport hub or office building area will cause diseases in different areas/continents. The diseases will be spread rapidly as the SARS epidemic demonstrated. Moreover, the public panic and fear could have a severe effect on the whole economy of the country.



The aim is to improve the security of the public, passengers and workers at public transportation hubs and other areas when needed.

Risk analysis and assessment

The risk analysis and assessment procedure that shall be conducted at the start of every project will identify hazards and consequent accident scenarios, estimate the consequences, frequencies/probabilities and classify the risks. The risk analysis will produce ideas and requirements for the risk control and management actions.

These scenarios must be relevant for each Airsecure project. These proposed scenarios would be implemented into Risk analysis software to estimate concentration profiles, dosage profiles, casualty numbers etcetera. These results can then be used for further study, like detect ability and filterability.

To create suitable scenarios, a proposal for various parameters must be made, such as:

- Location of the release
- The type of agent
- The type of release device
- The lay-out of the building and the airport

To calculate the effect of a scenario, several processes have to be taken into account, such as:

- The release of agent
- The dispersion of the agent as vapor or aerosol
- The deposition of liquid agent
- Evaporation
- Weather conditions
- Ventilation flow inside buildings
- The toxicity of the agent
- Etc.

To generate such parameters for the AIRSECURE library of knowledge, not only literature scenarios have been analyzed, but also a more structural analysis has been performed based on real warfare agents by TNO lab.Holland.

Outdoor scenarios can be calculated by the software packages RAP and CABIS. These packages calculate values of -for instance- the source term of a scenario and the consequent concentration profile on several locations and furthermore a casualty estimation can be made.

The indoor concentration profile of a scenario can be calculated by the software package COMIS.

In some scenarios these indoor and outdoor scenarios are combined, thus both packages are needed. Coupling these two software packages is a complex research in itself. Therefore within this project data-communication between these packages will not yet happen automatic, but will be transported batch wise.

For an outdoor release, a concentration-time profile will be calculated by RAP or CABIS at the entrance of a building. This has to result in a mass-time profile data file, which can be used as input for COMIS. COMIS will then calculate concentration time profiles in the various rooms in the building. These profiles will be separate data files, which must be transferred back to RAP or CABIS. These packages can use these profiles to calculate casualty estimates of the scenario.

Example of Scenario creation

Requirements for a risk analysis assessment: Airport example

- A 3D description of the airport (inclusive the inside of the relevant building)
- Ventilation entrance / exhaust points
- Ventilation flows
- Number of people at a given time
- Locations of chemical plants in the neighborhood of the airport which use TICS

To create the maximum impact, the release can take place at several places, depending on the plan of the airport. Inside the building, the dispersion can take place via corridors and via the ventilation system. This can be modelled by the software package COMIS. If



the release takes place outdoor, the dispersion can be modelled by the package CABIS. This will then give a source term for the indoor dispersion at the ventilation entrance and at the location of doors, whereupon COMIS can be used. The casualty estimates will be calculated by using CABIS.

To estimate the impact of a scenario, the various important topics related to scenarios are summarized

Means Target model	Scenario	Consequence
Agent Chemical Volatile Persistent Blistering Biological TIC Area description Indoor Layout Ventilation Number of people Outdoor Nearby plant Nearby building Site Meteorological data	Release Evaporation Dispersion Aerosol Vapour Particles droplets Air conditioning Control system Filtering Detector	Casualties Epidemiological Logistic Operational Financial Reputation Environmental Fear creation

in Table above. They are tabulated by the topics: Means (Target model), Scenario and Consequence.

Since not every combination of location and agent has the same impact, only relevant combinations shall be taken into account. To find which combinations are relevant, the aim (the consequence), which the terrorist is trying to get, must be taken into account. In table 2, an agent – consequence matrix is proposed. The relevant combinations are shown. (not for public disclosure)

CBRNe Posters from 2nd IW CBRNe Workshop

University of Rome Tor Vergata (Nov 20, 2015)



Università di Roma
Tor Vergata

Università di Roma Tor Vergata

INTERNATIONAL CBRNe MASTER COURSES

Chemical, Biological, Radiological, Nuclear and explosive
Department of Industrial Engineering and School of Medicine and Surgery

P61 – A printed and disposable electrochemical biosensor based on cholinesterase inhibition for nerve agent detection

Z. Zahid, S.Cinti, F. Arduini, D. Moscone, G. Paleschi

Dept. of Chemistry, University of Rome Tor Vergata, Rome, Italy

The nerve agents are chemical warfare agents known to be used during terrorist attacks, potent nerve agents are Sarin (GB), Soman (GD), Tabun (GA), and VX. The extreme toxicity of these compounds is due to their ability to irreversible inhibit Acetylcholinesterase (AChE) enzyme in the neuromuscular junction of the central nervous system. The nerve agents also have the ability to irreversible inhibit Butyrylcholinesterase (BChE) in blood. The vapor pressures of



these agents (especially in case of Sarin) and their rapid effect on the central nervous system (CNS), combined with the low cost and unsophisticated technology required for production, make these compounds or agents among the preferred choices for terrorists. For this reason an inexpensive, sensitive, miniaturized, and portable system to be used by first responder and military personnel is of interest owing to the continuing threat of possible terrorist attacks. Amperometric biosensors based on cholinesterase inhibition shows such potentialities. In this work butyrylcholinesterase was immobilized onto screen-printed electrodes modified with Prussian blue and the nerve agent detection was performed by measuring the degree of enzyme inhibition.

P4 – CRN effects on human beings: developing a tool for first responders

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The rescuers deployed in the red zone during a CRN event are non-medical personnel. First responders have several problems in the recognition of the toxidromes, triaging casualties, understanding English language. The background led the authors to do a research among the first responders to understand which their needs are. Rescuers from various groups such as firefighters, soldiers, international security agencies, emergency health workers, and countries were interviewed during EDEN project demos. We created a website, with an adjustable view for smartphone and tablet. Its database came from a multiple sources and the information are validated by a toxicologist. This website hazmat-eden.eu was thought as a flexible, simple and light tool useful for everyone who is involved in CRN event. The tool was presented during an EDEN demo and it has been successful. Many partners still contact us to improve this website. In our opinion this tool can be a rapid and reliable way to have information during a CRN event. Now we are still improving the tool, in cooperation with EDEN partners and national rescuers, hopefully it will remain an open repository to address any necessity of first responders.

P21 – GAp Tool for Evaluation (G.A.T.E) of CBRNe Drills, Table Top Exercises and Full Scale Exercises

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A tool for gap analysis (“GATE”, Gap Analysis for TTX Evaluation) was developed to provide a complete, systematic and objective evaluation of several types of exercises organized in CBRNe fields but applicable to different scientific, economic, legal, medical, industrial, political and social activities. In this work the authors will present the application of GATE to a Table Top Exercise (TTX). TTX consist in discussion-based emergency management exercises, organized in a simulated emergency scenario, involving groups of players who are subjected to a set of solicitations (‘injects’), in order to evaluate their emergency response abilities. This kind of exercise aim is at identifying strengths and shortfalls and to identify and propose potential and promising changes in the approach to a particular situation. This tool, “GATE”, support the management and the analysis of TTX’s outputs, and it allows to identify the ‘gap’ in term o preparedness and specific areas and actions to improve. The results coming from “GATE” will be discussed and analyzed by the authors.



P53 – Comparing three quick and easy methods for sample preparation of CWA simulants in water**A. Sassolini^{1,4}, A. Malizia^{1,2}, F. D'Amico^{1,2}, O. Cenciarelli^{1,2}, M. Carestia^{1,2}, D. Di Giovanni^{1,2}, L. Palombi^{2,3}, M. Guidotti⁴, C. Bellecci^{1,2}, P. Gaudio^{1,2}**¹Department of Industrial Engineering,²Department of Industrial Engineering and School of Medicine and Surgery,³Department of Bio-Medical & Prevention, School of Medicine and Surgery, University of Rome Tor Vergata, Rome, Italy⁴Regional Agency of Environmental Protection, Rieti, Italy

Analytical chemistry in CBRNe (Chemical Biological Radiological Nuclear explosive) context requires not only high quality data; quickness, ruggedness and robustness are also mandatory. In this work, three samples preparation methods were compared using several organophosphorus pesticides as test compounds, used as simulants of nerve CWA (Chemical Warfare Agents) to choose the one with best characteristics. Result was obtained better with the Dispersive Liquid-Liquid Micro Extraction (DLLME), relatively new in CBRNe field, obtaining uncertainty for different simulants between 8 and 15% while a quantification limit between 0.01 and 0.08 µg/l. To optimize this extraction method, different organochlorinated solvents also tested but not relevant difference in these tests was obtained. In this work, all samples were analyzed by using a gas chromatography coupled with mass spectrometer (GC-MS) and also with Gas Chromatograph coupled with Nitrogen Phosphorous Detector (NPD) for DLLME samples to evaluate a low cost and rugged instrument adapt to field analytical methods with good performance in terms of uncertainty and sensibility even if poorer respect to the mass spectrometry.

P59 – CBRNe Threat Detection and Monitoring System: Advanced prototype**V. Volpetti, V. Ricci, F.F. Monai and F. Barcio***Research & Development Department, Thales Italia S.p.A. - Defence Management Domain, Chieti, Italia*

Thales Italia has developed an advanced prototype of a CBRNe (Chemical, Biological, Radiological, Nuclear and explosives) Threat Detection & Monitoring System that features beacons embedding innovative smart sensors, integrating CMOS chip microsensors and exploiting Wideband Electrical Impedance Spectroscopy technology. Each beacon is in the form of lab-on-a-chip already inclusive of electronic acquisition and pre-processing of the signal coming from the sensors with high sensitivity and selectivity, high miniaturization and low unit costs. Through a Wireless Sensor Network (WSN) of beacons there will be significant reduction of false alarms while using the sensors on-the-field, with synchronous detection of CBRNe threats and with minimal training requirements. Automatic data transfer to a Command Centre equipped with ESTHER software will eventually lead to data fusion and real-time visualization of geo-referenced alarms for interactive decision.





Ebola virus found in semen 9 months after symptom onset

Source: <http://www.medicalnewstoday.com/articles/301057.php?tw>

Oct 15 – The Ebola outbreak that nearly bested the global health care community in March 2014 has remained a major focus for scientists and researchers, as preventing further spread of the disease has been a prime target. Now, a new study suggests that the virus is still detectable in semen samples from male survivors for at least 9 months after onset of symptoms.

The study is published in the *New England Journal of Medicine* and shows preliminary results of a long-term study conducted by the Sierra Leone Ministry of Health and Sanitation, the World Health Organization (WHO) and the US Centers for Disease Control and Prevention (CDC).

According to the researchers, the number of new cases of Ebola virus disease (EVD) has declined in Western Africa from a high of 1,063 cases during the week of October 9, 2014, to fewer than 10 cases each week for 11 straight weeks as of October 7, 2015.

They note that, though rare, suspected cases of sexual transmission of EVD have been reported, which is why they are further investigating the topic.

In 1967, there was a confirmed case of sexual transmission of the related Marburg filovirus from a male survivor to a female partner, supporting the view that Ebola can be passed through semen.

The main source of transmission of Ebola is through direct contact with the body or bodily fluids of a person with the virus - or from the body of a person who died from it. The researchers note, however, that EVD can persist in the bodily fluids of survivors during recovery, which could result in transmission.

'Further evidence survivors need continued support'

As part of the study, a total of 93 men aged 18 or over in Freetown, Sierra Leone, submitted semen samples that were tested for the presence of EVD genetic material. These men enrolled in the study between 2-10 months after their symptoms began.

Of the men who were tested during the first 3 months of their illness, 100% tested positive for presence of EVD in their semen; of the men who were tested between 4-6 months after symptoms began, 65% tested positive.

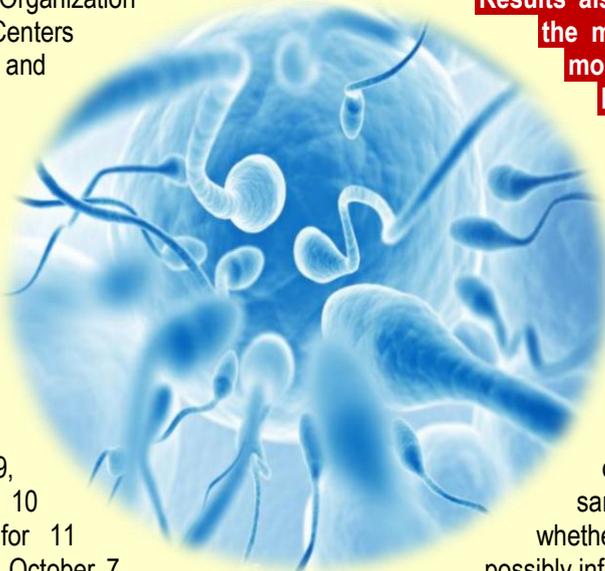
Results also showed that 26% of the men tested between 7-9 months after their illness began had semen that tested positive for EVD.

The researchers say it is unclear as to why some study participants had cleared remnants of the virus from semen earlier than others, but the CDC are carrying out further tests of the samples to establish whether the virus is live and possibly infectious.

"These results come at a critically important time," says WHO's Bruce Aylward, "reminding us that while Ebola case numbers continue to plummet, Ebola survivors and their families continue to struggle with the effects of the disease."

He continues: **"This study provides further evidence that survivors need continued, substantial support for the next 6-12 months to meet these challenges and to ensure their partners are not exposed to potential virus."**

CDC Director Dr. Tom Frieden adds that survivors of the disease "face an increasing number of recognized health complications. This study provides important new information about the persistence of Ebola virus in semen and helps



us make recommendations to survivors and their loved ones to help them stay healthy."

Safe sex and Ebola

The researchers note that until more is known, the thousands of male Ebola survivors need education, counseling and regular testing so they know if the virus remains in their semen. During this time, WHO have issued some recommendations, including:

- Ebola survivors should be issued with condoms
- Survivors and their sexual partners should either abstain from all types of sex or observe safe sex until their semen has tested negative two times

- Until their semen has twice tested negative, survivors and partners should immediately wash their hands with soap and water after any physical contact with semen - including after masturbation.

The recommendations also advise that "all survivors, their partners and families should be shown respect, dignity and compassion."

Yusuf Kabba, national president of the Sierra Leone Association of Ebola Survivors, says that the "EVD survivors who volunteered for this study are doing something good for themselves and their families and are continuing to contribute to the fight against Ebola and our knowledge about this disease."

Mini DNA sequencer tests true

Source: <http://www.medicalnewstoday.com/releases/301116.php?tw>

Oct 16 – **The performance of the MinION™ miniature DNA sequencing device has been evaluated by an open, international consortium, and the resulting recommendations and protocols published before peer-review on the F1000Research platform.**

Summary:

- Public access to Oxford Nanopore's MinION™ miniature sensing device enabled an international consortium to evaluate the technology and provide a standard protocol for its use;
- Preliminary analysis of data generated in five very different laboratories indicates the performance and accuracy of the device is consistently good;
- Data are freely available for re-analysis and innovation in the Nanopore analysis channel on F1000Research.

The MinION, a handheld DNA-sequencing device developed by Oxford Nanopore, has been tested and evaluated by an independent, international consortium coordinated by EMBL's European Bioinformatics Institute (EMBL-EBI). The innovative device opens up new possibilities for using sequencing technology in the field, for example in tracking disease outbreaks, testing packaged food or the trafficking of protected species.

The MinION works by detecting individual DNA bases that pass through a nanopore, and unlike existing sequencing technologies, there are few inherent sensing limits on the length of the DNA sequence that it could read at one go. The MinION device was initially made available to thousands of laboratories all over the world, who were inspired to explore the technology and contribute to its development through the MinION Access Programme (MAP).

"The MinION Access Program was a brilliant thing to do. Because the device weighs only 100 grams, Oxford Nanopore could share it easily with more than 1,000 labs worldwide. Some of those people are tinkerers who invented new informatics tools or wet lab techniques that improved MinION performance," says Mark Akeson of the University of California Santa Cruz, a co-inventor of nanopore sequencing, consultant to Oxford Nanopore, and a MAP participant. "The device performs well now, particularly for viral and bacterial genomes, so you can ship it anywhere and know you're going to get the same result. We're looking at a democratisation of sequencing in the not-so-distant future. That is changing things for people who need to solve critical problems in challenging environments, like tracking Ebola strains during the



recent outbreak in West Africa. Another challenging environment is space - the MinION will be the first DNA sequencer tested in space, by NASA on the International Space Station."



"In a few years' time, people who may be several steps removed from basic genomic research, like teachers in a classroom, could be using this device to teach science in new, exciting ways that have never been possible before," adds first author Camilla Ip, of Oxford University. "I'm using the MinION in a project with secondary-school students in Oxford because this technology will probably be so much a part of daily life in a few years' time that they take it for granted. The kids who are about to go to university and join the workforce are the ones who will be creating new smartphone apps that use this sensing device for applications we haven't yet imagined."

Five laboratories in the UK, the US, Canada and The Netherlands conducted two sets of ten experiments, for the same E. coli isolate (strain K-12 sub-strain MG1655), using a single, shared protocol. The accuracy and reproducibility of the data were consistent between labs and of good quality. However, there is much work to be done in molecule delivery to flow cells, software protocol clarity and other areas.

The data generated in the study published yesterday represents a snapshot of the MinION's performance in April 2015. Since

then, innovation on the MinION has outpaced analysis, with new chips and kits released every 3-6 months. The paper, which includes details of the protocol used and preliminary analysis of the data generated, is available in the Nanopore analysis channel on F1000Research. The data are hosted in the European Nucleotide Archive (ENA).

[Oxford Nanopore's MinION™ USB-attached miniature sensing device.](#)
Credit: Oxford Nanopore Technologies

"Oxford Nanopore has excited the world with the promise of a technology that can be truly disruptive," says David Buck of Oxford University. "When the MinION Access Programme opened it seemed like the largest virtual R&D group ever established in genomics - now the MAP is open to anyone. Working with the MARC team from the start of the MAP has been exciting - we've had the chance to push the technology and gain some traction on understanding what is going on under the hood. We've published the paper in F1000Research before peer review as a baseline for the community, so that everyone can look at the paper and data, go on to do their own analyses share their results and stimulate discussion."

"Nanopore sequencing will open the door for the development of novel tools and applications to analyse the influx of new data," says Rebecca Lawrence, Managing Director of F1000Research. "The Nanopore analysis channel on F1000Research will be a central, open platform on which scientists can publish and discuss new applications and analyse workflows for nanopore sequencing data. People can access and contribute data easily, so that the wider life-science community can realise the full potential of this new technology quickly."

EMBL-EBI has been coordinating the data distribution and analysis for MARC, using the ENA to handle the raw data.

"This new device enables fully mobile sequencing with real-time data streaming, which means that with a high-speed Internet connection, the first dataset could arrive 20



minutes after the DNA is loaded," says Guy Cochrane, who leads the ENA at EMBL-EBI. "The ENA is a public resource that extends the reach and usefulness of sequencing, and with new technologies like this we provide the space, flexibility and expertise needed to test it and get it into shape. We were delighted to use it as the platform for data management and

sharing in MAP, so we can place the results in the public domain swiftly."

The next phase of analysis is already underway by the consortium, which is exploring ways to reduce the error rate and pushing to see how small the sample and how long the reads can be.



Comparison of six different intubation aids for use while wearing CBRN-PPE: A manikin study

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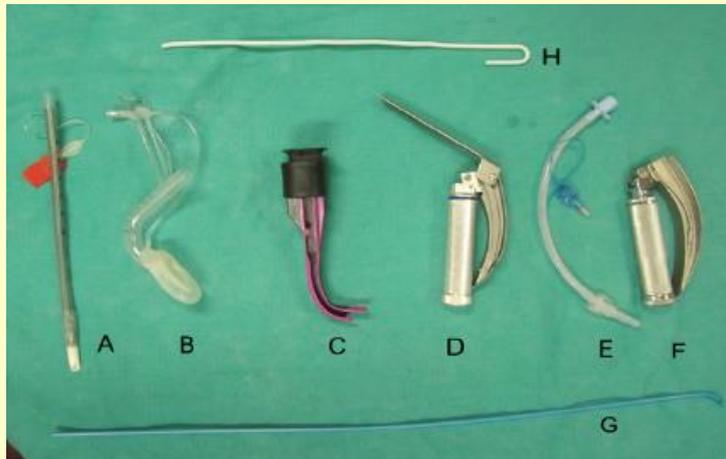
^c Statistical Services and Consultancy Unit, Business School University of Hertfordshire, UK

► *Resuscitation* 82 (2011) 1548–1552

Source: http://www.researchgate.net/publication/51496349_Comparison_of_six_different_intubation_aids_for_use_while_wearing_CBRN-PPE_A_manikin_study

Introduction: Respiratory failure following chemical exposure can be fatal and although supraglottic airway devices have been evaluated for use in the management of CBRN casualties' intubation remains the gold standard airway.

Methods: This is a randomised cross-over study involving 66 paramedic students utilizing the following intubating aids Bougie, stylet, McCoy laryngoscope, AirtraqTM, intubating laryngeal mask (ILMA) and standard intubation. Each participant performed intubation with each device while wearing standard uniform and CBRN-PPE.



(A) Flexible ET-tube for ILMA, (B) ILMA, (C) Airtraq, (D) McCoy laryngoscope, (E) size 7.0 mm ET-tube, (F) standard size 4 Macintosh laryngoscope and (G) Bougie and (H) stylet.

Results: While wearing standard uniform all intubation aids, except the AirtraqTM, resulted in at least a 90% successful intubation rate by 60 s. The use of CBRN-PPE led to significantly longer intubation times (ranging from 14.3 to 20.7 s) depending on intubation aid used ($p < 0.001$) with a 90% successful intubation rate not being achieved by all devices even by 150 s. **While wearing CBRN-PPE standard intubation and intubation with a stylet were the fastest** whereas the ILMA was deemed the easiest to use with the highest success rate. A marked deterioration in the number of intubation attempts completed within 30 s was also noted with standard intubation deteriorating by 82%, stylet deteriorating by 96% and the McCoy by 100%. The deterioration in intubation success at 60 s was less marked.

Conclusion: In this manikin-based study all intubation aids evaluated while wearing CBRN-PPE were adversely affected by the loss of dexterity associated with wearing Butyl gloves. Standard intubation and intubation utilising a stylet resulted in the fastest intubation times; whereas the ILMA offers the highest intubation success rate and was deemed to be the easiest intubating aid to use. An important consideration with regards future research is the impact of a learning



curve with regards to different intubation aids and whether preassembling all the intubation aids prior to the intubation attempt may improve intubation speed. The impact of intubator familiarity with regards to individual intubation aids is also an important consideration but established intubation aids like the Bougie are more difficult to use when dexterity is reduced due to CBRN-PPE.

EDITOR'S COMMENT: This is one of the very few studies dealing with this critical procedure and should be taken into account when making ED CBRN response plans. Of course dexterity loss mentioned is gained back by continuous training – this is not the case when drills are taking place once or twice a year or (usually) longer!

A National Blueprint for Biodefense

Source: <http://www.biotech-now.org/health/2015/10/a-national-blueprint-for-biodefense-released-today>



Oct 28 – A major report was released today detailing findings and recommendations to improve the U.S. biodefense readiness. “A National Blueprint for Biodefense: Leadership and Major Reform Needed to Optimize Efforts” was authored by the Blue Ribbon Study Panel on Biodefense, on which BIO President and CEO

Jim Greenwood serves. The panel is co-chaired by former Sen. Joe Lieberman and former Gov. Tom Ridge. Other panelists include former Secretary of Health and Human Services Donna Shalala, former Sen. Tom Daschle, and the Hon. Kenneth Wainstein.

The panel was established in 2014 to assess our nation’s entire biodefense apparatus to identify weaknesses and make recommendations for improvement. The

Three recommendations in particular bear highlighting:

Empower the Vice President to lead the nation’s biodefense enterprise

One of the most serious deficiencies identified by the report is the lack of a centralized leader for biodefense and a comprehensive national strategic plan for biodefense issues. The U.S. government lacks a single leader to orchestrate the efforts of the many government agencies involved in biodefense preparedness, planning and response.

Fully prioritize, fund and incentivize medical countermeasure (MCM) development and procurement

Panel members held four day-long hearings in which individuals from all levels of government, industry, academia and advocacy shared their perspectives on the problems and potential solutions in our biodefense readiness. The Panel concluded that myriad threats, vulnerabilities, and potential consequences have dramatically increased the risk posed to our nation by a biological threat. However, dramatic improvements in our readiness to respond to such threats are within reach provided we follow a national blueprint (such as the one released today), establish meaningful and empowered leadership in the area, and reform the good efforts already in place, including the public-private partnerships with industry and government that have already provided many medical countermeasures for biological threats.



The development of any drug or vaccine candidate is a risky, lengthy, and expensive process. The challenges with MCMs are even greater because there is limited-to-no commercial market for these products and because the opportunity costs for doing this contract work for the government are too high for many companies.

Improve upon the public-private partnership through contracting reforms

Legacy and current contracting practices are still not sufficiently transparent, uniformly implemented, predictable, or flexible enough to accommodate efficient MCM development, or to optimize industry participation to achieve U.S. government biodefense preparedness objectives.

The biggest problem the experts cite in their executive summary is the lack of a central plan or leader for dealing with any sort of biological threat. This, they argue, has led to patchwork preparation, where some precautions are in place, but there's no sort of coordinated response plan for the kinds of problem that would call for just that: a perfectly coordinated effort to shut down the spread of a dangerous illness before it gets worse.

Here are a few other reasons they say are causes for concern:

- **A lack of biosafety procedures at national research institutions.** This has led to situations where dangerous substances were left in an unsafe place, including when [vials of smallpox](#) were found just sitting in a Food and Drug Administration freezer.
- **Biosecurity problems may have increased the risk of bioterror.** The 2001 anthrax attacks occurred after anthrax was illicitly removed from the US Army Medical Research Institute on Infectious Disease.
- **Globalization has led to the rapid spread of emerging diseases.** These include Dengue fever and [Chikungunya](#), for example, as well as other diseases that we have no protection for, could rapidly emerge, and subsequently devastate lives and agriculture.
- **Scientific advances and synthetic biology.** It's easier than ever to create deadly and dangerous biological weapons, for which we have no known treatment.

So how does the US resolve these weaknesses? The group has a 33-point blueprint of recommendations for ways to "urgently" adapt to these threats, starting with creating a centralized group led by the Vice President.

"Unfortunately, biological threats are not given the same level of attention as are other threats, leaving us significantly underprepared," Lieberman said in the press release. "[B]ut this does not have to be the case."

► Be sure to check out the [full report](#) & [executive summary](#).

Can Ebola Be Transmitted Sexually?

Source:http://www.medscape.org/viewarticle/847118?nlid=89289_2806&src=cmemp&impID=868591&af=1

More than 25,000 cases of infection with Ebola in West Africa have been associated with the recent disease outbreak, along with approximately 10,000 deaths. A review by Liu and colleagues, which appeared in the May 15, 2015, issue of *Trends in Microbiology*, provided an update on the virology of Ebola in West Africa.

Previous research found a low rate of nucleotide substitution in Ebola, which could be due in part to the short coalescence time of infection. However, reports that were generated near the beginning of the recent

outbreak suggested genetic variability between isolates that was growing at twice the rate of previous estimates. Only recent more systematic reviews of whole-genome data have borne reassuring results that the Ebola virus continues to have a more limited potential for mutation.

Understanding the virology of Ebola is just part of the solution to controlling the spread of the virus. Details regarding the modes of transmission of Ebola are still being elucidated. The current report by Christie and colleagues



finds strong evidence for a case of sexual transmission of Ebola.

Study Synopsis and Perspective

Thirty days after the most recent confirmed case of Ebola in Liberia, a woman likely contracted the disease through unprotected vaginal sex with an Ebola survivor, investigators write in an article [published online](#) May 1 and in the May 8 issue of the *Morbidity and Mortality Weekly Report*.

The investigators note that the Ebola virus appears to persist in the seminal fluid of convalescent men much longer than previously recognized. "Until more information is known, contact with semen from a male survivor should be avoided," write Athalia Christie, MIA, the Centers for Disease Control and Prevention's (CDC's) deputy of global health, and colleagues. "If male survivors have sex (oral, vaginal, or anal), a condom should be used correctly and consistently every time."

Ebola virus has previously been isolated from semen as long as 82 days after symptom onset, and viral RNA has been detected in semen up to 101 days after symptom onset, the authors note. But in the recent case, a male Ebola survivor appears to have sexually transmitted the infection 5 months after testing negative for the virus.

Christie and colleagues outlined the case of a 44-year-old woman (patient A) from Monrovia, Liberia, who contracted Ebola seemingly inexplicably. Going to the hospital on March 19, 2015, for symptoms that started on March 14, she reported no history of travel, no interaction with visitors from Sierra Leone or Guinea, no contact with a person with symptoms consistent with Ebola, and no recent funeral attendance (which in West Africa can involve direct contact such as kissing or eating a meal in the presence of the deceased).

The woman did, however, report having unprotected vaginal intercourse a couple of weeks earlier with an Ebola survivor (survivor A). He had been discharged from an Ebola treatment unit in October 2014 after testing negative for the virus and reported no subsequent symptoms. Several of his family members had confirmed or suspected Ebola during his symptomatic period, and 3 of them died.

Researchers subsequently found Ebola virus RNA in survivor A's semen in March 2015, but that does not prove the presence of infectious virus. Nor is it possible to definitively ascribe patient A's infection to their sexual contact, the researchers caution. "However, the timing of intercourse between survivor A and patient A, the subsequent illness in patient A, the presence of viral RNA in survivor A's semen, matching genetic sequences (where coverage has been obtained) in isolates from survivor A and patient A, and the lack of other known exposures suggest possible sexual transmission," they write.

Previously, the CDC and the World Health Organization recommended abstinence or condom use for at least 3 months after recovery from Ebola. "However, to prevent transmission of Ebola, contact with semen from male survivors should be avoided," the report states. Used condoms should be handled and disposed of safely to avoid contact with semen. After handling of condoms, or after any physical contact with semen, skin should be washed thoroughly with soap and water.

Several other recent Ebola cases in West Africa have suggested sexual transmission from survivors but have not been confirmed. Additional studies are planned to determine clearance, persistence, and shedding of Ebola virus in the body fluids of survivors and to evaluate possible sexual transmission of infection.

► *MMWR Morb Mortal Wkly Rep.* 2015;64:479-481. [Full text](#)

Study Highlights

- The case patient was a 44-year-old woman who experienced headache, weakness, joint pain, and nausea. A diagnosis of Ebola was confirmed after 5 days of symptoms, and her case occurred 30 days after the last reported case in Liberia in February 2015.



- The patient had no clear risk factors for infection with Ebola. Her specimen demonstrated a unique genetic profile compared with recent circulating samples in West Africa.
- At 1 week before the onset of symptoms, the patient had unprotected vaginal intercourse with a male Ebola survivor. His laboratory testing result approximately 6 months before this case event suggested a low-level infection, and he had been asymptomatic for months.
- The survivor had multiple close contacts infected with Ebola 6 months before this new event.
- On confirmation of the female patient's case of Ebola, the male survivor underwent blood testing for the virus, which yielded negative results. However, a semen specimen tested positive for the Ebola virus on reverse transcriptase-polymerase chain reaction testing.
- The semen sample was only weakly positive, allowing for only a limited analysis of the genetic signature of the Ebola virus. The 28% of the viral genome available matched the female patient's sample closely.
- The male survivor reported unprotected vaginal intercourse with another woman at approximately the same time as the female patient, but results on Ebola tests returned negative for this other sexual partner.
- The authors of the current report note that the male survivor had a positive test result for Ebola virus in his semen 199 days after the onset of symptoms. More testing is being performed to define more conclusively that this case of Ebola was sexually transmitted.
- Previous recommendations from the CDC stated that individuals with Ebola virus should abstain from sexual activity, or at least use condoms, for at least 3 months after recovery from illness. The current report calls on all men with a history of Ebola infection to use condoms for every sexual encounter indefinitely until more is understood regarding the potential sexual transmission of Ebola.

Clinical Implications

- A recent review by Liu and colleagues suggests that the mutagenic potential of Ebola virus isolated during the recent outbreak is low, a finding consistent with previous estimates.
- Previous recommendations from the CDC stated that individuals with Ebola virus should abstain from sexual activity, or at least use condoms, for at least 3 months after recovery from illness. The current report calls on all men infected with Ebola to use condoms for every sexual encounter indefinitely until more is understood regarding the potential sexual transmission of Ebola.

Polio virus found in sewage of 10 cities

Source: <http://nation.com.pk/national/29-Oct-2015/polio-virus-found-in-sewage-of-10-cities>

Oct 29 – **The polio virus has been found in sewerage samples taken from at least 10 different cities of the country in different months of the on-going year,** The Nation learnt on Wednesday. The samples were taken from Multan, Peshawar, Rawalpindi, Lahore, Faisalabad, Jacobabad, Sukkur, Karachi, Quetta, Killa Abdullah and Dera Ismail Khan under Environment Surveillance programme of Pakistan Polio Eradication Initiative, sources disclosed.

"Four areas are working as major reservoirs of polio virus and it moves to other areas of the country when people from these areas move to other parts of the country," sources confided to this scribe.

The areas include Federally Administered Tribal Areas (FATA), the Quetta block (Killa Abdullah) in Balochistan, some parts of Khyber Pakhtunkhwa province and the Gadap, Baldia and Gulshan-e-Iqbal areas of Karachi.

Sources disclosed that over **70 percent of total polio cases reported from the country were reported from these reservoir areas** while the majority of wild viruses reported from cases in other areas were also genetically linked to those of these reservoir areas. Polio experts believe that the harvesting season is the major time when the virus carriers take it to others areas as labourers and nomads move to different parts of the country during this time of the year to earn their living.

After 306 polio cases reported in 2014, the Polio Eradication



Programme in Pakistan has made a major breakthrough as just 38 cases have so far been reported from across the country till filing of this report in 2015.

Sources claimed that a sudden surge in the number of cases in 2014 forced the country to revisit its polio eradication strategy. "The strategy was redesigned, micro planning was done and efforts were made to cover maximum population, especially nomads to block the spread of polio. It delivered considerably," sources added.

Giving details of areas where virus was found in environmental samples, sources disclosed that it was traced in four samples in Multan between January and October 2015. "We have four collection sites - Ali Town, Head Naubahar, Sooraj Miani and Kotla Abdul Fatah in Multan. The virus was found in Sooraj Miani sample in April, Kotla July and Ali Town and Kotla August," sources further revealed. "This virus has a genetic link with that of Jacobabad and Quetta," Sources added.

There are two collection sites in Rawalpindi and one Islamabad and occasionally virus is traced from the samples taken from Pir Wadahi site in Rawalpindi. In Lahore, the virus is found on Bund Road collection site, out of three sites as Pakhtun community is living in this area.

Similarly, there are two sample collection sites in Peshawar and virus is found at both sites continuously while the samples taken from DI Khan also contained virus, which had a genetic link with Killa Abdullah and Quetta.

Referring to Sindh, the sources disclosed that the virus was found from samples taken from Jacobabad/Sukkur and this virus had come from Karachi in 2014. Similarly, the samples taken from Hyderabad and Karachi also contained virus. In Balochistan, samples were taken from Quetta and Killa Abdullah which contained polio virus.

"Kashmir and Gilgit Baltistan are polio free areas while the samples taken from Faisalabad have also turned out to be virus free," sources revealed.

At least 3,000 policemen to be deployed in Pakistan for polio campaign

Source: <http://www.dnaindia.com/world/report-at-least-3000-policemen-to-be-deployed-in-pakistan-for-polio-campaign-2139739>

At least 3,000 policemen will be deployed in the Pakistan's southern Sindh province for



security and protection of the polio eradication teams which will begin a four-day campaign from next month.

A senior police official said the Sindh Chief Minister Syed Qaim Ali Shah has given special

instructions to the Inspector General of police to ensure the security of the polio vaccination teams which will work in the province during four-day campaign to eradicate polio held from November 3 to 6.

"The decision came at a meeting held yesterday to review the security arrangements for the polio eradication drive in the province," Munir Sheikh said. Polio eradication teams were attacked earlier in the province and its capital city of Karachi by militants opposed to the anti-polio vaccination drive.

Sheikh said the Chief Minister had made it clear at the meeting that he wanted full security and protection for the vaccination teams and provision all facilities like food and transport for them. In some terror attacks on the polio vaccination teams three



polio workers including two women were shot and killed in Karachi's Qayyumabad area last year. A policeman on security duty with a vaccination team was also shot dead by armed militants this year.

In December 2012, four lady health workers were killed in a similar attack while on an anti-polio drive in the Landhi, Orangi and Baldia town areas of the city. A local official of the UN

was also attacked in a similar incident in Sohrab Goth area and was injured. After these incidents anti-polio drives were suspended by the health authorities for lack of proper security for the vaccination teams.

Pakistan is yet to become a polio free country and few cases have emerged this year in the Sindh, Balochistan and Khyber Pakhtunkhwa provinces.

White House releases detailed lab biosafety plan

Source: <http://www.cidrap.umn.edu/news-perspective/2015/10/white-house-releases-detailed-lab-biosafety-plan>



Oct 30 – The White House yesterday released a strategy to improve safety and security at the nation's labs that conduct infectious disease research, the result of a comprehensive review ordered in August 2014 in the wake of several incidents involving federal facilities.

Several safety lapses involving pathogens such as those causing H5N1 avian influenza, smallpox, Ebola, and anthrax have occurred at federal labs in the past few years, many of them highlighted in a series of investigative reports by *USA Today*.

Issued by Lisa Monaco, PhD, the president's assistant for homeland security, and John Holdren, PhD, the president's assistant for science and technology, the 187-page is addressed to top officials in 16 different government agencies.

In a related development, the Centers for Disease Control and Prevention (CDC) recently released a 90-day internal review of its select agents and toxins division.

Call for better protocols, transparency

The new White House report was the result of actions announced in August 2014 by the National Security Council and the Office of Science and Technology Policy.

They included a "safety stand-down" that was implemented to address their stocks of potentially dangerous pathogens, along with formation of an interagency group to comprehensively review the impact current select agent rules have on science, technology, and national security. The review included stakeholder listening sessions and sought input from experts and the broader public.

Reviewers found that the federal government has robust rules and practices that cover work with infectious agents, but several improvements could further mitigate the risks.

Recommendations released yesterday cover eight categories, along with several steps assigned to federal agencies and timelines for implementation. Categories include culture of responsibility, oversight, outreach and education, applied biosafety research, incident reporting, material accountability, inspection process, and regulations and guidelines.

For example, the report recommends that the Department of Health and Human Services and the US Department of Agriculture (USDA) by Sep 30, 2016, identify or pull together an entity to validate local policies, lab protocols, and plans to mitigate biohazards at research labs that are registered with the Federal Select Agent Program (FSAP).

Other recommendations cover transparency, suggesting that the FSAP release aggregate



information on lab incidents annually and that federal and nonfederal biological select agent and toxin labs adopt policies that are as transparent as possible on agents used and lab incidents.

The report sets forth a three-step process to determine the appropriate number of high-containment labs needed in the United States. In a White House blog post yesterday, Monaco and Holdren wrote, "These principles emphasize a commitment to protecting Americans and the global community, and ensuring a system designed to prevent dangerous actors from accessing or misusing sensitive biological material."

Experts weigh in on recommendations

Richard Ebright, PhD, a Rutgers University professor of chemistry and chemical biology who often speaks out on research safety issues, told media outlets yesterday that the White House recommendations contain positive steps. But he added that he was disappointed the report didn't suggest that select agent oversight be transferred away from the CDC and USDA to an independent group.

Meanwhile, Amesh Adalja, MD, senior associate with the UPMC Center for Health Security, told *USA Today* and *ScienceInsider* that an important element of the White House recommendations were that deadlines were spelled out for each step.

CDC unveils select agent review

The recent release of the CDC report, dated Oct 23, was prompted by a 90-day review directive from director Tom Frieden, MD, MPH,

America is at Risk for Bioterrorism in Hubley's New Techno-Thriller Novel

Source:

<http://www.webwire.com/ViewPressRel.asp?ald=200744>

Nov 03 – **Bruce E. Hubley pens another book that deals on bioweapons, terrorists, super hackers and a CIA agent.**

The story, with its plot twists and action scenes, is a very realistic one. It shows our vulnerability as a nation when we face enemies

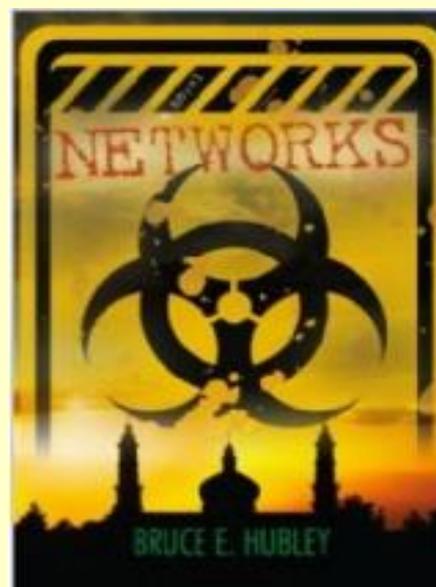
in July, following a series of incidents at FSAP facilities, including inadvertent transfer of live samples of *Bacillus anthracis*—which causes anthrax—and H5N1 virus from CDC labs to other labs.

The CDC said the internal review committee—headed by Stephen Redd, MD, with its Office of Public Health Preparedness and Response—included its lab experts, medical officers, and senior scientists.

It said its latest review dovetails with a work group's review in 2010 and makes nine observations along with 10 recommendations in three main areas: inspections, incident reporting, and transparency. The group found, for example, that some entities report that inspector skills and approaches vary, so they recommended checklist and training enhancements.

Reviewers also found that select agent labs don't have a standard process to identify the highest-risk activities. They recommended the development of a standardized risk assessment, with an independent science review group to provide recommendations on how to boost the timeliness and effectiveness of the review process.

Other recommendations included clarifying "release" terminology to better signify the level of risk to lab workers and the public, updated policies to include molecular diagnostic methods as options for confirming the presence of select agents or toxins, and increasing public reporting of inspection processes and findings without risking security.



with great imaginations and resources intent on our destruction.

More than guns and missiles, a bioweapon is the most threatening weapon of all. It doesn't discriminate its target and everyone can die. Therefore, when it comes to bioterrorism, prevention is better than cure. This is what Bruce E. Hubley is talking about in his technological thriller entitled "Networks."

When a report of a clandestine meeting for Quari War and Defense Minister Zindar is made known, CIA field agent Jason Royce decides to investigate. But his investigation turns up more questions than answers. Undeterred, he continued to uncover the secrets and he is terrified of his discovery.

The Islamic country, with its hatred of the West, has developed a biological weapon. More so, they enlisted the aid of a terrorist network to deliver it to North America. Now, time is running as Agent Royce tries to know more about the bioterrorism plot and prevent it before it's too late. With the help of three super hackers, Agent Royce is going to embark on the most dangerous mission of all. But can they save America in time?

"The story, with its plot twists and action scenes, is a very realistic one. It shows our vulnerability as a nation when we face enemies with great imaginations and resources intent on our destruction. I just hope our country is more prepared because we definitely need more people like Agent Royce and the trio of super hackers to help us when it happens," Hubley said.

On another note, book readers are more than thrilled about the book. According to Paul Cribby: "Very technically enlightening. Fast paced. Set the time aside to keep reading as you near the finale as you won't be able to set it down. Definitely will be looking for the sequel!"

If you're interested in technological thrillers and espionage, then grab a copy of "Networks." Prepare to be blown away by the twists in the story along with the action that goes on with every page. So, sit tight and enjoy your action-filled time with Bruce E. Hubley's work.

Lastly, Hubley's work was also displayed during the 2015 Frankfurt Book Fair held last October 14-18, 2015. It was displayed at the LitFire Publishing booth along with other materials from the author.

Bruce E. Hubley is a Microsoft Certified Systems Engineer and a Computer Industries Association A+ Certified Field Service Technician. He has degrees in Business and Law from Dalhousie University in Nova Scotia, Canada. And he currently lives in Halifax with his wife and several rescued dogs whose number may vary over time.

University launches study of mosquito-borne diseases

Source: <http://www.njherald.com/story/30442210/university-launches-study-of-mosquito-borne-diseases>

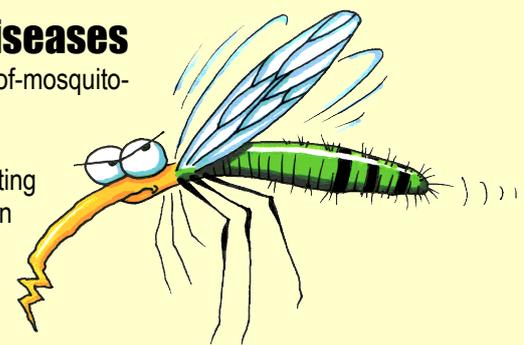
Nov 05 – The University of Pittsburgh's Center for Vaccine Research is starting a \$7.6 million study of rare but deadly diseases that might be used in bioterrorism.

The Pittsburgh Tribune-Review reports (<http://bit.ly/1Rx1POe>) the Department of Defense-funded study could produce drugs to fight viruses mosquitoes carry.

Amy Hartman, the project's principal investigator, says they want to be prepared for either a natural outbreak or a man-made one.

The study will focus on several viruses that are most prevalent in horses, but can also infect humans. Officials say the fatality rate could be as high as 90 percent for those rare infections.

Hartman says little is known about the mechanisms of the diseases the viruses cause. She says researchers will study the viruses in animals and test vaccines that could be tested in humans.





Nanoparticle delivery maximizes drug defense against bioterrorism agent

Source: http://www.nanotech-now.com/news.cgi?story_id=52509

Nov 06 – **Scientists from the California NanoSystems Institute at UCLA have developed a nanoparticle delivery system for the antibiotic moxifloxacin that vastly improves the drug's effectiveness against pneumonic tularemia, a type of pneumonia caused by inhalation of the bacterium *Francisella tularensis*.**



Left to right: Daniel Clemens, Bai-Yu Lee, Marcus Horwitz, Jeffrey Zink, Barbara Jane Dillon and Zilu Li.

The study, which appears in the journal ACS Nano, shows how the nanoparticle system targets the precise cells infected by the bacteria and maximizes the amount of drug delivered to those cells.

Jeffrey Zink, distinguished professor of chemistry and biochemistry and a senior author on the study, developed the mesoporous silica nanoparticles used for drug delivery. Zink and his research team conducted an exhaustive process to find the best particle for the job. **"The nanoparticles are full of deep empty pores," Zink said. "We place the particles in drug solution overnight, filling the pores with drug molecules. We then block the pore openings on the nanoparticle's surface with molecules called nanovalves, sealing the drug inside the nanoparticle."**

When the drug-bearing nanoparticles are injected into the infected animal, in this case a mouse, the drug stays in the nanoparticles until they reach their target: white blood cells called macrophages. Macrophages ingest nanoparticles into compartments that have an acidic environment. The nanovalves, which are

designed to open in response to the more acidic surroundings, then release the drug.

"We tested several different particles and nanovalves until we found the ones that would carry the maximum amount of drug and release it at just the right pH value," Zink said.

The *F. tularensis* bacterium is highly infectious and has been designated a top-tier bioterrorism agent by the Centers for Disease Control, meaning that it is considered to pose a high risk to national security and public health.

"*F. tularensis* survives and multiplies within macrophages, especially those in the liver, spleen and lung," said Marcus Horwitz, a distinguished professor of medicine and microbiology, immunology and molecular genetics and the study's other senior author. **"Macrophages readily devour mesoporous silica nanoparticles, making these particles ideal for treating these types of infections."**

Moxifloxacin is a powerful treatment for tularemia, but it has side effects when administered as a free drug in the bloodstream. The UCLA researchers worked to maximize the efficacy of the treatment while reducing side effects.

"When you give a drug freely in the blood, only 1 or 2 percent of it gets to where you want it to go," Horwitz said. "With this system, the drug is contained inside the nanoparticles until they are inside macrophages, delivering a much larger amount of the drug directly to the site of infection."

Horwitz added that freely flowing drugs are metabolized and excreted from the moment they are administered, whereas nanoparticles protect drug molecules from metabolism and excretion until after their release in the target cells, making nanotherapeutics potentially very potent.

The study compared the efficacy of freely injected moxifloxacin with that delivered by the controlled-release nanoparticles in mice. In mice given a highly lethal dose of *Francisella tularensis*, the nanoparticle-delivered moxifloxacin caused few side effects and was more



effective at reducing the number of bacteria in the lungs than a dose of freely injected moxifloxacin two to four times greater.

The nanoparticle delivery system has the potential to maximize antibiotic effectiveness and reduce side effects in other infectious diseases including tuberculosis, Q fever and Legionnaires' disease.

The study's other authors were Zilu Li, a graduate student in the Zink lab; and Daniel Clemens, an adjunct associate professor of

medicine; Bai-Yu Lee, an associate researcher; and Barbara Jane Dillon, a staff research associate, all of whom are in the Horwitz lab.

Confocal microscopy was provided by the Advanced Light Microscopy Technology Center of the California NanoSystems Institute at UCLA.

This research was supported by the Defense Threat Reduction Agency of the Department of Defense.

Canada – Tularemia case confirmed in Sudbury

Source: <http://www.northernlife.ca/news/localNews/2015/11/06-tularemia-sudbury.aspx>

Nov 06 – Laboratory results have confirmed tularemia in an adult resident in the Greater Sudbury area.

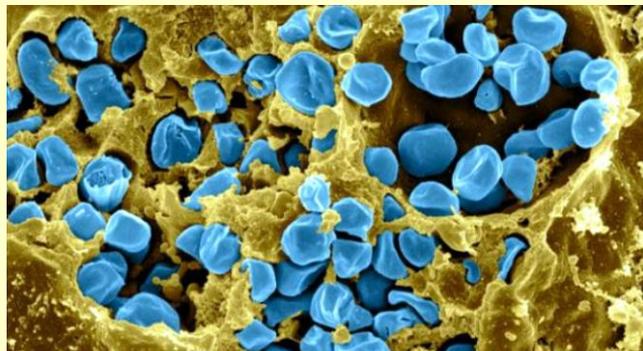
This is the first human case of tularemia in the Sudbury and District Health Unit's service area since 2003, said a press release. It is believed that the individual became infected through contact with wild game.

Tularemia is a disease of animals and humans caused by the bacteria *Francisella tularensis*. It is naturally occurring in Ontario wildlife populations, especially in rabbits, hares, voles, muskrats, beavers, and squirrels and in ticks and small domestic animals.

Humans can become infected through several routes, including:

- Bites or licks of an infected animal
 - Handling or cleaning the carcass of an infected animal especially the skin or meat
 - Eating inadequately cooked wild game
 - Inhalation or exposure beneath the skin to contaminated soil
 - Drinking contaminated water
 - Bites of an infected tick or deer fly
- Hunters are at higher risk of exposure because of the handling of wild game carcasses. Transmission of tularemia from person to person has not been reported.

Symptoms of tularemia depend on how a person was infected and range from mild to life-threatening. They can include sudden onset of fever, chills, headache, muscle aches, joint pain, vomiting, dry cough and difficulty breathing. Other symptoms include skin ulcers, swollen lymph glands, inflamed eyes, sore throat, and diarrhea.



The elderly, people with respiratory illness or immune-compromised individuals are most at risk of developing severe illness.

Anyone who is experiencing these symptoms after an exposure to wild game or ticks, should contact their health care provider without delay. Confirmed cases are treated with antibiotics.

Here are some simple measures you can take to protect yourself from tularemia:

- Wear non-absorbent gloves when handling wild game.
- Wash your hands immediately after handling wild game.
- Cook all wild game thoroughly.
- Avoid insect bites by using a Health Canada approved insect repellent and be sure to follow the manufacturer's recommendations.
- Wear a long sleeved shirt and long pants while hunting or engaging in other outdoor activities.
- Check your clothing and body for ticks and change your clothing after returning indoors.
- Only drink water from a safe source.

[The manifestations of *Francisella tularensis* infection in this case are not stated nor is the animal suspected to be the reservoir.]

Tularemia is caused by *Francisella tularensis* a small, non-motile, Gram negative intracellular coccobacillus. It can be found in a variety of animal hosts, notably lagomorphs (rabbits and hares), aquatic rodents (muskrats, beavers, and water voles), other rodents (water and wood rats and mice), squirrels, and cats. In the United States, an outbreak involving commercially distributed prairie dogs occurred in 2002.

Francisella tularensis can be recovered from contaminated water, soil, and vegetation, as it can persist for weeks under ideal environmental conditions. *Francisella tularensis* also can be found in amoebas (such as acanthamoeba), which can become airborne in some settings, and may represent a significant environmental reservoir for this bacterium.

Humans can become incidentally infected through diverse environmental exposures: bites by infected ticks and deerflies; contact with infectious animal tissues or fluids; direct contact with or ingestion of contaminated food, water, or soil; and inhalation of infective aerosols. In 1 case, bacteria were aerosolized from the fur of a dog as it shook itself off after entering a home. Finally, there are several reports of tularemia in humans following bites from infected domestic cats. It is highly infectious, with as few as 10 organisms needed to cause disease. Humans can develop severe and sometimes fatal illness but do not transmit the disease to others. The typical incubation period is 3 to 5 days, with a range of 1 to 14 days.

The clinical presentation of tularemia depends on the route of exposure. Airborne *Francisella tularensis* would mainly cause pleuropneumonitis. Exposures that penetrate broken skin result in ulceroglandular or glandular disease. The onset of tularemia is usually abrupt, with fever, headache, chills and rigors, generalized body aches (often prominent in the low back), coryza (inflammation of the mucous membranes lining the nasal cavity), and sore throat. Nausea, vomiting, and diarrhea may occur. Sweats, fever, chills, progressive weakness, malaise, anorexia, and weight loss characterize the continuing illness.

Nanoparticle delivery maximizes drug defense against bioterrorism agent

Source:

Nov 09 – Scientists from the California NanoSystems Institute at UCLA have developed a nanoparticle delivery system for the antibiotic moxifloxacin that vastly improves

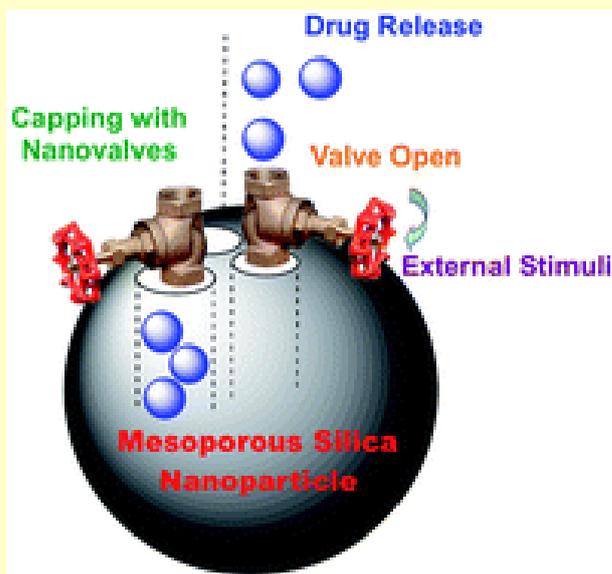
the drug's effectiveness against pneumonic tularemia, a type of pneumonia caused by inhalation of the bacterium *Francisella tularensis*.



UCLA says that the study, which appears in the journal *ACS Nano*, shows how the nanoparticle system targets the precise cells infected by the bacteria and maximizes the amount of drug delivered to those cells.

Jeffrey Zink, distinguished professor of chemistry and biochemistry and a senior author of the study, developed the mesoporous silica nanoparticles used for drug delivery. Zink and his research team conducted an exhaustive process to find the best particle for the job.

“The nanoparticles are full of deep empty pores,” Zink said. “We place the particles in drug solution overnight, filling the pores with drug molecules. We then block the pore



openings on the nanoparticle’s surface with molecules called **nanovalves** (photo), sealing the drug inside the nanoparticle.”

When the drug-bearing nanoparticles are injected into the infected animal, in this case a mouse, the drug stays in the nanoparticles until they reach their target: white blood cells called macrophages. Macrophages ingest nanoparticles into compartments that have an acidic environment. The nanovalves, which are designed to open in response to the more acidic surroundings, then release the drug.

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meaning that it is considered to pose a high risk to national security and public health.

“*F. tularensis* survives and multiplies within macrophages, especially those in the liver, spleen and lung,” said Marcus Horwitz, a distinguished professor of medicine and microbiology, immunology and molecular genetics and the study’s other senior author. “Macrophages readily devour mesoporous silica nanoparticles, making these particles ideal for treating these types of infections.”

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The nanoparticle delivery system has the potential to maximize antibiotic effectiveness and reduce side effects in other infectious diseases including tuberculosis, Q fever, and Legionnaires’ disease.

UCLA notes that confocal microscopy was provided by the Advanced Light Microscopy Technology Center of the California NanoSystems Institute at UCLA.

This research was supported by the Defense Threat Reduction



Agency of the Department of Defense

— Read more in Zilu Li et al., “Mesoporous Silica Nanoparticles with pH-Sensitive Nanovalves for Delivery of Moxifloxacin Provide Improved Treatment of Lethal Pneumonic Tularemia,” *ACS Nano*, Article ASAP (5 October 2015)

Large study reports results comparing two CPR methods used by EMS providers following sudden cardiac arrest

Source: <http://www.nih.gov/news-events/news-releases/large-study-reports-results-comparing-two-cpr-methods-used-ems-providers-following-sudden-cardiac-arrest>

Nov 09 – In a study published online today in the *New England Journal of Medicine*, researchers found that cardiopulmonary resuscitation (CPR) administered by emergency medical services (EMS) providers following sudden cardiac arrest that combines **chest compressions with interruptions for ventilation resulted in longer survival times and shorter hospital stays** than CPR that uses continuous chest compressions. Although compressions with pauses for ventilation lead to more hospital-free days within 30 days of the cardiac arrest, both methods achieved similar overall survival to hospital discharge, the study noted.

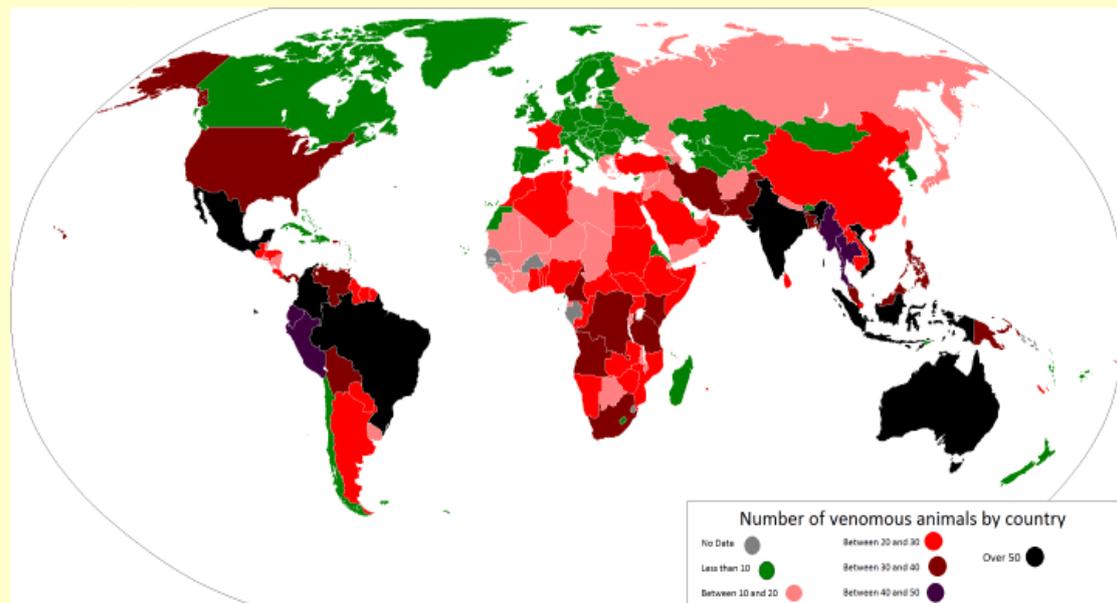
The compressions with interruptions consisted of 30 compressions then pauses for two ventilations. The continuous chest compressions consisted of 100 compressions per minute with simultaneous ventilations at 10 per minute. In both groups, emergency medical services (EMS) providers gave ventilations using a bag and mask.

The study, funded in part by the National Heart, Lung, and Blood Institute (NHLBI), is the largest of its kind to date to evaluate CPR practices among firefighters and paramedics and suggests the importance of ventilation in CPR by EMS providers, the investigators say. The study was presented at the American Heart Association 2015 Scientific Sessions in Orlando.

► Read more at source’s URL.

Countries with the Most Venomous Animals

Source: <http://brilliantmaps.com/venomous-animals/>



Which country has the most venomous animals? Surprisingly, it's not Australia but Mexico with 80, followed by Brazil with 79 and then Australia with just 66 (they just happen to be more potent). So how is venomous defined here?

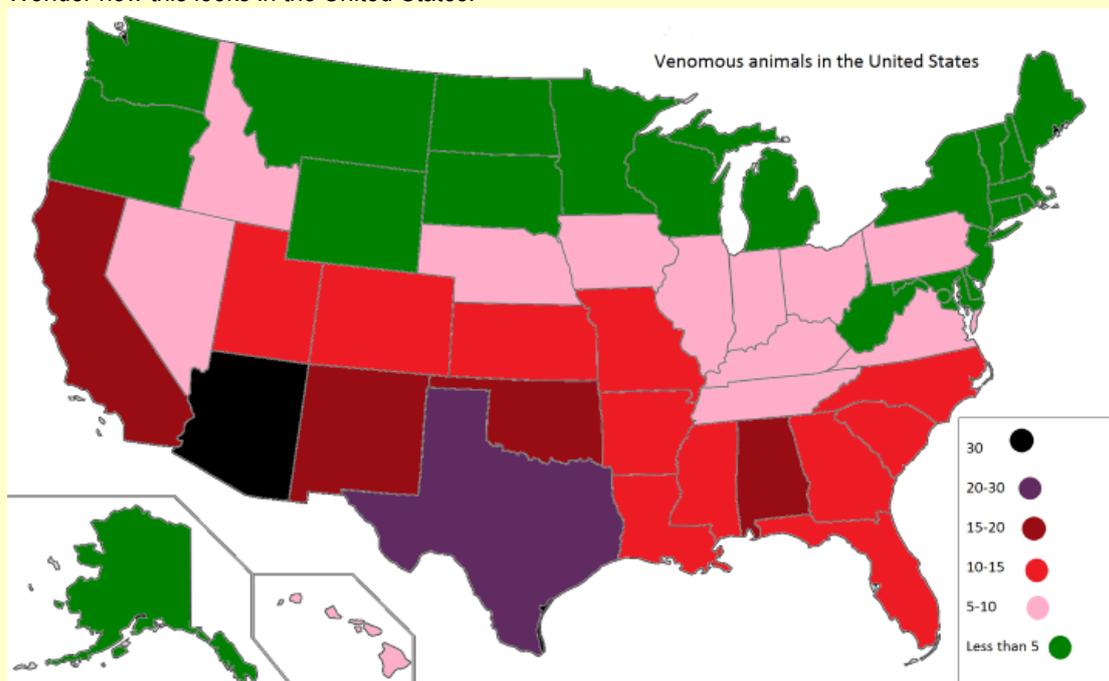
Reddit user lanson15 used the [Living Hazards Database](#) from the Armed Forces Pest Management Board, which "... is a comprehensive compilation of more than 500 species worldwide, which are reported to cause serious injury or death of humans."

In addition to the top 3 countries above, Colombia, India, Indonesia and Vietnam all have over 50 different species apiece. Europe, Central Asia and Canada are at the other extreme, with fewer than 10 species per country. And if you're wondering about France, it's because it includes French Guiana, which is considered an overseas department of France.

Generally speaking warmer places have more venomous species than colder places, although there are some interesting exceptions to this rule such as the Caribbean, Western Sahara, Madagascar, Bhutan and Lesotho, to name a few.

So if you make your travel plans based around how likely you are to get bitten by a snake or spider, you now have a map of which countries to visit and which to avoid.

Wonder how this looks in the United States:



Similar to the global trend, warmer Southern States have more venomous species than North States. Arizona is the clear winner (or loser) with over 30 species.

Understanding Surprise - Zika Virus

Source: <http://www.isid.org>

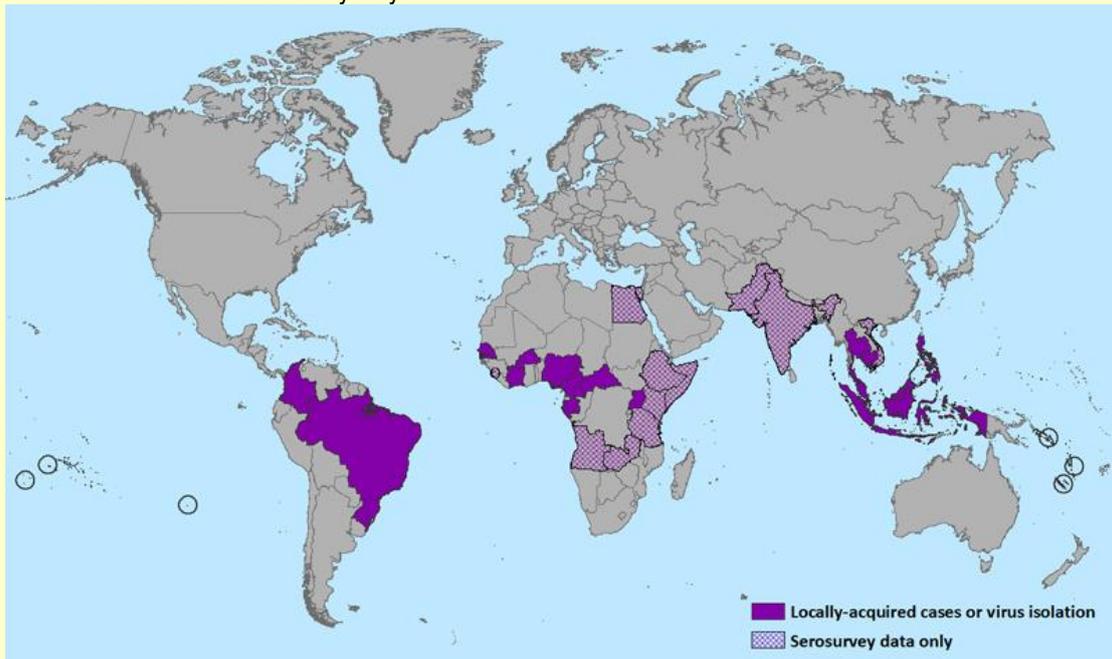
The only surprise is that we are continually surprised when a new virus pops up unexpectedly in a locality where it has never occurred before.

The arrival of Zika virus in Brazil is a current example and the ongoing story has been posted regularly by ProMED-mail. In February of this year, the Brazil Secretariat of Health Surveillance began monitoring cases of febrile disease with rash in the northeast region of the country. In April, Zika virus infections were confirmed. This was surprising because the virus had never before been detected in the Americas – until now it had only been identified in Africa, Asia, and, most recently, the Pacific islands and Cape Verde.



The Zika virus, like those of chikungunya and dengue, is spread by the *Aedes aegypti* mosquito. How did the virus get to Brazil? One hypothesis is that a viremic individual who came to the FIFA World Cup matches landed in a place, perhaps Bahia, where the mosquito vectors were abundant, sparking the outbreak. The virus subsequently spread to states across the country. Very recently it arrived in Colombia and Suriname. Given their proximity and the monthly flow of people across these countries' borders, it seems very likely that the means of introduction was infected travelers.

With no ecological or epidemiological barriers to halt it, it is likely that Zika virus will continue to spread in the Americas to those countries where the vector mosquito is present – those localities that regularly have dengue and chikungunya outbreaks. ProMED-mail will continue to document its progress as it occurs, as well as that of other viruses that appear or reappear around the world, keeping those of you involved in patient care and the control and prevention of diseases and the interested public well-informed of situations in a timely way.



Our understanding of emerging infectious diseases and their drivers - our knowledge of how to prevent diseases and how to treat them when they strike - evolves constantly. Keeping abreast of these changes is a daunting task. ProMED makes it easier. ProMED is here to keep you informed of outbreaks when and where they happen. ProMED puts the news in context. Its analysis helps you understand what it means for you and your work, you and your world. ProMED supports a global network so that you get the news you need.

Zika virus

Source: <http://www.cdc.gov/zika/>

Zika virus is spread to people through mosquito bites. The most common symptoms of Zika virus disease (Zika) are fever, rash, joint pain, and red eye. The illness is usually mild with symptoms lasting from several days to a week. Severe disease requiring hospitalization is uncommon.



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Outbreaks of Zika have occurred in Africa, Southeast Asia, and the Pacific Islands. Because the *Aedes* species mosquitoes that spread Zika virus are found throughout the world, it is likely that outbreaks will spread to new countries. Zika virus is not currently found in the United States. However, cases of Zika have been reported in returning travelers.

There is no vaccine to prevent or medicine to treat Zika. Travelers can protect themselves from this disease by taking steps to prevent mosquito bites. When traveling to countries where Zika virus or other viruses spread by mosquitoes have been reported, use insect repellent, wear long sleeves and pants, and stay in places with air conditioning or that use window and door screens.

Symptoms

- About 1 in 5 people infected with Zika virus become ill (i.e., develop Zika).
- The most common symptoms of Zika are fever, rash, joint pain, or red eyes. Other symptoms include muscle pain, headache, pain behind the eyes, and vomiting.
- The illness is usually mild with symptoms lasting for several days to a week.
- Severe disease requiring hospitalization is uncommon.
- Deaths due to Zika have not been reported.

Diagnosis

- The symptoms of Zika are similar to those of dengue and chikungunya, which are diseases caused by other viruses spread by the same type of mosquitoes.
- See your healthcare provider if you develop the symptoms described above.
- If you have recently traveled, tell your healthcare provider.
- Your healthcare provider may order blood tests to look for Zika or other similar viruses like dengue or chikungunya viruses.

Treatment

- There is no medicine to treat Zika.
- Treat the symptoms:
 - Get plenty of rest
 - Drink fluids to prevent dehydration
 - Take medicines, such as acetaminophen or paracetamol, to relieve fever and pain
 - Aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) should be avoided until dengue can be ruled out to reduce the risk of hemorrhage

Transmission

Through mosquito bites

Zika virus is transmitted to people primarily through the bite of an infected *Aedes* species mosquito. These are the same mosquitoes that spread dengue and chikungunya viruses.

- These mosquitoes typically lay eggs in and near standing water in things like buckets, bowls, animal dishes, flower pots and vases. They are aggressive daytime biters, prefer to bite people, and live indoors and outdoors near people.
- Mosquitoes become infected when they feed on a person already infected with the virus. Infected mosquitoes can then spread the virus to other people through bites.

Rarely, from mother to child

- A mother already infected with Zika virus near the time of delivery can pass on the virus to her newborn around the time of birth, but this is rare.
- To date, there are no reports of infants getting Zika virus through breastfeeding. Because of the benefits of breastfeeding, mothers are encouraged to breastfeed even in areas where Zika virus is found.



Possibly through infected blood or sexual contact

- In theory, Zika virus could be spread through blood transfusion. To date, there are no known reports of this happening.
- There has been one report of possible spread of the virus through sexual contact.

The Ebola mobile suitcase laboratory successfully tested in Guinea

Source: <http://www.medicalnewstoday.com/releases/302243.php?tw>



Nov 06 – An international team of researchers, including Ahmed Abd El Wahed, scientist at the University of Göttingen and the German Primate Center, has tested **a new method for rapid diagnosis of Ebola in a field trial in Guinea.** The test procedure was carried out using a portable suitcase laboratory. **The mobile suitcase lab is operated with solar power and enables simple on-site diagnostics in remote areas without the need of an equipped laboratory. The new detection method, a recombinase polymerase amplification technique, shortly RPA, is based on the rapid identification of viral RNA in oral swabs of infected persons at 42 degrees.** The comparison with two other currently available diagnostic methods revealed that the RPA is a very sensitive and rapid technique. An Ebola infection case was detected after 30 minutes. The results of the field study have been published in the current issue of the journal *Eurosurveillance*.

In the field study, which took place in Guinea from March to May 2015, oral swabs samples from persons suspected of dying of Ebola virus were analyzed. The scientists compared the new RPA with two variants of a currently available detection method, the so-called real-time polymerase chain reaction (PCR). "In the analysis we were able to determine two things", says Ahmed Abd El Wahed, currently in the Department of Microbiology and Animal Hygiene at the University of Göttingen and a guest scientist at the German Primate Center. "First, RPA works very well with oral swab samples, which greatly simplifies sampling in the future, because it is faster and less complicated than sampling blood. Second, we have demonstrated that RPA is as sensitive and specific as the gold standard, but technically much simpler than the real-time PCR methods."

Nine hundred twenty eight oral swab samples were tested with



RPA, one hundred twenty samples were positive and eight hundred eight negative. The reference real-time PCR method gave exactly the same results. "That is a 100 per cent accuracy", says Abd El Wahed. "In addition, we observed during the test that RPA even works better than a currently commonly used WHO approved real-time PCR for the detection of Ebola."

Both the PCR and RPA-tests are based on the identification of viral RNA in the serum or oral swabs of infected persons. In contrast to the real-time PCR, the RPA reagent can be shipped, stored and used at ambient temperature of Africa (up to 38 degrees), which makes them cold chain independent. After 30 minutes, the detection of Ebola with RPA is possible. In contrast, the real-time PCR usually takes several hours. This complicates the use of the method in remote areas. "In order to better control an Ebola epidemic, we must be able to prove infections on-site as early as possible", says Abd El Wahed.

In a previous project, Abd El Wahed, Manfred Weidmann and Frank Hufert of the former Department of Virology of the University Medical Center Göttingen (UMG) developed the laboratory suitcase. It now also contains all the necessary reagents and equipment needed for the Ebola virus detection by RPA and works

up to 16 hours with solar power. A mobile glove box provides additional protection against infection with contaminated sample material.

"The mobile diagnostic kit facilitates detection of Ebola and other infectious diseases directly in the crisis areas", says Ahmed Abd El Wahed. "With the field study, we could now also demonstrate the effectiveness of the new tool. Speed, accuracy and ease of use are three important criteria that we were able to achieve with the new method. Thus, the procedure could contribute decisively to the management of future Ebola crises."

In future, the diagnostic kit is also to be used for the detection of other viral infections. For example, Dengue virus, Chikungunya virus and Rift Valley fever virus.

The project was among six projects funded by the British Wellcome Trust program "Research for Health in Humanitarian Crisis (R2HC)". The study was led by the Pasteur Institute Dakar in Senegal and carried out in collaboration with the German Primate Center, the Robert Koch Institute in Berlin, the University of Stirling in Scotland, TwistDX, UK, the Laboratory for Hemorrhagic fever of Guinea at Donka hospital and the National Public Health Institute in Conakry, Guinea.

Cholera – How the Disease Could Spread from Syria

Source: <https://www.foreignaffairs.com/articles/syria/2015-11-10/next-cholera-epidemic>

A cholera outbreak that began in Iraq in mid-September has spread into war-torn Syria. From there, a massive flow of desperate refugees could carry the disease deep into the Middle East and even into southern Europe.

Humanitarian aid physicians working in Syria

report that three cases have been confirmed in two cities controlled by the self-proclaimed Islamic State (also known as ISIS): Deir ez-Zor, in eastern Syria; and Aleppo, in the northwestern part of the country. Undoubtedly, these cases are just the tip of the iceberg.

Under the best conditions, clinicians



usually diagnose only 30 percent of the cholera cases that occur during epidemics; in Syria, where hospitals and clinics have been destroyed by air strikes, they're likely diagnosing far fewer.

This outbreak was predictable. Cholera is caused by a bacterial pathogen that passes between people via human waste and is easily spread through contaminated food and water. If introduced into crowded refugee camps with rudimentary sanitation, the pathogen can rapidly explode. Millions of people are internally displaced in Syria, and supplies to disinfect drinking water have been cut off outside government-controlled areas. Eight months ago, the World Health Organization (WHO) noted the country's vulnerability to cholera. **And then two months ago, the pathogen struck in neighboring Iraq, where 15 of 18 provinces are now infected.** With a porous border and a mass exodus of Syrians, Iraqis, and others under way, cholera's arrival in Syria was just a matter of time.

Predictable and preventable cholera epidemics have reached historic proportions in recent years. In October 2010, ten months after a magnitude seven earthquake shattered the country, cholera arrived in Haiti, most likely for the first time in over 100 years. The U.S. Army Corps of Engineers had predicted as far back as 1999 that the country was ripe for an outbreak of waterborne diseases such as cholera, a warning echoed by aid nongovernmental organizations after the earthquake. The UN nevertheless ferried soldiers directly from cholera-struck Kathmandu, Nepal, into the country that October without testing them for cholera infection. **Cholera erupted in Haiti days later; within a year, more than 450,000 Haitians had died. A recently launched campaign to rid the island of cholera will take ten years and cost over \$2.2 billion.**

The disease has now found a home in the Middle East, where crowded refugee camps and make-shift settlements in water-deprived towns and cities provide a perfect breeding ground. **In Syria, over 13.5 million people are in need of humanitarian assistance, including clean water** and safe shelter, which can protect them from scourges such as

cholera. Nearly 2 million have sought refuge in Turkey, where the vast majority must make do with tents or squat in abandoned buildings and semi-demolished houses, with no reliable access to safe water or sanitation. In Lebanon, where there are no official camps for refugees, over a million Syrians reside in informal settlements and shantytowns. Already diminishing water supplies—Lebanon is in the midst of a years-long drought—are being stretched beyond the limit. At one settlement in Beirut, a refugee described the dwindling, contaminated supply as "hell water." Under such conditions, cholera thrives.

Like cholera in Haiti, the unprecedented Ebola virus epidemic in West Africa was similarly predictable and preventable. Scientists had uncovered evidence of the Ebola virus circulating among people in Liberia as early as 1982, but no one followed up on the finding. The WHO was slow to respond even after the virus started killing people in late 2013. It didn't sound the alarm until nine months later; by then, the virus had already started to expand exponentially and had spread into three capital cities with a combined population of nearly three million. In the end, the Ebola virus killed more people in West Africa than it had in all previous outbreaks combined.

Cholera may not reach epidemic proportions in the Middle East since the cholera bacterium thrives in warm surface waters; so it is possible that colder winter temperatures will send it into dormancy. Or that it will be carried into places where people enjoy sufficient access to clean drinking water and sanitation so that it can't take hold.

But it may very well erupt. And once it does, the caseload will grow exponentially, making containment difficult, expensive, and uncertain. That is why the most efficient and cost-effective way to control pathogens such as cholera is by stamping them out before many people are infected. But the WHO, the premier global health institution tasked with coordinating such efforts, is ill-fitted for the task.

Despite warnings that Syria was vulnerable to an epidemic of cholera, few precautions were taken. The WHO was not able to coordinate a mass vaccination campaign against cholera in Iraq until six weeks after the outbreak



there started, leaving neighboring Syria dangerously vulnerable. By the time the campaign started, the disease had already spilled out of the country into one of the most broken parts of the world. Nor did the agency take measures to ensure that cholera could be spotted if it did appear in Syria. The laboratories capable of diagnosing cholera in northern and eastern Syria have been destroyed by the Bashar al-Assad regime. But the agency failed to position diagnostic lab equipment that can quickly distinguish cholera from other diseases, such as PCR machines, in accessible cross-border areas. As a result, cholera cases are being detected through cruder tests, which in a cruel Catch-22 the WHO does not accept as proof. As a result, despite a steady stream of reports of cholera-like disease from humanitarian aid doctors, for now, according to the agency, Syria is officially “free from cholera.”

Assad regime (the same regime that has destroyed nearly 60 percent of the country’s public hospitals through air strikes). This limits the WHO’s activities to government-controlled territories.

The WHO is also financially dependent on donors. A [May 2014 report from Chatham House](#), a British think tank, points out that more than **75 percent of the WHO’s budget is controlled by outside donors who dictate how that money is spent**. An analysis of this donor-driven portion of the WHO’s 2004–05 budget revealed that [less than ten percent of these funds](#) were earmarked for noncommunicable diseases (heart disease and diabetes, for instance) that account for more than half of all deaths worldwide, over three-quarters of which occur in poor or middle-income countries.

These constraints slow down and politicize the WHO’s work. Its languorous pace may not



Muhammad Hamed / Reuters – A general view of Al Zaatari refugee camp is pictured in the Jordanian city of Mafraq, near the border with Syria, September 19, 2015.

The trouble with the WHO is that it is politically constrained; it must obtain governments’ permission to work in their territory. In the case of Syria, that means the WHO must coordinate its activities through the

hamper its efforts to curb diffuse, non-infectious conditions such as obesity and cancer, but it is a profound misfit for stealthy, fast-moving contagions. And thanks to intensifying environmental disruption, political conflict, and accelerated global mobility, we face more of these today than ever before. Between 1940 and 2004, over 300 pathogens have



either been newly introduced into human populations or have emerged in places where they've never been seen before. The Ebola virus and cholera—along with avian influenza, Middle East respiratory syndrome, severe acute respiratory syndrome, and novel forms of antibiotic-resistant bacteria—are among them.

Recent failures to contain the Ebola virus and cholera continue to exact heavy tolls; both Haiti

and Guinea in West Africa are still struggling to control these newly arrived pathogens. As cholera wends its way through the battered alleys and tattered refugee tents of northern Syria, a similarly unprecedented epidemic is poised to unfold in the Middle East. The difference is that averting it is still possible. But the time to act is now.

Public Health's Role beyond Biologicals

By Audrey Mazurek and Raphael M. Barishansky

Source:http://www.domesticpreparedness.com/Medical_Response/Public_Health/Public_Health%60s_Role_Beyond_Biologicals/

Nov 11 – Over the past decade, a significant focus of public health preparedness efforts has been on biological events. However, to meet the Centers for Disease Control and Prevention's (CDC) Public Health Preparedness (PHEP) Capabilities, much more emphasis is being put on public health's role in other emergency events, which include chemical, radiological, nuclear, and explosives (CRNE) hazards and threats. This does not include or address jurisdictions near nuclear power plants or chemical weapon facilities – as they already have unique and established roles. For other jurisdictions not within these areas, public health plays a key role during CRNE events. For jurisdictions where public health is the lead for Emergency Support Function 8 (Health and Medical Services), it would be unlikely that they would be the sole lead during these types of events but, in some instances, could be part of a joint command and, in all instances, would serve in a key support role to the lead agency(ies).

Public health would continue to perform the key functions that it already does well such as:

- Conducting epidemiological investigations
- Helping to identify the agent and indicators of a release
- Coordinating with laboratories
- Serving as liaisons with hospitals and other healthcare facilities
- Providing public information and partner situational awareness
- Protecting environmental health
- Ensuring food and water safety/quality
- Monitoring health conditions at shelters/mass care centers
- Providing mass prophylaxis/vaccine (if necessary)
- Conducting ongoing/long-term surveillance and health monitoring

Building on Current Capabilities

A 2007 study conducted by [William Bell and Cham Dallas](#), Center for Mass Destruction Defense at University of Georgia, looked at **the potential effects of a 20 kiloton and 550 kiloton nuclear detonation and radiological fallout consequences on four major urban cities in the United States**. The study shows how fragile the health and medical infrastructure could be in these catastrophic scenarios. Unfortunately, that level of devastation is not necessary to overwhelm an already taxed public health and healthcare system. Fortunately, studies such as these over the years (and, unfortunately, real events such as the Fukushima disaster, Boston Marathon bombing, fertilizer plant explosion in Texas, etc.) have led to significant steps to improve the capability and capacity of public health to help respond to and recover from CRNE events.

In addition, all of the steps being taken by public health agencies to increase their preparedness for other types of events, such as a biological incident or emerging infectious disease, have significant positive crosscutting effects for responding to CRNE events. These preparedness efforts include, but are certainly not limited to:



- Ensuring interoperability of communication devices
- Planning, training, and exercising regularly with jurisdictional partners
- Improving regional and healthcare coalition response
- Recruiting staff and volunteers with specialized medical backgrounds
- Improving risk communication and public information/warning systems
- Planning for mass casualties and fatalities
- Developing broader use mutual aid agreements
- Understanding and meeting the needs of vulnerable populations within the jurisdiction
- Articulating the health and medical impact and taking necessary mitigation steps based on hazard vulnerability/risk assessments

Public Health's Offerings

Local, state, regional, and tribal public health agencies can also provide these additional capabilities that are often forgotten in the areas of assessment, assurance, and policy development:

- Providing emergency medical supplies and personal protective equipment
- Monitoring responder safety and health
- Providing decontamination support
- Conducting environmental sampling
- Ensuring safe re-entry/use of a facility
- Managing volunteer and donation support
- Conducting public education and trainings
- Establishing and providing support to call centers
- Providing mental/behavioral health services
- Supporting or establishing field treatment sites, mobile medical units, etc.
- Managing family/community assistance centers
- Establishing victim registries

The importance of ensuring the public's health and supporting first responders during CRNE events is highlighted in the numerous guidance, tools, trainings, and plan examples now available. All states have a radiation control program that coordinate planning efforts with locals and federal partners and procure equipment and supplies. Planning for chemical, radiological, and nuclear events is embedded throughout the 2011 Public Health Preparedness Capabilities, further solidifying the importance of building operational capabilities to respond and recover in areas such as emergency operations planning, mass fatality management, mass care, non-pharmaceutical interventions, medical countermeasure dispensing, and public health laboratory testing.

Next Steps

It is important to remember that CRNE events are a public health and medical issue – in addition to being a national security threat, devastating to infrastructure, etc. – and will require a multidisciplinary approach to preparedness, response, and recovery efforts. Many state, regional, and local jurisdictions are [incorporating CRNE issues into their all-hazards planning](#), developing dedicated CRNE plans, and integrating these scenarios in workforce/volunteer trainings and exercises. More guidance, trainings, modeling tools, and toolkits are being developed by local jurisdictions (particularly those that have identified CRNE as a priority in their threat/hazard vulnerability assessments), public and private sector, nonprofit organizations, and academia. These come in many different forms and are readily available. However, future initiatives should include:

- *Chemical and explosives guidance* – Much of the guidance still focuses on radiological and nuclear events, so more of a shift is needed to incorporate chemicals and explosives as well.
- *Resource sharing* – More sharing of gray literature (e.g., plans, after action reports) is needed and should be more readily available for public health planners. Following are some examples of federal sites that provide a comprehensive list of resources, but more needs to be included regarding public health:



- The U.S. Department of Health and Human Services (HHS), Assistant Secretary for Preparedness and Response's Technical Resources, Assistance Center, and Information Exchange (TRACIE), which includes public health and healthcare collections focused on [radiological and nuclear](#), [chemical](#), and [explosives and mass shooting](#) topics
- The currently updated [HHS Radiation Emergency Medical Management](#) site
- The Center for Disease Control and Prevention's [Radiation](#) and [Chemical](#) Emergencies site
- *National-level discussions on best practices and lessons learned* – In 2013, the Institute of Medicine (now National Academy of Medicine) and the National Association of County and City Health Officials (NACCHO) conducted a workshop focused on response requirements faced by public health and healthcare systems in response to an improvised nuclear device (IND) detonation. A [report](#) was subsequently published that included the key presentations and messages from the presenters. More national dialogue like this is needed for CRNE events.
- *Useful and applicable trainings and tools* – Before the end of NACCHO's [Advanced Practice Centers](#) program, a few of the jurisdictions developed helpful tools and trainings specific to public health response. More tools and resources such as these are needed to help promote preparedness efforts.
- *Formal mutual aid agreements between local health departments for utilization of personnel, equipment, facilities, services, supplies, and/or other resources* – It is critical to remember that an event that threatens public health could quickly overwhelm the public health resources of a particular municipality, county, state, or region, even if that event does not constitute a declared emergency.

Clearly, public health entities have a significant role in emergency preparedness and response; a role that has come to light even more since the events of 9/11 and the 2001 anthrax attacks, as well as subsequent numerous natural disasters, food-borne outbreaks, and other public health emergencies, such as SARS and H1N1. Local and state health departments are more prepared for emergencies now than they have ever been. Since 2001, these preparedness capacities have improved consistently and significantly. In order to ensure forward movement and acknowledgment of successes, the implementation of the aforementioned areas is paramount.

Despite victories with regard to public health and its preparedness and response efforts to various emergencies, a strong commitment must still be made at the federal, state, and local levels to maintain and improve public health preparedness capabilities and to make this effort a national priority.

Audrey Mazurek is a deputy program manager with ICF International, specializing in public health and healthcare preparedness. Previously as a technical specialist for ICF, she served as a public health preparedness planner for the Prince George's County and Montgomery County (Maryland) Health Departments. Prior to this position, she was an analyst at the Homeland Security Studies and Analysis Institute (HSSAI), and program manager at the National Association of County and City Health Officials (NACCHO). She is also the managing director for TSG Strategies, LLC.

Raphael M. Barishansky, MPH, MS, CPM is a solutions-driven consultant working with EMS agencies, emergency management and public health organizations on complex issues including leadership development, strategic planning, policy implementation and regulatory compliance. Before establishing himself in this position he served as the director of the Connecticut Department of Public Health's Office of Emergency Medical Services (OEMS).

Antiviral compound provides full protection from Ebola virus in non-human primates

Source: <https://www.hdiac.org/node/2456?sthash.kavvztMI.mjjo>

Rhesus monkeys were completely protected from the deadly Ebola virus when treated three

days after infection with a compound that blocks the virus's



ability to replicate. These encouraging preclinical results suggest the compound, known as **GS-5734**, should be further developed as a potential treatment, according to research findings to be presented tomorrow at the IDWeek conference.

Travis Warren, Ph.D., a principal investigator at the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), said the work is a result of the continuing collaboration between USAMRIID and Gilead Sciences of Foster City, Calif. Scientists at the Centers for Disease Control and Prevention (CDC) also contributed by performing initial screening of the Gilead Sciences compound library to find molecules with promising antiviral activity.

The initial work identified the precursor to GS-5734, a small-molecule antiviral agent, which led to the effort by Gilead and USAMRIID to further refine, develop and evaluate the compound. Led by USAMRIID Science Director Sina Bavari, Ph.D., the research team used cell culture and animal models to assess the compound's efficacy against several

RNA replication process," said Warren. "If the virus can't make copies of itself, the body's immune system has time to take over and fight off the infection."

In cell culture studies, GS-5734 was active against a broad spectrum of viral pathogens. These included Lassa virus, Middle East Respiratory Syndrome (MERS) virus, Marburg virus, and multiple variants of Ebola virus, including the Makona strain causing the most recent outbreak in West Africa.

"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," Bavari commented. "In addition to 100 percent survival in treated animals, the profound suppression of viral replication greatly reduced the severe clinical signs of disease."

Taken together, the robust therapeutic efficacy observed in primates and the potential for broad-spectrum antiviral activity suggest that



pathogens, including Ebola virus.

In animal studies, treatment initiated on day 3 post-infection with Ebola virus resulted in 100 percent survival of the monkeys. 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, which is a novel nucleotide analog prodrug, works by blocking the viral

further development of GS-5734 for the treatment of Ebola virus and other viral infections is warranted, Bavari said.

According to Tomas Cihlar, Ph.D., of Gilead Sciences, the company is currently conducting phase I clinical studies of the compound in healthy human volunteers to establish the safety and pharmacokinetic profile.



“We are exploring alternative directions for developing this compound, including potential use of the animal efficacy rule,” Cihlar said, referring to a regulatory mechanism under which the U.S. Food and Drug Administration may consider efficacy findings from adequate and well-controlled animal studies of a drug in cases where it is not feasible or ethical to conduct human trials. Ebola virus causes severe hemorrhagic fever in humans and nonhuman primates with high mortality rates and continues to emerge in new geographic locations, including West Africa, the site of the largest outbreak to date. Over 28,000 confirmed, probable and suspected cases have been reported in Guinea, Liberia and Sierra Leone, with over 11,000 reported deaths, according to the World Health Organization. Although several clinical trials are currently underway, there are no licensed vaccines or therapies against Ebola virus.

Research on Ebola virus is conducted in Biosafety Level 4 (maximum containment) laboratories, where 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.

USAMRIID’s mission is to provide leading-edge medical capabilities to deter and defend against current and emerging biological threat agents. The Institute plays a key role as the lead military medical research laboratory for the Defense Threat Reduction Agency’s Joint Science and Technology Office for Chemical and Biological Defense. USAMRIID is a subordinate element of the U.S. Army Medical Research and Materiel Command.

As Drone Use Grows, Reps Eye Threat from Bioterrorism

Source: <http://securitydebrief.com/2015/11/12/as-drone-use-grows-reps-eye-threat-from-bioterrorism/#ixzz3reVp60Yb>

Nov 12 – **On November 3, the House Homeland Security Committee held a hearing on efforts to guard against bioterrorism in the United States.** Former Senator Lieberman, former DHS Secretary Tom Ridge, and Dr. Leonard Cole, Director of



the Terror Medicine and Security Program from Rutgers Medical School, addressed the prominent threat of bioterrorism (which my fellow Security Debrief contributor David Olive wrote about in a recent post).

In what should be a highly noted hearing on a strong proposal to increase our nation’s fight against terrorism, one representative noted what might be the most alarming progression

of technology in bioterrorism: the use of an unmanned aerial vehicle (UAV, or more commonly, “drone”) to deliver a biological weapon. Representative Duncan Hunter (R-CA) spoke about the ease with which a bio-weapon could be delivered via drone by way of the U.S.-Mexico border. Drones are already being used for a range of activities, such as delivering packages for Amazon (photo), monitoring poachers of endangered animals on African reservations, and even for herding sheep in Ireland. For all their utility, drones are also posing new security threats, such as the risk of unmanned aircraft flying over stadiums or intercepting commercial airplanes’ flight paths.

More recently, and as Representative Duncan cited, drones have been used to smuggle drugs over vulnerable borders. If federal law enforcement is having a hard time detecting drones flying over the border with drugs, what makes us think we would have the capability to detect a drone that would carry a bioterrorism agent? Well, we can’t. At least not right now.



Drugs, though not needing to be dispersed like a bioterrorism agent, are similar in terms of ease of transport. Last year, the Drug Enforcement Administration said that drug cartels used drones at least 150 times to transport illicit substances across the U.S.-Mexico border. As Sec. Ridge pointed out during the hearing, there are five theaters important for homeland security: land, sea, space, cyber, and air.

Air is a cardinal factor in bioterrorism because of how an agent travels. Finding the right weather, wind speed, and climate all have effects on how successful a pathogen can spread. For the most part, this, paired with the difficulty in acquiring a biologic agent, frustrates terrorist groups' bioterrorism aspirations. Drones directly bring the "air" to the bioterrorism sphere.

Bioterrorism is a low probability, high-impact occurrence. Indeed, what is arguably the only example of a successful biologic attack is the case of Aum Shinrikyo's release of sarin gas in the Tokyo subway in 1995. The attack killed 12 people and affected the health of 12,000 more. Today, the difficulty with detection methods and coupled with the advent of low-cost drones could make transporting liquid

agents or dispersing airborne pathogens fairly easy.

Smaller, micro drones that are currently being developed would be almost undetectable and could deliver pathogenic microorganisms. Larger drones would be able to spread larger liquids or aerosols. As Sec. Ridge stated, this becomes less of a preventative factor when terrorists are recruited, possibly bringing prior experience from the medical or chemical fields. With splintered terrorists groups like ISIS continuing their vicious recruitment of vulnerable young people and troubled adults, the likelihood of someone with access to a pathogenic strain or relevant experience also increases. Doesn't bode well for bioterrorism prevention.

DHS needs to look at this issue from two angles. First, we need an effective bio-detection program, and we don't have one. Second, we need drone detection and disruption programs. While this necessarily includes the participation of other federal agencies, it was a low-probability, high-impact event that served as the catalyst for the Department's creation. This issue is squarely in DHS' court—or skies, as it were. Let's hope DHS finds workable solutions and fast.

Novel statistical model maps lethal route of Ebola outbreak

Source: <http://www.homelandsecuritynewswire.com/dr20151112-novel-statistical-model-maps-lethal-route-of-ebola-outbreak>

Nov 12 – Using a novel statistical model, a research team led by Columbia University's Mailman School of Public Health mapped the spread of the 2014-15 Ebola outbreak in Sierra Leone, providing the most detailed picture to date on how and where the disease spread and identifying two critical opportunities to control the epidemic. **The result, published in the *Journal of the Royal Society Interface*, matches with details known about the early phase of the Ebola outbreak, suggesting the real-time value of the method to health authorities as they plan interventions to contain future outbreaks, and not just of Ebola.**

Columbia U reports that the researchers' analysis uses data from the Sierra Leone Ministry of Health and Sanitation to chart the

course of the Ebola outbreak, beginning with the arrival of the disease in the border district of Kailahun in late May 2014. By mid-June, Ebola spread west to nearby Kenema — a pathway consistent with a recent field investigation. At its peak, 67 percent of Ebola cases in Kenema were imported from Kailahun; by early July, the epidemic was firmly established in Kenema with most cases infected locally. From Kenema, the outbreak continued west, south, and north. Beginning in early July, a second path emerged in capital city, Freetown, spreading east to Port Loko by late July, then quickly east and south.

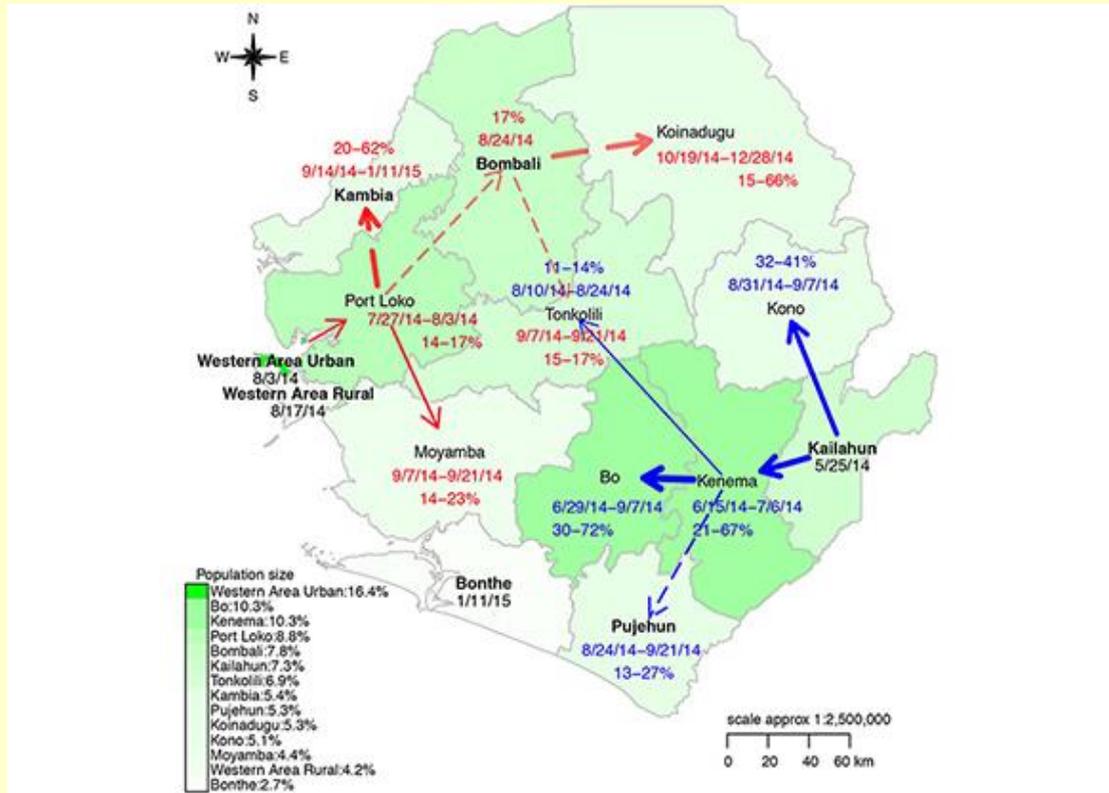
Because of their many connections to other districts, Kenema and Port Loko were critical junction points for the outbreak. At these points,



windows of opportunity may have existed for controlling the spread of Ebola within Sierra Leone, the study suggests. The researchers estimate that the first window, before Ebola reached Kenema, was approximately one month. The second window, before it reached Port Loko, was much shorter. The method described in the paper uses three

as how many doctors and beds are needed and where to put them.”

The traditional method to track disease spread is contract tracing, in which health workers interview patients and everyone they came into contact with. “Contact tracing is highly labor intensive,” says lead author Wan Yang, associate research scientist at the Mailman



principal ingredients: the home district of the Ebola-positive patient, the population of that district, and geographic distance between districts — all information that was available during the outbreak.

“While this analysis is too late to be used for application to and intervention in the Ebola epidemic, the method we used could be useful for future disease outbreaks, and not just for Ebola,” says Jeffrey Shaman, the study’s senior author and associate professor of Environmental Health Sciences at the Mailman School.

“To be able to infer the spatial-temporal course of an outbreak and the rate of its spread between population centers in real time,” Shaman continues, “may greatly aid public health planning, including the level and speed of deployment of intervention measures such

School. “Especially in resource-poor areas, an epidemic like Ebola can easily outrun any such effort to track it. The minimal information needed in our method makes it a particularly valuable tool to aid public health efforts during a novel disease outbreak in these areas.”

During the Ebola outbreak, there was a collapse of the healthcare system in Sierra Leone. Observational data were very limited and error-laden. “Having the ability to infer the course of the outbreak gives officials the ability to see what’s happening rather than flying completely blind,” Shaman says. “In a public health emergency, it’s critical that they have as much information as possible so they can make informed decisions.

“If you had perfect observation,” Shaman adds, “you wouldn’t need



these methods, but you're never going to get that."

Columbia U notes that previous work by Shaman and Yang has used computational methods to predict infectious disease spread. Beginning in the summer of 2014, they

generated weekly estimates of countrywide Ebola incidence in Sierra Leone, Guinea, and Liberia. They also developed a prize-winning method to forecast seasonal influenza. Forecasts are available online at Columbia Prediction of Infectious Diseases.

— Read more in Wan Yang et al., "Transmission network of the 2014–2015 Ebola epidemic in Sierra Leone," [Journal of the Royal Society Interface](#) (11 November 2015)

Paris Terror Attacks: How the 'White Plan' Medical Emergency Plan Was Implemented

Source: http://www.medscape.com/viewarticle/854652?nid=91826_1362&src=wnl_edit_medn_emed&uac=82598DG&spon=45&impID=896167&faf=1

Nov 18 – On November 14, the French Minister for Health, Marisol Touraine, and the President of the French Republic, François Hollande, paid tribute to the Paris medical teams who helped treat those injured in the Paris attacks of Friday, November 13. It was thanks to the exemplary work done by these



teams that there have only been three deaths from among the 100 injured who were classified as "Absolute Emergencies."

Two coordinated systems for dealing with the large number of injured were set up: disaster medical facilities on the sites of the attacks, and mobilization of the hospitals in the form of a White Plan. This type of response comes under the umbrella of the ORSAN

plan (an acronym for a French phrase meaning, "organization of the response by the healthcare system to an exceptional medical situation"), which dates from 2014 and that encompasses the White Plans.

Medscape France spoke with a Paris SAMU emergency ambulance doctor and a Paris accident and emergency (A&E) physician, who explained how the healthcare personnel were mobilized.

At the Paris SAMU Emergency Ambulance Service

As soon as news arrived of the first injuries, a coordination unit was set up at the Paris SAMU (Service d'Aide Médicale Urgente, or Urgent Medical Aid Service), in Necker Hospital, in Paris. The SAMU building was secured by the police, because the risk of an attack on the coordination unit had been identified.

A medical response director and deputies were appointed to coordinate the operations on site jointly with the office of the prefect, the regional health agency, the police, the fire

brigade, and the civil protection service. The SAMU and SMUR (Service Mobile d'Urgence et Réanimation, or Mobile Emergency and Resuscitation Service) emergency ambulance services from the suburbs were also called in, specifically, SAMU 93, because of the attacks at the Stade de France.

At the sites of the attacks, situations were managed differently, according to the location: for the attacks on bars and restaurants, following initial triage organized by the SAMU, the injured were taken directly to the Paris



hospitals in which the hospital White Plan had been activated.

An advanced medical post was set up on



Boulevard Voltaire, close to the Bataclan concert hall, which had been the target of an attack, using a system comparable to that employed in disaster medical care. The injured were classified as "Absolute Emergency," "Serious Emergency," and "Emergency." The advanced medical post had completed its triage work 2 hours after the end of the attack on the Bataclan concert hall.

Three Degrees of Emergency: U1, U2, U3

Most of the injured categorized as "Absolute Emergency U1" were sent directly to the hospital recovery rooms so that they were as close as possible to intensive care units and operating theaters. This generally concerned patients with gunshot wounds, often multiple, who required thoracic, digestive, and orthopedic surgery. The SAMU and fire brigade physicians took charge of these patients.

The injured categorized as "Relative Emergency U2" were transferred to the A&E wards in Paris or the near suburbs by the fire brigade or by civil protection and Red Cross services.

The less severely injured ("Slight Injuries U3") were treated on site and were instructed to consult an A&E department within the next few days if their condition so required.

Persons suffering psychological stress were invited to attend a consultation in a psychological support unit.

Dress Rehearsal by the Paris SAMU That Morning

On the morning of the attack, the emergency response teams at the Paris SAMU had conducted a rehearsal of the White Plan, simulating multisite terrorist attacks. This extraordinary timing suggests a maximum alert level, rather than an astonishing coincidence.

At the Hospitals

As soon as the scale of the attacks became known, the departmental, regional, and national White Plans were deployed. Within each hospital, the duty administrator was first informed, followed by the director, so that a crisis unit could be set up. Their role was to call their duty staff, to make beds available, and to evaluate the treatment capacity for the injured according to the type of injury and operating theater availability. Owing to the fact that many of the injuries were from gunshots, thoracic surgery units outside the Paris region were mobilized (even if in the end they did not take any patients).

The hospital directors and ward managers were asked to "empty" the A&E units of the patients who were present at the time of the



attacks. These patients were sent to hospital beds that had been made available; generally, these were beds that had been reserved for scheduled surgery or for inpatients. As many inpatient emergency beds as possible were freed up.

The personnel who were not on call were required to be available to be contacted so that they could



be called to their place of work if necessary. This avoided an influx of healthcare staff to a

small number of hospitals.

How infectious diseases become epidemics

Source: <http://www.homelandsecuritynewswire.com/dr20151119-how-infectious-diseases-become-epidemics>

Nov 19 – Two Kansas State University researchers are exploring how diseases spread across long distances in an effort to learn how better to control the next human, animal or plant epidemic.

Caterina Scoglio, professor of electrical and computer engineering, and Faryad Darabi Sahneh, research assistant professor of electrical and computer engineering, are part of a larger group including colleagues from Oregon State University, North Carolina State University, the U.S. Department of Agriculture, and two universities in England. KSU reports that the group was awarded a \$2.5 million grant through the Ecology and Evolution of Infectious Diseases, or EEID, program jointly funded by the National Science Foundation, the U.S. Department of Agriculture's National Institute of Food and Agriculture, the National Institutes of Health and the U.K.'s Biotechnology and

Biological Sciences Research Council. The program supports projects that study how large-scale environmental events such as habitat destruction or pollution alter risks of viral, parasitic and bacterial disease emergence.

The KSU team will study data for vector-borne infectious diseases to model how these types of epidemics spread. Vector-borne diseases are spread by infectious microbes transmitted by ticks, mosquitos, or other insects or parasites. KSU researchers are particularly interested in the role of long-distance dispersal in the spread of diseases. They will evaluate the efficacy of different control methods, such as limiting animal movements or reducing the vector population. As models are compared and refined, they will help researchers develop rules of thumb for controlling outbreaks.

Scoglio said the project combines scientists with expertise in plant pathology, livestock diseases and vector-borne diseases to identify

similarities in how the different types of diseases spread.

"We come from different disease modeling frameworks, but the point is to see if these frameworks can be translated — if there are unifying aspects in any spreading process," Scoglio said.

"The role of long-range dispersal is important to examine because sometimes the diseases don't spread as a wave in a population, but they jump to far locations because an infected animal is transferred to a distant farm or an exposed person travels from one city to another, maybe on a different continent," she said.

Sahneh is excited to work with the group of investigators.

"We at K-State want to collaborate with this team to seek the universal knowledge in transmission of infectious diseases despite the apparently disparate models describing distinct domains," Sahneh said.

Xenex Germ-Zapping Robot™ Destroys Ebola Virus & Anthrax Spores in New Study Performed at Texas Biomed Biosafety Level 4 Lab

Source: <http://www.businesswire.com/news/home/20151117006753/en/Xenex-Germ-Zapping-Robot%E2%84%A2-Destroys-Ebola-Virus-Anthrax>

Nov 17 – The Ebola virus epidemic in 2014 demonstrated that deadly pathogens can and do cross borders, creating challenges of preparedness for hospitals and healthcare workers. It is critical that healthcare facilities have tools at their disposal that can help combat high risk pathogens. And while the risk of a patient contracting Ebola at a U.S. hospital is low, hundreds of people die every day from hospital acquired infections (HAIs) from

microorganisms that are rampant in healthcare facilities, such as *Clostridium difficile* and methicillin-resistant *Staphylococcus aureus* (MRSA). [Xenex Germ-Zapping Robots™](#) have been credited for helping healthcare facilities in the U.S. decrease their MRSA, *C.diff* and Surgical Site infection rates by more than 50, 70 and 100 percent respectively, according to peer-reviewed [published studies](#).



“Xenex is an evidence-based company and this testing further validates that the Xenex Germ-Zapping Robot™ can be a critically important ally in the battle to stop the spread of high risk pathogens, especially as antibiotic resistance continues to mount”



To validate how the Xenex Germ-Zapping Robot™ can be used for the decontamination of facilities, vehicles and equipment affected by a natural or intentional outbreak, Xenex Disinfection Services recently tested its Full-Spectrum™ pulsed xenon ultraviolet (UV) disinfection device against **live** (not surrogate) Ebola virus and *Bacillus anthracis* (anthrax) spores in collaboration with the biosafety level 4 (BSL-4) containment laboratory at Texas Biomedical Research Institute.

The study validates the efficacy of pulsed xenon UV light disinfection technology on two of the world's deadliest pathogens. In Texas Biomed's BSL-4 lab, the Xenex robot easily destroyed both Ebola and anthrax spores on surfaces, achieving a greater than four-log reduction of Ebola in one minute and a greater than three-log reduction in anthrax spores in 15 minutes. In none of the time/distance combinations was either anthrax or Ebola detected after the Xenex device was utilized.

“Xenex is an evidence-based company and this testing further validates that the Xenex Germ-Zapping Robot™ can be a critically important ally in the battle to stop the spread of high risk pathogens, especially as antibiotic resistance continues to mount,” said Dr. Mark Stibich,

Chief Scientific Officer, Xenex. “Thousands of people around the world die every day from an infection they acquired during their hospital stay, and we've proven repeatedly that these infection rates can be significantly reduced. Much more can and should be done to protect



patients and healthcare workers from the threat of emerging infectious diseases and antibiotic-resistant bacteria, and our pulsed xenon UV technology has proven to be an effective tool in the infection prevention battle because we destroy pathogens on surfaces before they pose a threat to humans.”

Many healthcare facilities, including three Department of Defense facilities, have incorporated Xenex robots into their disease containment plans, disaster preparedness, and risk mitigation strategies. Designed for speed, effectiveness and ease of use, hospital cleaning staff operate the robot without disrupting hospital operations. The robot pulses intense UV light covering the entire UV spectrum, destroying viruses, bacteria and bacterial spores in a five-minute disinfection cycle. Without contact or chemicals, the robot destroys harmful microorganisms safely and effectively. The robot can disinfect 30-62 hospital rooms per day (according to Xenex customers), including: patient rooms, operating rooms, equipment rooms, emergency rooms, intensive care units and public areas. More than 300 hospitals, Veterans Affairs, Department of Defense, skilled nursing facilities, ambulatory surgery centers and long-term



acute care facilities in the U.S., Europe,

Canada and Africa use Xenex robots.

About Texas Biomed's BSL-4 Lab

Designed for maximum containment, BSL-4 labs offer a safe environment for scientists to study deadly



pathogens for which there are no known treatments or vaccines. Texas Biomed is home to one of only six BSL-4 labs in North America and has both the expertise and resources to test against pathogens for which there is no known cure or vaccine.

How the Nation Is Failing in Public Health Preparedness

By Patrick Rose

Source: http://www.domesticpreparedness.com/Commentary/Viewpoint/How_the_Nation_Is_Failing_in_Public_Health_Preparedness/

As public health funding and staffing continue to decline, communities are left more vulnerable to the next catastrophic public health emergency. The United States is failing in its public health preparedness efforts. The nation's resilience depends on the government and public health making critical changes to reverse this downward trend.

Nov 17 – When, not whether, the next biological incident of national significance occurs, it will rival other historical mass casualty events. Since the United States is not heeding its own lessons learned – for example, the 2009 H1N1 pandemic or even the domestic Ebola incidents – it is time to motivate government leaders to rethink the nation's posture on public health preparedness, using the 2014 domestic Ebola response as a point of measure. A catastrophic public health emergency is defined as an emerging or a re-

emerging infectious disease outbreak with a high fatality rate, an ability to quickly spread, and few or no available pharmaceutical interventions. In the event of such emergencies, public health response will falter and struggle to contain the outbreak in a timely manner.

Poor Investments with Significant Consequences

Instead of the positive outcomes expected from lessons learned



and best practices inherited from the international Ebola epidemic, a future, deadly infectious disease epidemic (or pandemic) would result in a high fatality rate, a coinciding high morbidity rate, a crippled healthcare system, and an unstable economy. The reason for this argument is based on three assumptions:

- The return on investment from the hundreds of millions of dollars spent, and still being spent, on the Ebola epidemic and on improving healthcare response capabilities overall have been shortsighted and marginally effective.
- The public health security structure, which includes public health, emergency management, behavioral health, and social services, remains vulnerable and unable to meet community needs in order to save the maximum number of lives, which is exacerbated by receding funding levels.
- Sensible investments are replaced by financially consuming and ineffective applications. A window of opportunity is closing to instill, for example, a culture of clinical astuteness in current and future healthcare professionals to be able to quickly identify an unusual, but potentially deadly, case of disease presentation that might be indicative of a deadly disease outbreak.

The point here is not to criticize public health officials who suffer from many chronic handicaps while heroically trying to save lives; rather, the lack of focus and poor understanding of government officials about the importance of appropriate public health investments – that is, providing stable and sustainable funds – is draining essential resources. Fatigue is also setting in because public health agencies have been waiting anxiously for another biological attack while public resonance with this issue is waning.

At the same time, political rhetoric is crowding out substantive risk communications to the public on the importance of public health preparedness. It is not helping that, in instances where a robust public health response is needed to provide sensible mitigation strategies, the public endures an awkward approach intended to provide short-term political gains through costly activities, which ultimately result in irrational expectations

of the public. There are three key examples that underscore weaknesses within preparedness resulting directly from this flawed approach.

Example 1 – Ineffective Strategies & Other Lessons Not Learned

Implementing ineffective and costly response and recovery methods drains resources and limits effective mitigation strategies. The government's responses to public health emergencies (i.e., those that garner attention from the public) generally involve an automatic, nonstrategic reaction in terms of providing solutions – for example, conducting surveillance on passengers arriving from West Africa. What many learned over the past year, but experts had known for years, is that costly surveillance methods at ports of entry are ineffective and provide no more than a placebo effect to the public.

More than 30,000 travelers entering the United States at five international ports of entry screened for Ebola since October 2014 did not result in any detection of Ebola and missed a case of Lassa fever – another virus that similarly results in viral hemorrhagic fever. This lesson could have been learned previously from attempts to screen travelers during the 2003 Severe Acute Respiratory Syndrome (SARS) virus epidemic or the 2009 H1N1 Influenza Pandemic.

Instead of calling for more funding for such inefficient programs, better individual monitoring programs should be implemented using state-of-the-art technologies and requiring automatic opt-in procedures for all travelers returning from areas of ongoing epidemics. The key is to provide realistic surveillance practices for monitoring individuals, while limiting the burden on strapped health departments. This approach can be accomplished through mobile applications, similar to other crowdsourcing technologies already in use for many different aspects of disaster response and recovery operations.

Example 2 – Unrealistic Expectations & Ineffective Communication



Succumbing to the hype and fear on the implementation of nonpharmaceutical interventions – for example, quarantine and isolation strategies, infection control measures, decontamination, and waste management – is resulting in unrealistic expectations when responding to a biological incident. Media reports and imperfect forecasting of the Ebola epidemic raised anxiety levels without a solid foundation to back them. That hype led to increased pressure on public health officials and government representatives to react excessively. Case in point: the Ebola response and recovery efforts in Dallas, Texas, resulted in hundreds of thousands of dollars spent disproportionately on a few individuals.

Nobody should expect that level of investment, especially in the case of a true catastrophic incident. Similarly unsustainable and unrealistic are the solutions for recovery – for example, decontamination and waste management of the apartment where the Dallas Ebola patient lived. In the event of a real public health emergency of national significance, each apartment that houses a person who contracts a deadly disease would not be equipped with 140 drums for waste disposal. The current approach to a biological incident reflects a poor job of the government to deescalate hyped coverage by the media and public health's inability to reduce the public's anxiety about diseases and infection control.

To remedy these issues, notes should be taken from the playbook on radiation emergency preparedness to develop clear and simple messages – on a complex issue – that resonate with the public. Simply providing basic hygiene recommendations is not good enough. Public health officials and government representatives need to:

- Manage expectations
- Better explain the characteristics of a biological incident
- Not just quote exaggerated case fatality rates, which can raise fears
- Describe what an emergency response to a biological incident would look like
- Reveal the challenges that exist
- Explain how the public can help mitigate these challenges
- Emphasize how a timely response would save many lives

A radiation emergency is a low-probability, high-consequence event for which agencies drill at the highest level of preparedness. An emerging, naturally occurring, catastrophic biological incident has a much higher probability of occurring – with potential high-consequence outcomes – yet agencies lack fundamental communication strategies to inform the public about their concerns related to the biological incident.

Example 3 – Funding Gaps & Ignored Burdens

Poor return on investment, or cost/benefit analysis, and underfunded/unfunded mandates with high expectations are a default setting for failed public health emergency response and recovery efforts. It can be difficult to measure success in public health, but not impossible. Examples that have taken a page from economic cost-benefit analysis – such as Marcozzi et al. (2015), “An Economic Analysis and Approach for Health Care Preparedness in a Substate Region” – find only little improvements, are not acceptable, and would be seen as a catastrophic failure for the investor under any other standard.

Compounding this effect are continued reductions in public health preparedness funding, whereas expectations remain high that the front line defenders are able to protect their communities. With few resources in its toolkit, limited staffing, and unfunded mandates, the public health system is bound to break under continued pressure. The increasing burden that communities bear for emerging infectious disease – with increased mortality and morbidity rates – can no longer be ignored. The solution is maintaining sustainable funding levels, requiring concrete outputs to measure the success of investments, investing heavily in public health professionals and healthcare workers, and institutionalizing the ability to identify extraordinary threats and raise concerns about other potential threats.

The pieces are all there, but the proper approach to make sound investments has been lacking. Like the aging infrastructure of interstate highways and bridges or the miles of neglected rail lines, an ongoing disregard for a strong foundation would continue to weaken the



public health infrastructure and leave gaping holes, resulting in catastrophic outcomes

measured in terms of unnecessary lives lost.

Patrick P. Rose, director for pandemic and catastrophic preparedness at the National Association of County and City Health Officials, holds a Ph.D. in infectious diseases and is a subject matter expert on national security issues related to public health security. He works with federal and local stakeholders to address requirements and gaps that produce vulnerabilities in public health security. In addition, he supports efforts domestically and internationally in the field and at the policy level to reduce the proliferation of biological weapons and to increase public health security awareness. These efforts include promoting greater engagement in the Global Health Security Agenda. He is an alumnus of the Emerging Leaders in Biosecurity Initiative and serves as an adjunct assistant professor at the University of Maryland Department of Epidemiology and Public Health.

CBRNe Posters from 2nd IW CBRNe Workshop

University of Rome Tor Vergata (Nov 20, 2015)



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INTERNATIONAL CBRNe MASTER COURSES
 Chemical, Biological, Radiological, Nuclear and explosive
 Department of Industrial Engineering and School of Medicine and Surgery

P19 – Food safety and biological risk: potential use of food for dissemination or biological threat

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Can CBRNe events and food be correlated? In particular the study addresses issues related to biological risk as a hazard to food and then for the people who every day have the opportunity to find increasingly international dishes and products. Traditions but with raw materials more and more exposed to the risk because they are more subject to processing, a raw material that even though traditional, is produced and imported, or exported to other countries with more requests. We tried to understand if food production increasingly important, in terms of quantity, quality and thus may face if it can create danger and how; if today is possible compare and control the current productions. Population in the world is increasing, but there are people belonging to underdeveloped states and people belonging to industrialized countries; in both cases these are exposed to the same biohazard from food, but the problems to solve are different and obviously much more serious in countries where there are serious deficiencies in the hygiene and public health, and we can't longer think a state that is not our should not be in the public interest. Doing a review of food-borne diseases through the United States, comparing the incidence of the late 90's with the years 2011 and coming years in our Europe, 2010-2013, we will also analyze specific case studies to understand how, through monitoring systems, preventive measures, approved bodies and good organization, be able at least to limit the cases: Hepatitis A with berries, Salmonella contaminating eggs and meat, BSE and meat, Sprouts and STEC. The work focuses on the controls performed on the Italian territory throughout the food chain. We discuss the legislative references and the related European and essential European System of Allert, RASFF, authorities and offices involved in the controls and their management.

P26 – Use of Non-Pathogenic Biological agents as Biological Weapons simulants for the development of a stand-off detection system



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Development of new technologies for Biological Warfare Agents (BWA) stand-off detection implies several safeties, logistic and economic drawbacks that involve production of different highly virulent bacteria and viruses, their isolation and characterization under adequate bio-containment and sample preparation for each agent to evaluate the testing method. In order to overcome these difficulties most of the research activities and tests reported so far, are performed using simulants: Biological Agents (BA) which are phylogenetically or structurally related to BWA. Stand-off detection and warning of BWA release represent the main goal to be achieved in order to reduce the biological threat and the risk for population. These detection systems allows to analyze samples remotely, thus making possible an early identification of the contamination source. Preliminary studies carried out using UV-LIF technique show promising results for the detection and discrimination of biological particles, thanks to the presence of endogenous fluorophores, which are able to emit fluorescence when excited at specific wavelengths in the UV range. The use of the simulants (BWA-S) show, however, some limitations: they can share some of the properties of the biological warfare agents but have different antigens, proteome and genome. In this work, different BWA-S was evaluated for the application in the development and training of stand-off detection systems. This study is the basis for the use of simulants in the development of an Ultraviolet Laser Induced Fluorescence (UV-LIF) based detection systems.

P33 – Hospital infection control incurred by *Acinetobacter baumannii*

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This paper reflects the activity of surveillance and control of hospital infections incurred by *Acinetobacter baumannii* contracted into the Intensive Care Unit (ICU) of the Hospital "Umberto I" of Frosinone, where the reporting work of the ICU and the diagnostic of the Pathology Laboratory are coordinated by the department of Infectious Diseases. In particular, this study is designed to evaluate the presence of *A. baumannii* in the ICU, in samples from hospitalized patients and in environmental samples, especially after remediation activities carried out following an increase in the number of isolations of *A. baumannii*. The samples from hospitalized patients, since the main infections are represented by pneumonia and septicemia, mainly concerns samples from the respiratory tract and the bloodstream. As for environmental surveillance, given the importance of the potential role of environmental reservoirs in the transmission of MDR germs, were performed crops from swabs taken on inanimate surfaces, frequently touched by the hands of health care workers in hospital rooms and service spaces. Finally, we show the strategies used in the department for preventing and limiting the transmission of *A. baumannii* in the environment and among patients.

P50 – ECDC approach in biological emergency preparedness to a potential bioterrorist Ebola Viral Disease (EVD) attack

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Today, a whole range of complex challenges and threats to EU security, much different from hostile actions that faced by Allies in the cold war era, requires to be prepared to protect and defend against both State and non-State actor threats. The development of an integrated approach to respond to acts of bioterrorism, needs a legislation on “serious cross-border health threats” as an extension of European long-standing security concept. Since 2005, according to the mission statement, the EU independent agency ECDC works actively in the European health security, establishing a common mechanism of medical countermeasures and preparedness plans among Member States. The approach to preparedness consists mainly, in risk analysis evaluation about bio-safety/bio-security incidents, security level of personnel, capacity levels evaluation of the state and local public health laboratories, National Pharmaceutical Stockpile, surveillance and epidemiology, training & exercises rapid response teams in bioterrorism-specific diseases and unusual epidemiological events, awareness, interagency cooperation and improve information exchange. Ebola Virus Disease (EVD) 2013-2015 epidemic in West Africa as an emerging infectious disease of high consequence (IDHC), poses the greatest biological threat to Allies security in today context: Ebola virus is classified as a biological agent with the maximum level of risk according to the: Centers for Disease Control and Prevention (CDC) Critical Biological classification, Biological Risk Groups classification (EU-Directive 2000/54/EC), World Health Organization (WHO) list. Due to potential characteristic of the Ebola virus to cause infectious diseases and the severity of morbidity and mortality rates, it has been classified as a highly potential agent of bioterrorism. Terrorists may use biological agents because they have extremely difficult of timely detection, diagnosis, first response, high perception in media, politics and society, and specially, the high potential to achieve a cross-border dimension. Also, ECDC efforts to challenge potential bio-threats, evaluate dual use research and technological diffusion that could be directly applied by terrorists.

