

November 2016

# NEWSLETTER **TERRORISM**

*E-Journal for CBRNE & CT First Responders*



TRUMPQUAKE



ΑΡΧΗ ΑΝΔΡΑ ΔΕΙΚΝΥΣΙ  
*Sophocles*



## CBRNE-Terrorism Newsletter – 2016©

October 2016

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International CBRNE Institute

### Editor-in-Chief

**BrigGEN (ret) Ioannis Galatas MD, MA, MC**

PhD cand

Consultant in Allergy & Clinical Immunology

Medical/Hospital CBRNE Planner

Senior Asymmetric Threats Analyst

Manager @ CBRN Knowledge Center, International CBRNE Institute (BE)

Athens, Greece

☞ Contact e-mail: [igalatas@yahoo.com](mailto:igalatas@yahoo.com)

### Assistant Editor

**Panagiotis Stavrakakis MEng, PhD, MBA, MSc**

Hellenic Navy Capt (ret)

Athens, Greece



### Co-Editors/Text Supervisors

1. Steve Photiou, MD, MSc (Italy)
2. Dr. Sarafis Pavlos, Captain RN(ret'd), PhD, MSc (Greece)
3. Kiourktsoglou George, BSc, Dipl, MSc, MBA, PhD (cand) (UK)

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### EDITOR

**Mendor Editions S.A.**



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

Contact e-mail: [Valia.Kalantzi info@mendor.gr](mailto:Valia.Kalantzi@info@mendor.gr)

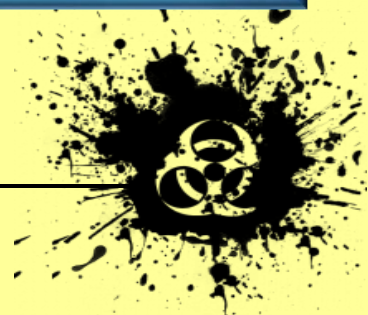
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## Editorial

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

*Editor-in-Chief*  
CBRNE-Terrorism Newsletter

*Dear Colleagues,*

November was not such a bloody month!

### Main key-points were:

- ◆ The election of Donald Trump as the new President of the United States of America. As you might read in the previous issue of the Newsletter my prediction was in favor for Hilary Clinton for the only reason that she is a woman. Following recent results it was made clear that Americans vote in favor of “change” and against “dynasties”. The later made obvious since almost immediately there were voices supported the 2020 candidacy of Michel Obama and Chelsea Victoria Clinton. Apart for desire to change, the (not so well) hidden social conflict came into surface and the dark political and financial background in the country is willing to do anything to fuel social turmoil. But the governing party is strong enough to defend stability and internal peace in the months to follow after January 1<sup>st</sup>, 2017. (Read more in the pages to follow).
- ◆ President Obama visited Greece. Why now? Mainly because he wanted to see Acropolis and Parthenon! Ah! Also to reassure politicians that it is good to belong to the West – but still Cyprus is under Turkish occupation. Nevertheless his speech was excellent despite the fact that made all of us very sorry since we automatically compared the sad present with the ancient glory of Ancient Greeks... But if you see this in a more optimistic way, modern Greeks also contribute something to the world by exporting well educated brains all over the globe!
- ◆ Efforts to regain control of Mosul by Iraqi (+allies) forces is ongoing and it will take some (or long) time to regain stability in the area. This operation helped to discriminate for what involved parties are fighting for (now and in the near future). One of the most worrying issues is the use of chemical weapons by Daesh in the area and possibility to use them in a wider scale mostly against population unfortunate enough to live within combat fields. Keep in mind that they still have 40kg of stolen (2014) low grade uranium that they might transform to RDD.
- ◆ A big debate is also arising regarding the day after Daesh will lose most of its grounds both in Syria and Iraq and the future actions of foreign fighters that will found themselves without a country to live in. Assumption that they will return home disguised as refugees generates fears for a wave of terrorist attacks in various European major cities and capitals by terrorists with combat experience and deadly dexterities.

The Newsletter is going well and more readers are attracted every month. The editorial team is always trying to enrich articles with photos, maps, statistics and related educational papers from other sources that will help readers to have a more complete view of the news presented herein. In the coming months, there will be some changes in the team's composition and the new colleagues that will join the Newsletter will freshen up its contents.

First Responders should pay special attention to December's festivities because they might be a magnet for terrorists that despite joy, religions and peace of innocent hard working citizens. Take care First Responders because we all and your families are depending on you!

*The Editor-in-Chief*





## New US President elected and Europe (and Greece)

By the Editor of CBRNE-Terrorism Newsletter



The recent elections in the United States of America elected Donald Trump as the 45<sup>th</sup> President. This came as a surprise (why?) to European countries and their reactions (why?) are highlighted into their messages to President Trump below:

### German Chancellor Angela Merkel

*"Germany and America are connected by values of democracy, freedom and respect for the law and the dignity of man, independent of origin, skin color, religion, gender, sexual orientation or political views. I offer the next President of the United States close cooperation on the basis of these values."*

### German Defence Minister Ursula von der Leyen

*"Donald Trump has to say clearly on which side he is. Whether he's on the side of the law, peace and democracy or whether he doesn't care about all that and instead he's looking for a best buddy (with Putin),"*

### German Foreign Minister Frank-Walter Steinmeier

*"We hope that we are not facing greater instability in international politics. During his campaign, Trump was critical not just of Europe, but also of Germany. I believe we must prepare for American foreign policy becoming less predictable. We must prepare for a situation in which America will be tempted to make decisions on its own more often."*

### President of European Parliament Martin Schulz

*"I'm not happy about it.... But on the other hand, I also believe that the political system in the US is strong enough to be able to deal with a president like Trump."*

### French President Francois Hollande

*"The election of Mr Trump opens a period of uncertainty. It must be faced with lucidity and clarity. What is at stake is peace, the fight against terrorism, the situation in the Middle East, economic relations and the preservation of the planet. Some positions taken by Donald Trump during the campaign contradict values and interests we share with the US".*



### UK Prime Minister Theresa May (not an EU member since recent Brexit)

*"I would like to congratulate Donald Trump on being elected the next president of the United States, following a hard-fought campaign. Britain and the United States have an enduring and special relationship based on the values of freedom, democracy and enterprise. We are, and will remain, strong and close partners on trade, security and defence. I look forward to working with President-elect Donald Trump, building on these ties to ensure the security and prosperity of our nations in the years ahead."*

It is interesting (or funny) how "strong" EU nations responded! Their leaders supposed to be experienced politicians and as such they should have known that it is not wise to point the finger to the mightiest nation on this planet. Especially those who, in the past, have caused so much pain in Europe and via their allies all over the planet. They should have known that the quotation in the cover of this issue of the Newsletter coming from wise ancient Greek tragedian Sophocles, is the best approach when dealing with a new partner: *"Ἀρχὴ ἄνδρα δείκνυσσι"* (meaning: "Higher authority reveals the man" or "The quality of the leader is visible only when he assumes duties and leadership").

Unfortunately even the Greeks did not read their own history and learn from the past in order to transform problems identified to lessons learned. Greek Prime Minister Alexis Tsipras – almost the last of world leaders to congratulate the new president [North Korean is the last one still in silence] – sent a letter stating that "there are traditional bonds of friendship both Greek and American people shared over time based on shared values of democracy, rule of law and human rights." In this context, "he expressed its intention to deepen Greece-US cooperation, to the benefit of both peoples, peace, and regional stability." Before him, Greek Foreign Minister Nikos Kotzias stated: "The Greek government has systemic relations with both parties, the Democratic and the Republican. We had discussions with the team of Trump last September on issues of the region on the sidelines of the UN general assembly. The Greek government and any Greek government always had good relations with the US and the American people."

It seems that almost all European leaders decided to follow a specific pattern of being politically correct and forgot what William Ralph Inge (English author, Anglican priest, Professor of Divinity at Cambridge University, and Dean of St Paul's Cathedral) quoted *"it is useless for the sheep to pass resolutions in favor of vegetarianism, while the remains of a different opinion!"* On the other hand, we all know that politicians have many faces and I am sure that from January 1<sup>st</sup>, 2017 all of them will behave in a different way and adjust to the new geopolitical game that will, most probably, lead to business as usual (whether they like stakes or vegetables).

### What the change of US leadership means to Greece?

For a country lacking external policy, not much! We will continue to "belong to the West"; "Belong to EU" and "follow others". Simple as that! We have our own problems; even EU problems are our own problems; there is no light at the end of tunnel; there is no spirit left and a country full of clinically depressed citizens has nothing to expect other than a miracle! But despite unexpected bad things that

always happen, good miracles are so rare – not to say almost impossible to happen!

Given recent statements of new faces in US diplomacy and the fact that Turkey has a long lasting concrete diplomatic ability things might turn ugly in the near future (i.e. Nov 12 and Nov 15 Turkish Navy #723 & 724/16 NAVTEX with live ammunition, includes Greek island Kastellorizo [FIR/land/sea]).

Starting with Lt. Gen. **Michael T. Flynn** (ret.) – former Director of Defense Intelligence Agency who stated: *"It is time we take a fresh look at the importance of*

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*Turkey and place our priorities in proper perspective. It is unconscionable to militate against Turkey, our NATO ally, as Washington is hoodwinked by this masked source of terror and instability nestled comfortably in our own backyard in Pennsylvania. We need to adjust our foreign policy to recognize Turkey as a priority. We need to see the world from Turkey's perspective”* and U.S. Vice President-elect **Mike Pence** who pointed out that *“Turkey is the U.S.’ most important ally in the region. We will bring our relations with Turkey to a better stance just like in the old days. We will further enhance our relations”* one can easily understand the new framework that is about to start materializing in the months to follow. Add to the above the Turkish blackmailing against EU that if not free visa for Turks was issues, Turkey will release (Jan 01, 2017) 3 mil illegal immigrants/refugees towards Greece and its closed borders. But as always, time is the only indicator that verifies or delete hypotheses made.

Perhaps Greeks should read carefully the position statements made by President Trump and even copy and paste some of them. It is a fact that Mr President will be a US-centric leader and perhaps we should start thinking Greece first and then all the others second. Being a “yes-man” is the best recepie for failure and disaster.

## Trump and American Political Decay

### After the 2016 Election

By Francis Fukuyama

Source: <https://www.foreignaffairs.com/articles/united-states/2016-11-09/trump-and-american-political-decay>

Nov 09 – Donald Trump’s impressive victory over Hillary Clinton on November 8 demonstrates that American democracy is still working in one important sense. Trump brilliantly succeeded in mobilizing a neglected and underrepresented slice of the electorate, the white working class, and pushed its agenda to the top of the country’s priorities.

He will now have to deliver, though, and this is where the problem lies. He has identified two very real problems in American politics: increasing inequality, which has hit the old working class very hard, and the capture of the political system by well-organized interest groups. Unfortunately, he does not have a plan to solve either problem.

Inequality is driven first and foremost by advances in technology and second by globalization that has exposed U.S. workers to competition from hundreds of millions of people in other countries. Trump has made extravagant promises that he will bring jobs back to the United States in sectors such as manufacturing and coal simply by renegotiating existing trade deals, such as NAFTA, or relaxing environmental rules. He does not seem to recognize that the U.S. manufacturing sector has in fact expanded since the 2008 recession, even as manufacturing employment has decreased. The problem is that the new on-shored work is being performed in highly automated factories. Meanwhile, coal is being squeezed out not so much by outgoing President Barack Obama’s environmental policies as by the natural gas revolution brought about by fracking.

### Related Tweets

What policies could the Trump administration implement to reverse these trends? Is he going to regulate the adoption of new technologies by corporate America? Is he going to try to ban U.S. multinationals from investing in plants overseas, when much of these multinationals’ revenue comes from foreign markets? The only real policy instrument he will have at his disposal is punitive tariffs, which are likely to set off a trade war and cost jobs in the export sector for companies such as Apple, Boeing, and GE.

The problem of the capture of the U.S. government by powerful interest groups is a real one, a source of the political decay I wrote about in my recent article for *Foreign Affairs*, [“American Political Decay or Renewal?”](#) Yet Trump’s primary solution to this problem is simply his own person, someone too rich to be bribed by special interests. Leaving aside the fact that he has a history of manipulating the system to his own advantage, this is



hardly a sustainable fix. He also has proposed measures such as banning revolving-door employment of federal officials as lobbyists. This will scratch at the symptom of the problem and not address the root cause, which is the enormous volume of money in politics. There, he has put no real plans forward, any of which would inevitably require somehow reversing the Supreme Court decisions of *Buckley v. Valeo* and *Citizens United* that argue that money is a form of free speech and is therefore constitutionally protected.

The decayed American political system can be fixed only by a strong external shock that will knock it off its current equilibrium and make possible real policy reform. Trump's victory does indeed constitute such a shock but, unfortunately, his only answer is the traditional populist-authoritarian one: trust me, the charismatic leader, to take care of your problems. As in the case of the shock to the Italian political system administered by Silvio Berlusconi, the real tragedy will be the waste of an opportunity for actual reform.

*Francis Fukuyama is a senior fellow at Stanford and Mosbacher Director of its Center on Democracy, Development and the Rule of Law.*

### READ ALSO

Source: The Brookings Institution

**The world after the election.** Just hours after the late-night election call, Brookings experts from across the spectrum of ideology and issue expertise convened to discuss the results and what a Trump administration might look like. It was a fascinating conversation, and if you missed it, you can [watch the highlights](#). Over the coming days and months, Brookings will continue to provide analysis on the impact a Trump presidency could have on domestic and foreign policy.

- [Shadi Hamid argues](#) that Trump's "America first" worldview suggests we're likely to see a more narrow conception of what constitutes vital interests abroad.



- [Vanda Felbab-Brown says](#) Trump's inconsistencies on foreign policy issues provide him a unique opportunity: to pivot away from the detrimental statements of his campaign and embrace sounder policies.

- [Jon Valant reflects](#) on how Trump's election could spur a renewed emphasis on character education in U.S. schools.

**A divided America.** [William Frey explains how](#) a blowback from older white voters helped push Donald Trump to victory in key swing states. And

[Richard Shearer examines](#) the increasing anxiety particular to small town and rural America that led to Trump's win.

**Voters wanted change, not ideology.** [Jonathan Rauch provides](#) six pieces of evidence from exit polls that show the U.S. election was not an ideological endorsement of Trump's character or authoritarian tendencies.





## An email from an American friend

I asked a friend of mine (American academician) to comment on current post-election situation in the US and below is his reply (omitting names and countries):

*Lots of people have asked me to write something about the election. So here goes: it is true that I predicted, as many of you know, a X victory. Much, but not all, of what I am going to say, was in that analysis.*

*Before I begin, let me remind everyone, that an analysis is not about what (or whom) one likes, but about trends and facts. In my case my preferred candidate was X. There may be, however, a great difference between my personal preference and social reality. Thus, in three recent major elections polling has failed. These are: the Brexit vote, the peace vote in Colombia, and now in the US election. These failures ought to put the methods used in polling into question. This missive is not meant to be partisan. Democrats need to examine their failures if they are to remain a viable party.*

*I am writing to you from abroad. Being currently outside of the US gives me another perspective: not better or worse, but different.*

**1. I do not believe that Trump won, but rather that Hillary and the Democrats lost.** Along with them the media, the northeast and west coasts, and academics. All were big losers. I come to this conclusion for the following reasons.

*A) people are tired of the Clintons and the Bushes. Americans tend not too like dynasties and both of these families did not know how to exit gracefully.*

*B) The Clintons are simply too corrupt. The American public was overwhelmed with Hillary's lies, her misuse of funds looked like another "Dilma" (from Brazil). The State Department was a 19th century den of intrigue reminiscent of the last days of the Ottoman Empire. The public simply ceased trusting her. Despite her machine's framing Trump as not trustworthy both Sanders and Trump got the point across that her experience proved that she could not be trusted either.*

*C) She was a bad candidate. Despite the fact that she had the best funded campaign in the history of the world, the full backing of the Democratic machine and a highly inexperienced and controversial opponent, she failed. Clinton did not express her thoughts well, hid from an all too loving media, and screamed too much. She never succeeded in explaining what her vision for the US was and spent more time trying to tear down Trump than providing a reason to support her. The slogan, I am not Trump so vote for me simply failed to resonate with most people.*

*D) Wikileaks daily showed her to be either a liar or not trustworthy. It was death by a thousand lashes.*

*E) Her congressional appearances did not help her. All too many people, especially the "deplorable" did not forgive her statement about Benghazi: "what difference does it make"? Neither did the Lynch - Bill Clinton meeting on the tarmac or the fact that the FBI broke all sorts of rules in interviewing her.*

*F) Women did not vote along gender lines. It appears that Trump got a majority of female votes, but that may change if we factor in race. The glass ceiling shtick seems to be merely important to a few academic women.*

**2. The Desire for Change**



*A great many people simply wanted a change of party. The Democrats have become the party of the elitist past and offered few new innovative ideas. Many feared a party in power for too long loses touch with reality.*

### **3 The suffering of the poor and minorities.**

*During the Obama administration the poor got poorer. With over 40 million people on food stamps and 94 million out of the labor force the situation was untenable. Chicago is more dangerous than Kabul, and Detroit is a third world city at best. If we add the disgust that the nation has with the failures of Obama -care, anyone defending the last 8 years was going to lose.*

*Most wealthy Democrats have no idea about this suffering, have turned a blind eye to the problems of the poor and created programs to keep the poor poor. Blacks and Latinos are now catching on to the fact that wealthy Democrats are similar to Marie Antoinette and her "let them eat cake". These White Wealthy Democrats do not share a meal with the poor, study French, but know no Spanish, and live in a pre-French revolution bubble. Blacks and Latinos came to see the Democrats as the party of the rich and the enemy of the working man.*

### **4. Frustrations.** *These are many. Chief among the list of frustrations is with the media and academia, and yes I am part of academia!*

*Academics receive huge salaries, tend to be so arrogant that they do not acknowledge their salaries plus benefits, and are often not only removed from the world but tend to reinforce each other. They are good at lecturing others but have failed to educate, have shown little or no reflective thought and are more interested in their research than in education. Likewise, the media have lost their credibility and are often seen as mere propaganda machines.*

*Both are seen as part of the Boston-Washington and Los Angeles - San Francisco axis. These are the parts of the country which look down on the others, see them as fly-overs and believe themselves to be superior. The result is a national divide in which both sides see the other side as intolerant. The people living in the axis corridors tend to see the others as hicks who are not very smart or worldly, and the rest of the nation tends to see people living in the axis corridors as Godless and arrogant fools. Many of these same social divides were present in the months prior to the French Revolution*

*There is still another frustration, this is with Europe and our so-called allies. Europe does not pay its fair share of NATO, and if Obama is right that Russia is no longer a threat, then why have NATO at all? Europe has been fast to criticize the US and all too slow to support the US. The result? A US public that blames its own élites for being suckers to the Europeans.*

**5. Failed foreign policies.** *Despite whatever propaganda the media try to feed the US public, the Obama administration has been a series of foreign policy failures. From Libya to Crimea, from Syria to China, from Iran to Venezuela, US citizens are frustrated with a military that must be rebuilt, a foreign policy adrift, and a continual stream of failures dressed up as policy successes by The NY Times crowd of elitists. Here in X, not a place with a pro-US government, people stopped me to say thank you that the Obama administration is coming to an end. US prestige has never been lower and the US public often and at times unfairly blame Hillary for a failed Obama administration. In Latin America people realize that the US liberal Democrats wanted to create a permanent quasia slave*





*class, disguising their plans as bilingualism (better called: English ignorance) and multi-culturalism.*

*Perhaps the greatest failure of all was that Hillary pretended to be of the people. While Trump is comfortable with the working class, Hillary lives in a world of chauffeured cars and maids. Trump, for all his many faults, is a blue collar billionaire who speaks the language of the working man. The result: three parties, the elitist Democrats and academics, the country club Republicans, and a populist working man's party.*

*It is going to be four interesting years.*

## What Next for Britain and Europe in the Trump Era?

Source: <https://www.linkedin.com/pulse/what-next-britain-europe-trump-era-alison-wakefield>

Nov 10 – The election of Donald Trump as US President has defied common wisdom and provoked concern and outrage around the world. Trump attracted international condemnation for his proclamations on Muslims, Hispanics, black people and women, and alarmed US allies with his views on NATO and nuclear proliferation. His rhetoric towards Mexico has been especially antagonistic, and Middle Eastern states are well aware of his anti-Muslim statements. He has vowed to apply substantial tariffs to Chinese imports. He has been accused of being Vladimir Putin's 'puppet', and hence much debate is now occurring about the implications of Trump's election for America's relationship with Russia, the conflict in Syria and security in Eastern Europe. As the world waits to see how a Trump presidency plays out in practice, there is a great sense of uncertainty and a concern among America's traditional allies that they will be able to rely less on the US in the years to come.

Britain has long relied on its 'special relationship' with America and served as a bridge between the US and the European Union. Ironically this may provide some negotiating power over the terms of Brexit. But overall Trump's election and the vote to leave the EU leave Britain significantly more isolated. Britain should now be moving closer to France and Germany in order to deepen foreign policy and security co-operation, yet the political appetite for collective defence has been significantly weakened in the aftermath of the Iraq war. Other European countries need to learn lessons from events in the US and Britain as they face a similar rise of populist and protectionist politics. The EU should seek to act as a cohesive force and play a larger part in keeping the world stable but, in order to achieve this, must find a way of addressing the significant internal challenges it now faces. Brexit will need to be managed with caution and perhaps there is now more likelihood of compromise on the part of the EU.

In short, it is certain that we have entered a riskier global era. The importance of maintaining the closest ties possible with the EU is now greater than ever.

*Alison Wakefield is a Senior Lecturer in Security Risk Management, University of Portsmouth, UK.*



## INSPEC<sup>2</sup>T project

Source: <http://inspec2t-project.eu/en/objectives>



The Project INSPEC<sup>2</sup>T (Inspiring CitezeNS Participation for Enhanced Community PoliCing AcTions) is a three-year project that started in May 2015.

INSPEC<sup>2</sup>T (Inspiring CitezeNS Participation for Enhanced Community PoliCing AcTions) is a three-year project that started in May 2015. The project is funded by the European Commission, under the “H2020-FCT-2014 Ethical/Societal Dimension Topic 2: Enhancing cooperation between law enforcement agencies and citizens - Community policing” call.

INSPEC<sup>2</sup>T projects' scope is to develop a sustainable framework for Community Policing that effectively addresses and promotes seamless collaboration between the police and the community. INSPEC<sup>2</sup>T approach bases its conceptual foundations on EU crime prevention and Member States specific Internal Security Policies, validated research results and best practices from cooperation between police and local, regional and national communities. This is perceived as an origin to apprehend special characteristics, particularities and determinants for trust between all stakeholders. INSPEC<sup>2</sup>T will be demonstrated and validated in 5 EU cities by a wide range of relevant stakeholders. INSPEC<sup>2</sup>T engagement and active participation is stimulated through fully dynamic, interactive and immersive training Serious Game applications that empower players to familiarise themselves with the system, gain an intuitive understanding of its functionalities and motivate their engagement in Community Policing activities.

Special focus will be given to Community Policing awareness raising activities for both police and citizens. The above activities and associated results, will provide a solid foundation for the evolution of the Next Generation Community Policing roadmap in Europe.

### Objectives



The INSPEC<sup>2</sup>T project will provide good practice procedures that law enforcement agencies and communities can adopt in order to promote effective community policing and successfully exploit its benefits. In furtherance of this goal, the project has the following objectives:

#### **Strengthened community policing:**

- The INSPEC<sup>2</sup>T project will develop a creative and sustainable solution for community policing, built upon personal relationships and two-way communication, which takes into account social, cultural, ethical and legal dimensions.

#### **Engage and empower the community:**

- The system will build trustworthy relationships between police departments and a motivated and skilled community through the delivery of a more personalised service, allowing citizens to collaborate in setting the police agenda.



**Communicate to collaborate:**

- Accelerated communication and information sharing enables collaboration, resulting in early identification of risks and better crime intelligence.

**Increased awareness & prevention:**

- The system will result in improved crime prevention thanks to increased awareness, early identification and timely intervention.

**Expected impact**

- Better community policing through more effective and efficient tools, procedures and approaches that match the needs and requirements of users.
- INSPEC<sup>2</sup>T will deliver awareness raising activities, a communication platform and training solutions. Each of these will accommodate for underlying societal, cultural, ethical and legal principles.
- Improved early warning and identification of public safety and security risks.
- Enhanced crime reporting by allowing citizens and community to report incidents and perceived offences/crime more efficiently and effectively.
- More proficient timely intervention, as more accurate and efficient information is available, which also impacts the process of crime solving indirectly.
- Strengthened and accelerated communication (and collaboration) between citizens and police forces.
- Strengthened community cohesion and a reduction in feelings of insecurity

## Half of American adults are in a little regulated police face recognition database

Source: <http://www.homelandsecuritynewswire.com/dr20161020-half-of-american-adults-are-in-a-little-regulated-police-face-recognition-database>

Oct 20 – **Half of American adults — more than 117 million people — are in a law enforcement face recognition network**, according to a report released today by the Center on Privacy & Technology at Georgetown Law. The study, [The Perpetual Line-Up: Unregulated Police Face Recognition in America](#), finds that one in four law enforcement agencies can access face recognition and that its use is almost completely unregulated. **The Web site [www.perpetuallineup.org](http://www.perpetuallineup.org) contains more than 17,000 pages of official documents obtained by the Center, and which are accessible to the public.**

“Innocent people don’t belong in criminal databases,” said Alvaro Bedoya, Executive Director of the Center on Privacy & Technology at Georgetown Law and co-author of the report. “By using face recognition to scan the faces on 26 states’ driver’s license and ID photos, police and the FBI have basically enrolled half of all adults in a massive virtual line-up. This has never been done for

fingerprints or DNA. It’s uncharted and frankly dangerous territory.”

“Face recognition is a powerful technology that requires strict oversight,” said Clare Garvie, a Center associate and the author who led the Center’s records requests to over 100 law enforcement agencies. “But those controls by and large don’t exist today. With only a few exceptions, there are no laws governing police use of the technology, no standards ensuring its accuracy, and no systems checking for bias. It’s a wild west.”

Georgetown says that of the fifty-two agencies that acknowledged using face recognition, only one obtained legislative approval for its use and only one agency provided evidence that it audited officers’ face recognition searches for misuse. Not one agency required warrants, and many agencies did not even require an officer to suspect someone of committing a crime before using face recognition to identify her.






The report argues that police use of face recognition will have a profound impact on African Americans. A 2012 study, co-authored by an FBI expert, found that face recognition is *less accurate* on African Americans, women, and young people. African Americans are also likely overenrolled in mug shot-based systems as a result of racial disparities in arrest rates. Yet the report reveals that police advertise the technology as being blind to race — and that two major face recognition companies *do not* test for bias.

In a letter sent Tuesday morning, the American Civil Liberties Union, the Leadership Conference for Civil and Human Rights, and other civil rights and civil liberties organizations called on the U.S. Department of Justice's Civil Rights Division to investigate the potential racial bias in police use of the technology.

**“Face recognition systems are powerful — but they can also be biased,”** the letter states. “A growing body of evidence suggests that law enforcement use of face recognition technology is having a disparate impact on communities of color, potentially exacerbating and entrenching existing policing disparities.” Last week, the ACLU of Northern California [revealed](#) that the Baltimore Police Department used face recognition to identify individuals participating in May 2015 protests after the death of Freddie Gray.

The report spurred calls for oversight from Senator Al Franken (D-Minnesota), Ranking Member of the U.S. Senate Judiciary Subcommittee on Privacy, Technology, and the Law, and Representative Jason Chaffetz (R-Utah), chairman of the U.S. House of Representatives Committee on Oversight and Government Reform.

“Now, I believe that facial recognition can be a very useful tool in the fight against crime — it can in fact help us catch violent offenders and criminals,” said Franken, who held a [2012 Senate hearing](#) on law enforcement use of face recognition. “But I’m also a firm believer that Americans have a fundamental right to privacy. So I want to ensure that this technology is

accurate, transparent, and that our use of facial recognition technology appropriately balances privacy and public safety. The report by Georgetown Law’s Center on Privacy and Technology shows that there are some concerns with how facial recognition technology is being deployed by law enforcement. I will be pressing for answers on how the government uses this technology, and exploring ways we can ensure that law enforcement strikes the right balance.”

“While facial recognition technology can be a valuable tool for catching criminals, it comes with risks to individual privacy,” said Chaffetz, who recently [wrote the FBI](#) to inquire about its use of the technology. “Safeguards must be in place to ensure its accuracy and to identify and eliminate any potential bias or deficiencies. The technology must be used in a manner consistent with our Constitutional right of protection against unwarranted government searches. Continued legislative oversight is needed to ensure proper use of this powerful emerging technology. I applaud the good work that went into preparing this significant report.”

The report proposes reforms to transform face recognition from a threat to Americans’ constitutional rights into a positive tool that can be used for high-stakes law enforcement. Among many recommendations, the report urges Congress and state legislatures to pass commonsense laws to regulate law enforcement face recognition, and recommends that the Department of Justice Civil Rights Division evaluate the disparate impact of police face recognition.

“This report represents a major step in how we think about the use of face recognition technology and how it is regulated,” said Dean William M. Treanor. “This yearlong effort once again highlights the critical need to have lawyers who understand technology and are well trained in the various aspects of cyber law. Georgetown Law will continue to take a leadership role in educating our lawyers on technology policy, privacy, and criminal justice.”

— Read more in Clare Garvie et al., [\*The Perpetual Line-Up: Unregulated Police Face Recognition in America\*](#) (Georgetown Law, Center on Privacy & Technology, 18 October 2016).



## Man who raped 10-year-old boy at swimming pool in Austria has sentence overturned by Supreme Court

Source: <http://www.independent.co.uk/news/world/europe/iraqi-refugee-raped-10-year-old-boy-swimming-pool-vienna-austria-sentence-conviction-overturned-a7377491.html>

Oct 25 – A man who [raped a 10-year-old boy at a swimming pool](#) in [Austria](#) has had his conviction overturned after judges found he may have believed the child consented.

Police said the 20-year-old Iraqi refugee, who has not been named, assaulted his victim in a toilet cubicle at the Theresienbad swimming pool in Vienna on 2 December last year.

The child reported the rape to a lifeguard and his attacker was arrested at the scene, reportedly telling officers in initial interviews that he was experiencing a “sexual emergency” after not having sex in four months.



In June, he was [jailed for a minimum of six years](#) for rape and aggravated sexual abuse of a minor, and ordered to pay €4,700 (£3,700) compensation to the boy's family.

**But on Thursday, Austria's Supreme Court overturned the rape conviction and ordered a re-trial on the charge.**

While the sexual abuse verdict was “watertight”, the more serious offence requires evidence that the defendant knew their victim did not consent to sex.

**Supreme Court judges ruled that the first court should have established whether the attacker thought his victim agreed to a sexual act and intended to act against the boy's will.**

“This intention was not sufficiently established, so the Supreme Court quashed the rape conviction,” Austria's national ORF broadcaster reported.

The re-trial is not expected to begin until next year, with the defendant remaining in custody.

The unnamed man worked in Iraq as a taxi driver before leaving in 2015 and journeying to Europe and settling in Vienna.

His trip to the swimming pool was said to be part of integration efforts, sparking outrage amid tensions over the refugee crisis in Austria.

Speaking to local media, the [victim's mother](#) revealed her son had been “screaming and crying every night” since the attack and had talked of suicide.

Prosecutors said the boy, known as Goran, suffered serious physical injuries from the rape as well as “profound depression”.

The attack sparked a backlash against migrants in the country, which has since seen support for anti-immigration groups rise and implemented a controversial cap on refugee numbers.

Reports of sexual harassment and attacks by asylum seekers at swimming pools have generated controversy across Europe, sparking a [ban on male migrants at one pool in Germany](#) and [“vigilante” patrols in Sweden](#).

Police statistics in Germany showed that sex offences make up a tiny proportion of crimes committed by refugees and migrants in the country, which are mostly related to transport and documents.

## A Startup's Constellation of Tiny Satellites is Now Photographing Half of Earth's Landmass Every Day

Source: <https://www.planet.com/>

Oct 24 – Are you ready for the coming era of global transparency?



After two years in operation, the [satellite-imaging startup Planet](#) tells *Quartz* it is now photographing more than 50 million square kilometers of the earth every single day. That's about a tenth of the world's surface area, or half its landmass. Indeed, in September 2016 alone, the company says it imaged 91 percent of earth's landmass.

Planet's plan is to make that imagery available to the public, with free basic access and premium accounts for higher quantity and quality data. It's likely to impact everything from finance and farming to environmental protection and human rights.



[Cancún, Mexico August 18, 2016](#)

The company's goal is "to image the whole world every day, making change visible, accessible and actionable," Robbie Schingler, cofounder and chief strategy officer of Planet, said at the International Astronautical Congress in September.

Satellite imagery at this scale is typically available only to governments and deep-pocketed companies. But the technology Planet developed to gather this data cheaply also allows it to provide more up-to-date imagery. The commercial satellite images the public sees most commonly on services like Google Maps or Bing are often months, if not years old, and we have no sense of how they have changed.

"We have old mental models for the state of the world," Schingler said. "The world is increasingly dynamic, and a lot of that is happening without people knowing about it."

The technology currently used to gather these images are large, expensive satellites flying 600 kilometers or more above the earth. Their operators typically target these satellites on

specific areas requested by their clients. But these satellites can't be everywhere at once, and competition over satellite capacity drives up the cost of using them. This is further compounded by the fact there is only so much cloud-free daylight over earth for imaging.

Conversely, Planet uses lots of small, cheap satellites, flying closer to 400 or 500 kilometers above the planet. Currently, it has 63 operational satellites, and it envisions deploying a 120-satellite constellation. These satellites orbit the earth in a formation that moves like the head of a scanner, scooping up a swathe of images of the entire planet as it

rotates below. This daily, bulk collection makes it possible for Planet to monitor, rather than target, satellite imagery.

**In practice, this means the imagery can be used to detect changes by comparing recent data across multiple time periods.**

Consider some of the early adopters the company has been sharing its data with:

- Amnesty International [used its imagery](#) to track refugee camps in Syria.
- Descartes Labs [is developing](#) machine-learning technology to forecast land-use trends for farmers.
- The [Monitoring of the Andean Amazon Project](#) found illegal mining and deforestation in Peru.
- [Orbital Insight](#) used its data to count ships in seaports to provide analysis to investors.

At the International Astronautical Congress, one attendee wondered if this imagery could be used for nefarious ends. Planet's satellites generally only capture about 3 meters of resolution per pixel, which means it's not detailed enough to make out





individual people, which might lay some privacy concerns to rest. One could also argue it's better a relatively open, online platform hosts this imagery instead of a secretive government agency.

But looking back on history, Schingler pointed to how satellite imagery helped ameliorate one of the world's biggest threats: nuclear

annihilation. It was in part the launch of the first spy satellites by the U.S. and the Soviet Union that led to the 1972 anti-ballistic missile treaty, simply because both parties had an independent means of assessing the other's arsenal.

"It allowed people to make better decisions and not assume the worst," Schingler said.

## Calais 'Jungle': Demolition of massive migrant camp begins

Source: <http://edition.cnn.com/2016/10/25/europe/calais-jungle-demolition-begins/index.html>

Oct 25 – A team of workers in France began demolishing the "Jungle" migrant camp on Tuesday, pulling down tents, shacks and other makeshift shelters that thousands have called home over the past two years.



CNN journalists saw a team of "cleaners" in orange jumpsuits and hardhats dismantling the temporary structures and disposing of migrants' possessions into a dumpster.

Tuesday marked the final day that residents were officially allowed to stay in the camp in the port town of Calais. More than 3,100 migrants have been bussed out of the Jungle since authorities began a sweep on Monday, sending them to regions around the country to begin a months-long process for

resettlement. Among them are more than 130 children. Some children yet to be processed remained in shipping container at the site.

Workers were scheduled to move in at 8am local time, but Calais officials delayed the operation until the afternoon to have a security cordon placed around the camp.

France has for more than a year vowed to raze the 4 square-kilometer camp, but its requests to do so had been shot down several times in court.



### The Jungle sweep in numbers

**This is what happened on Monday, according to French officials:**

- More than 2,300 migrants were bussed from the camp to other French regions
- The migrants were sent to 80 "orientation camps" where they can file asylum claim
- 400 minors were sent to temporary shelters
- There were 1,200 minors altogether; those left are staying in shipping containers for shelter

Authorities dismantled part of the camp early this year, but it failed to stop more and more migrants from arriving, with high hopes of crossing the Eurotunnel from Calais to reach the UK, just over 30 miles away.

The Jungle has become a gritty symbol of Europe's migrant crisis and has been a thorn in the French government's side. But to a tight-knit community there, it is also a symbol of



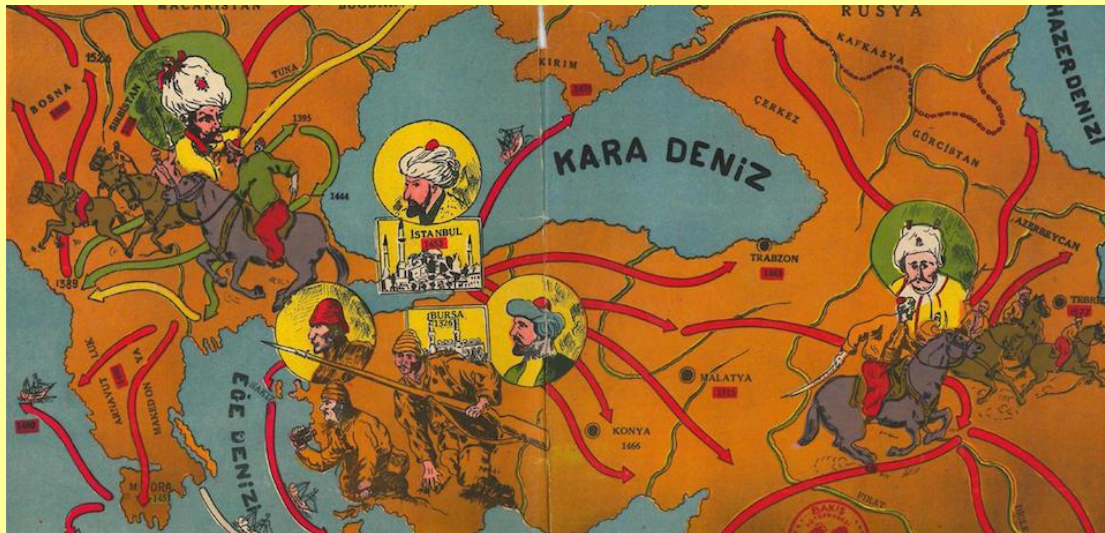
determination and resilience -- **more than 70 business have sprung up in the Jungle, including restaurants, cafes, bars, hairdressers and barbers, and leaving is not as simple as packing up and moving on.**

One shabby home with a sleeping bag for a door had the words "Please do not destroy my home" scrawled across its front. Hundreds of tents, tired from months of wear, were seen abandoned as more migrants streamed out with all their belongings.

## Turkey's New Maps Are Reclaiming the Ottoman Empire

By Nick Danforth

Source: <http://foreignpolicy.com/2016/10/23/turkeys-religious-nationalists-want-ottoman-borders-iraq-erdogan/>



Oct 23 – **In the past few weeks, a conflict between Ankara and Baghdad over Turkey's role in the liberation of Mosul has precipitated an alarming burst of Turkish irredentism.** On two separate occasions, President Recep Tayyip Erdogan [criticized](#) the Treaty of Lausanne, which created the borders of modern Turkey, for [leaving](#) the country too small. He spoke of the country's interest in the fate of Turkish minorities living beyond these borders, as well as its historic claims to the Iraqi city of Mosul, near which Turkey has a small military base. **And, alongside news of Turkish jets bombing Kurdish forces in Syria and engaging in mock dogfights with Greek planes over the Aegean Sea,** Turkey's pro-government media have shown a newfound interest in a series of imprecise, even crudely drawn, maps of Turkey with new and improved borders.

Turkey won't be annexing part of Iraq anytime soon, but this combination of irredentist cartography and rhetoric nonetheless offers some insight into Turkey's current foreign and domestic policies and Ankara's self-image. The maps, in particular, reveal the continued relevance of Turkish nationalism, a long-standing element of the country's statecraft, now reinvigorated with some revised history and an added dose of religion. **But if the past is any indication, the military interventions and confrontational rhetoric this nationalism inspires may worsen Turkey's security and regional standing.**

At first glance, the maps of Turkey appearing on Turkish TV recently resemble similar irredentist maps put out by proponents of [greater Greece](#), [greater Macedonia](#), [greater Bulgaria](#), [greater Armenia](#), [greater Azerbaijan](#), and [greater Syria](#). That is to say, they aren't maps of the Ottoman Empire, which was substantially larger, or the entire Muslim world or the Turkic world. **They are maps of Turkey, just a little bigger.**

But the specific history behind the borders they envision provides the first indication of what's new and what isn't about Erdogan's brand of nationalism. These maps purport to show the borders laid out in Turkey's National Pact, a document Erdogan recently





suggested the prime minister of Iraq should read to understand his country's interest in Mosul. Signed in 1920, after the Ottoman Empire's defeat in World War I, the National Pact identified those parts of the empire that the government was prepared to fight for. Specifically, it claimed those territories that were still held by the Ottoman army in October 1918 when Constantinople signed an armistice with the allied powers. On Turkey's southern border, this line ran from north of Aleppo in what is now Syria to Kirkuk in what is now Iraq.

When the allies made it clear they planned to leave the empire with a lot less than it held in 1918, it led to renewed fighting in which troops under Mustafa Kemal Atatürk defeated European forces to establish Turkey as it exists today. For the better part of the past century, Turkey's official history lauded Atatürk for essentially realizing the borders envisioned by the National Pact (minus Mosul, of course), as recognized with the Treaty of Lausanne. It was an exaggerated claim, given the parts of the pact that were left out, but also an eminently practical one, intended to prevent a new and precarious Turkish republic from losing what it had achieved in pursuit of unrealistic territorial ambitions. Indeed, while countries like Germany, Italy, Bulgaria, and Hungary brought disaster on themselves by trying to forcibly rewrite their postwar borders, Turkey — under Atatürk and his successor — wisely resisted this urge.

Erdogan, by contrast, has given voice to an alternative narrative in which Atatürk's willingness in the Treaty of Lausanne to abandon territories such as Mosul and the now-Greek islands in the Aegean was not an act of eminent pragmatism but rather a betrayal. The suggestion, against all [evidence](#), is that better statesmen, or perhaps a more patriotic one, could have gotten more.

Among other things, Erdogan's reinterpretation of history shows the ironies behind the widespread [talk](#) in the United States of his supposed "neo-Ottomanism." A decade ago, Erdogan's enthusiasm for all things Ottoman appeared to be part of an effective strategy for improving relations with the Muslim Middle East, a policy that some U.S. critics saw as a challenge to their country's role in the region. But refashioning the National Pact as a justification for irredentism rather than a rebuke of it has not been popular among Turkey's neighbors.

Erdogan's use of the National Pact also demonstrates how successfully Turkey's Islamists have [reappropriated](#), rather than rejected, elements of the country's secular nationalist historical narrative. Government rhetoric has been quick to invoke the heroism of Turkey's war of independence in describing the popular resistance to the country's July 15 coup attempt. And alongside the Ottomans, Erdogan routinely references the Seljuks, a Turkic group that preceded the Ottomans in the Middle East by several centuries, and even found a place for more obscure pre-Islamic Turkic peoples like the Gokturks, Avars, and Karakhanids that first gained fame in Atatürk's 1930s propaganda.

Similarly, in Syria and Iraq, Erdogan is aiming to achieve a long-standing national goal, the defeat of the Kurdistan Workers' Party (PKK), by building on the traditional nationalist tools of Turkish foreign policy — namely, the leveraging of Turkish minorities in neighboring countries. The Sultan Murad Brigade, comprising predominantly ethnic Turkmens, has been one of Ankara's military assets inside Syria against both Bashar al-Assad's regime and the PKK. Meanwhile, the Turkmen population living around Mosul and its surrounding area has been a concern and an asset for Ankara in Iraq. Turkish special forces have worked with the Iraqi Turkmen Front since at least 2003 in order to expand Turkish influence and counter the PKK in northern Iraq.

Over the past century, the Turkish minorities in northern Greece and Cyprus have played a similar role. That is, their well-being has been a subject of genuine concern for Turkish nationalists but also a potential point of leverage with Athens to be used as needed. (Greece, of course, has behaved similarly with regard to the Greek minority in Turkey. Not surprisingly, both populations have often suffered reciprocally as a result.) In the case of Cyprus, for example, Turkey's 1974 invasion was as much about defending its strategic position as it was about protecting the island's

Turkish community. **Following his statements about Lausanne, Erdogan further upset Greece by stating, "Turkey cannot disregard its kinsmen in Western Thrace, Cyprus, Crimea, and anywhere else."** Yet Athens might take comfort from the case of the Crimean Tatars, which reveals the extent to which geopolitics can lead Turkey to do just this: Although Ankara raised concerns over the status of the Crimean Tatars after Russia seized the peninsula, it seems





to have subsequently concluded that improved relations with Moscow take precedence over ethnic affinities.

But Erdogan has also emphasized a new element to Turkey's communitarian foreign-policy agenda: Sunni sectarianism. In speaking about Mosul, he recently [declared](#) that Turkey would not betray its "Turkmen brothers" or its "Sunni Arab brothers." Like secular Turkish nationalism, this strain of Sunni sectarianism has an undeniable domestic appeal, and Erdogan has shown it can also be invoked selectively in keeping with Turkey's foreign-policy needs. Erdogan's new sectarianism is evident in Mosul, where Turkey has warned of the risks to Sunnis should Shiite militias take control of the city. But the policy's influence is clearest in Syria, where Turkey has been supporting Sunni rebels aiming to topple the Assad regime (including those now struggling to hold the city of Aleppo). In both Iraq and Syria, however, Turkey's sectarianism has not been allowed to trump pragmatism. Ankara has been keen to maintain a mutually beneficial economic relationship with Iran despite backing opposite sides in Syria and in the past year has also expressed its willingness to make peace with Assad if circumstances require it.

More broadly, Turkey's current interventionism in Syria and Iraq fits within an established pattern. Not only do countries regularly find themselves sucked into civil wars on their doorstep, but the points at which Turkey has proved susceptible to irredentism in the past have all come at moments of change and uncertainty similar to what the Middle East is experiencing today. In 1939, Ankara annexed the province of Hatay, then under French control, by taking advantage of the crisis in Europe on the eve of

World War II. Then, after that war, Syria's newfound independence prompted some in the Turkish media to cast a glance at Aleppo, and the transfer of the Dodecanese Islands from Italy to Greece also piqued some interest in acquiring them for Turkey. Similarly, Ankara paid [little attention](#) to Cyprus when it was firmly under British control, but when talk of the island's independence began, Turkey started to show its concern. Subsequently, it was only when it appeared Greece might annex the island that Turkey invaded to prevent this change in the status quo. In this light, Turkey's recent rhetoric is perhaps less surprising following several years in which events and commentators have repeatedly suggested that the entire political order of the modern Middle East is

crumbling.

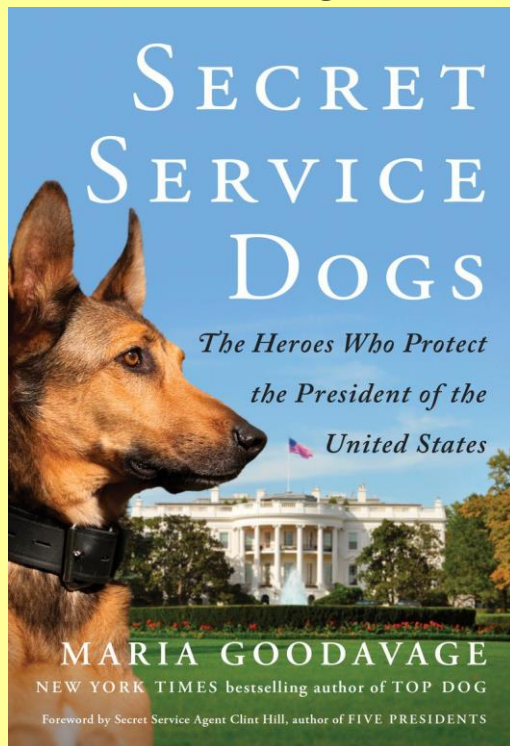
More specifically, though, Turkish policy in the Middle East is driven by an urgent concern stemming from its conflict with the PKK, which has been exacerbated by the group's gains in northern Syria. The PKK has long shaped Turkey's relations with its southeastern neighbors. Most notably, Turkey nearly invaded Syria in 1998 in an ultimately successful effort to force Damascus to stop sheltering the group's leader. Similarly, Turkey has kept military forces in the area of Mosul for the better part of two decades, in order to [conduct operations against the PKK](#). Ankara has always portrayed this intervention, with little controversy in Turkey, as a matter of national security and self-defense. Today, self-defense remains Turkey's main justification for its activities in Iraq, with Erdogan repeatedly [emphasizing](#) that the presence of Turkish forces there "acts as insurance against terrorist attacks targeting Turkey." As long as the PKK maintains an open presence in Iraq, this is also the most compelling justification, domestically and internationally, for military involvement beyond its borders.

Indeed, to all the specific ethnic, sectarian, and historical rationales he has offered for Turkey's interest in Mosul, Erdogan has been quick to attach one additional argument: The United States and Russia continue to play an outsized role in the region despite lacking any of these connections to it. Erdogan [noted](#) that some countries were telling Turkey, which shares a 220-mile border with Iraq, to stay out. Yet, despite not having history in the region or connection to it, these same countries were "coming and going." "Did Saddam [Hussein] tell the United States to come to Iraq 14 years ago?" he added. Behind the history, in other words, Ankara is all too aware of the fact that the power to do so remains the only rationale for foreign intervention that matters. In this regard, the legitimacy of Turkey's plans for Mosul remains to be seen.

*Nicholas Danforth has been a Senior Analyst in the Bipartisan Policy Center's National Security Program since January, 2016.*



## Secret Service Dogs



## Greece – National Day Parade (Thessaloniki – 28 October 2016)

The best student in every school is given the privilege to hold the Greek flag in National Days' parades. OK with that – I was one of them some decades ago. But I do not like a Muslim (best) student



to hold my flag wearing the hijab. Mainly because many of our flags still have blood on them from World Wars or most recent war in Cyprus during Turkish invasion (magnify page for details).







## These four words that may offend you ... may also just save you

By Louis M. Profeta MD

Source: <https://www.linkedin.com/pulse/those-four-words-may-offend-you-also-just-save-louis-m-profeta-md/>



Oct 22 –“What do you do for a living,” the young man asked me.





"I'm an emergency physician. How about you?"

"I'm just a chef," he replied.

"Pal, I can live a lifetime without medicine. I can only live a week without food."

Sometimes a group of people you speak to love you. Other times, well — hate may be a bit strong, but they are far less enamored with what you have to say. This is a tale of the latter, and to tell you the truth, I'm kind of proud of it.

Recently, an incredibly inspiring physician invited me to speak at a conference, the central theme being burnout in medicine. I really thought I had a handle on this being that I had been practicing emergency medicine for nearly 25 years and I did not feel burned out, which as I just learned is way above the average for ER physicians who typically have a burnout rate of more than 50%. In fact, in our very large private physician group, the rate of burnout and attrition is, well, damn near close to zero. So why is that? What were we doing right? Certainly we are all very supportive of each other. We are all completely bogged down in electronic medical record keeping, seas of bureaucracy, fears of malpractice and other stressors including working far more hours than most other physicians in our specialty. What is it about us? I truly think it comes to four simple words that all of us have grown to embrace. Those words?

### **It's just a job.**

Let that sink in a bit because when I proposed that to this group of nurses, physicians and nurse practitioners, you would have thought I just stood up and proclaimed I was the antichrist. Even though I prefaced it during my talk by elaborating and saying that medicine is a deeply rewarding career choice, I insisted that it's not our life. I tried to express that it's simply a wonderful, marvelous and mystical avenue to allow us the opportunity to pursue meaningful work, make a good living, support our families and to do a job that allows us to see and do many magical things. I also said that I felt it was not a prerequisite to always practice with compassion. Compassion means to suffer with others. I proposed that we do not need to suffer. Our role is to be there, provide comfort, alleviate suffering, listen and be engaged. We don't HAVE to feel every bit of it viscerally but certainly there will be times where we truly connect and we will. But it's also OK when we don't. We don't have to take every single emotion home, internalize it and make it part of our being. Which, in today's society of rapid extrapolation, registered as:

"He must not listen to his patients."

I tried to explain that I feel our emotions wax and wane day-to-day and minute-to-minute. It does not mean for one second that we are incapable of providing excellent care during those times and that this emotional separation does keep you sane and helps prevent burnout and allows you to focus on your job.

That wasn't good enough for these attendees. In fact, one pretty much raised her hand, took the mic and said she was highly offended that I would say or even imply that medicine was just a job. She said she would not want to have a physician like me and there is no way that you can "fake" compassion. That's when Starbucks entered my brain.

How often does a barista smile at you, thank you and tell you to have a good day? How often do you walk away feeling good that he or she was so welcoming and friendly? How often do you know what happened to them last night, what news they got this morning, how much money is in their bank account, what their marriage is like? Let me help you out with the answer ... pretty much never. So do you think that patients are any different than you in those moments? You smile, listen, stroke their hands and offer words of comfort. Do you think the patient pauses and asks themselves about what happened to you last night, how marriage is, what is going on in your life? They just want to feel comforted.

One attendee warmly smirked at me earlier at dinner.

"I just don't buy your assertion that it is just a job." She motioned to the bartender. "Look, he just pours drinks and you say my job is no different than his?"

I tilted my glasses down and stared into her eyes.



"What if I told you that he works three jobs to support a disabled child at home and that this late-night job affords him the opportunity to buy her a few things that make her smile and feel special. Perhaps some toys he could otherwise not afford or a new dress perhaps. You think your job is so much better than his because you hold someone's hand when they are sick instead of passing a beer?"

I like to think she bowed her head a bit in shame perhaps, but I'm not so sure.

As the discussion went on that morning, a common theme emerged. Many of these people did not want suggestions on how to keep from being burned out. What they wanted was to be fawned over and congratulated on how compassionate they were, and how they had the hardest jobs in the world, and that no one could possibly understand the work or appreciate how hard their jobs were. I'm sorry, I said. "I just don't buy it. You invited me; I'm not here to validate you. That has to come from within."

You see, I think we are a bit elitist as to how we view ourselves in medicine at times. Sure, this is a very hard job, charged with emotion; it leads to crying, heartbreak and nightmares on occasion. But it is also filled with incredible rewards both spiritually and even financially.

One speaker, who was a physician and also a faculty member at Duke's school of divinity, disagreed with my assertion and proposed that medicine was different, though. In a way, it was an embodiment of Christ's principals of healing and was perhaps the first real charitable endeavor. I turned to him and said something to the effect.

"Yeah, that's all fine and dandy but if it weren't for the farmers, shepherds and fisherman during that time, the weak and infirm would just have been a source of protein."

One attendee lamented about caring for a patient who was recovering from a procedure that went against her own personal values. She said she was distressed and angered by this; I believe what she hoped for was for me to embrace her distress, validate it, provide words of comfort and support and give advice on how to change. Even though, mind you, she said the patient was happy and very comforted by her care. I looked at her and responded.

"So what? That's your job. You are supposed to provide care regardless of your values."

She snapped at me.

"Yeah, but what about me?"

"What about you?" I replied. "It's not about you. It's about your patient. It's about caring for your patient. That's what you signed up for."

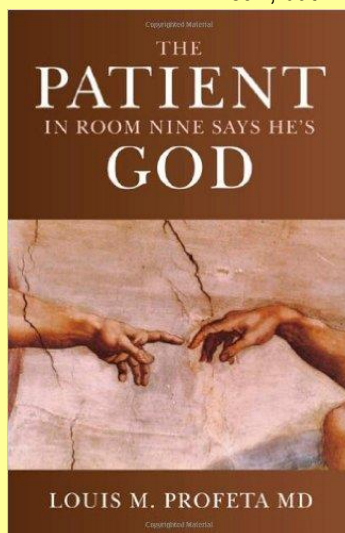
This gave an opportunity for another speaker to chime in and take advantage of what he felt was oratory faux pas. "I believe this is more than a job. It's a passion," with reverent emphasis on the word "passion." The crowd nodded in agreement, then turned and glared at me some more. I gave them one of those head tilting "whatever" looks.

"Listen, your passion should be your family, those around you that you love. You have to separate the two. There is not one of you that would not abandon your job for the sake of someone who you love and who needs you." You see, I know this from experience, from deep within my gut.

Two Septembers ago, I got a call from a hospital in New York. My son who was in college at the time was just diagnosed with leukemia. Fifteen minutes later, I jumped in a car and drove all night to New York, pretty much crying and pounding the steering wheel all along the way. I called one of my partners and said, "I am not coming to work. I have no idea how long I'll be gone. If you need to hire someone to replace me, go right ahead." I slept in a chair next to his bed for 42 days. Do you think for one second I

regretted not going to work? I'd give up medicine and clean outhouses at Woodstock for all eternity if it meant I could help my child. People in medicine often say you can't separate the two. I say bullshit. You just don't know any better.

Listen, no matter how we like to hold up ourselves as the pillars of compassion, the keepers of the public well-being, we are just one profession out of countless others that keep our world moving. We are no more heroes than the social worker visiting homes in the projects, the farmer up at 4 to feed the cattle, the ironworker strapped to a beam on the 50th floor. We are no more a hero than the single mom working overnight as a custodian, trying to feed



her kids. We are no more heroic than countless others who work in jobs they perhaps hate in order to care for and support the people they love.

Maybe I'm wrong in telling the group that medicine is just a job, but I am damn sure we in medicine are all wrong if we think our job is somehow more special and valuable than the bartender's.

*Dr. Louis M. Profeta is an emergency physician practicing in Indianapolis. He is the author of the critically acclaimed book, [The Patient in Room Nine Says He's God](#).*

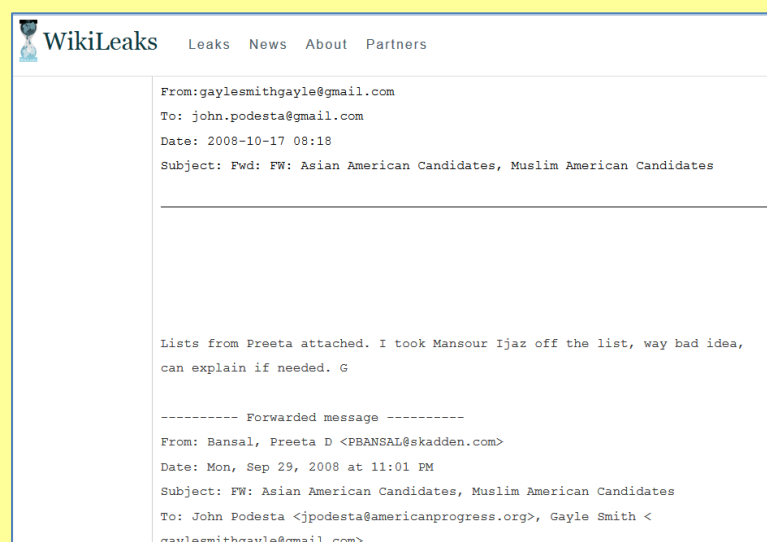
## Obama's White House Kept List of Muslims For Top Jobs

Source: <https://www.clarionproject.org/analysis/obama-kept-list-muslims-top-jobs#>

Oct 26 – **The Obama administration collected lists of Muslim candidates for jobs in the Obama administration, according to previously unseen emails sent to the chair of Hillary Clinton's presidential campaign John Podesta and released by Wikileaks. Podesta was also a former chief of staff for President Bill Clinton.**

Dating from 2008, the email refers to a list of Muslim leaders vetted for top jobs within the administration (it does not provide the list). The author, Preeta Bansal, adds three points by way of explanation, the first of which is as follows:

"In the candidates for top jobs, I excluded those with some Arab American background but who are not



Muslim (e.g., George Mitchell). Many Lebanese Americans, for example, are Christian. In the last list (of outside boards/commissions), most who are listed appear to be Muslim American, except that a handful (where noted) may be Arab American but of uncertain religion (esp. Christian)."

You can read the full [email here](#).

This paragraph has drawn the ire of commentators who see this as evidence that

Obama's White House was deliberately excluding Christians from senior positions. While that does seem to have been the case where this list is concerned, we do not know who, if anyone, was hired on the basis of this list.

**In an ideal world, all candidates for government positions would be selected with absolutely no attention paid to their religion.** Yet in today's world, governments are under intense pressure to present to their publics a diverse staff representative of the populations they rule.

Having such a staff is also very useful to a government, since it means that those in senior positions will have a range of experiences and knowledge sets, thus broadening the government's capacity to rule effectively and justly.

It is difficult to acquire such staffing by accident, especially given the historic injustices which have bedeviled the creation of an equal and meritocratic society, not only in America but worldwide. Therefore sometimes in order to gain a representative government, those selecting for jobs have to actively search out those of different backgrounds and take active steps to ensure they are represented in the government.

This is of course assuming that the candidates will be of the highest caliber and are able to perform their functions. Promoting people who are underqualified simply because of their





background is foolishly shortsighted, since they will soon prove unequal to the task and cause resentment.

**Furthermore, if the list is specifically designed for the exclusion of Christians from Muslim majority countries, rather than to increase representation of Muslims, this is unacceptable.** We do not know, however, the details surrounding the list and its compilation. We don't know what jobs it covered, whether anyone was hired and whether separate lists promoting other minorities such as Middle Eastern Christians was ever created or used.

Last year Prime Minister of Canada Justin Trudeau was widely praised in progressive circles internationally for his appointment of a cabinet that was not only equally split between the genders, but also was representative of Canada's diverse ethnicities.

There is no way that happened by accident.

Given that the government has the opportunity to tap pretty much whoever it wants from the best in the country for top jobs, there is no reason governments should not also take the opportunity to make sure those positions are representative of the population at large.

## AIRFENCE – A New Counter-Drone Defense Capability

Source: <http://www.hstoday.us/single-article/airfence-a-new-counter-drone-defense-capability/34d5bac68cf5c5fec083eade8f5050a.html>

Oct 21 – Anti-drone company, Sensofusion, is set to protect Denver International airport later



this year with its AIRFENCE technology, which the company said “could have big implications for homeland security.”

Sensofusion has already demonstrated AIRFENCE for NATO, the Federal Aviation Administration (FAA), NASA and others federal agencies how AIRFENCE is tracking, disabling and tracing the signal source of drones in Finland.

“Take our current work in Helsinki, Finland, as a concrete example,” Sensofusion vice president of Operations Kaveh Mahdavi told *Homeland Security Today*. “We are protecting airport, police and government buildings and collecting critical data to help law enforcement in that region do their jobs. Additionally, we are working with a smart city platform provider to create a seamless stream of data sharing with

local law enforcement. In fact, we just hosted a major event this week in Helsinki bringing together key government stakeholders from multiple countries around the world in the fields of aviation, military, police and public safety. The leaders who gathered are interested in learning more about how we are mitigating risks in Finland and they met with the officials



there who are benefiting from AIRFENCE's protective measures.”

As the latest issue of *Homeland Security Today* reported in the



article, [Unmanned Understanding](#), the UAS threat requires active solutions from leadership. Sensofusion similarly said, “UAV’s pose a threat. AIRFENCE has been designed with over 3 years of military testing with real world tactical scenarios. At it’s core, it can automatically detect, locate, track and take over UAV controls all on full auto. In addition, AIRFENCE can locate the operator with pin point accuracy in real time, the company said, noting that, “Several large organizations are already using our technology or doing research with us. AIRFENCE is used to protect various customer sites in Europe, including prisons, high profile government buildings, police and military sites.” AIRFENCE is capable of showing the real time location of detected UAV’s on a maps which can be configured for offline access.

In May, the FAA signed Cooperative Research and Development Agreements with Sensofusion, Gryphon Sensors and Liteye Systems Inc.

“Government and industry share responsibility for keeping the skies safe, and we’re pleased these three companies have taken on this important challenge,” said Marke Gibson, FAA Senior Advisor on UAS Integration.

Association for Unmanned Vehicle Systems International President and CEO Brian Wynne said in a statement, “The collaboration between these companies and the FAA is another example of government-industry cooperation and is an important step towards the safe integration of UAS into the national airspace. Equipping airports with technology that can detect, track, and identify UAS that are flying unsafely or in restricted areas will help ensure the safety of the airspace for all aircraft — manned and unmanned.”

“Sensofusion protects sensitive locations from unarmed aerial vehicles UAVs through detection, tracking and countermeasure/mitigation of those UAVs. We work with airports, prisons, police, government buildings, military, VIPs and other groups in need of this type of security,” Mahdavi said, adding that, “Our AIRFENCE technology is capable of forcing UAVs to land in a predefined location or of sending them back to a home position, a critical countermeasure that protects from any malicious activities an operator has planned for that vehicle.”

potential security risk to many environments including airports, prisons, energy facilities, government offices and military bases.”

“When it comes to homeland security in the broadest sense, Sensofusion integrates multiple ‘listening’ technologies with location-based technologies to help secure ‘smart’ cities. Our technology collects data in real time and allows us to use predictive analytics to determine what may happen in a given area,” Mahdavi said. “We would essentially be the hardware and software that collects real-time data in a smart city. Our physical footprint is smaller because we require fewer sensors -- and we have the ability to get our system online and running in only a couple of weeks.”

Mahdavi explained, “Here’s a scenario that illustrates how we can help protect in the event of a security threat: let’s say that there’s a person flying an unidentified drone in a space our sensors cover. Using our advanced technology, our AIRFENCE technology can detect that drone and the cellphone in that person’s pocket. In this scenario, we would collect MAC addresses (unique identifiers for that computer) and store them as an event in our system. The data points -- the drone and the cellphone -- connect to create an event in our system.”

“With the right infrastructure in place, we can track and begin tagging events. And with our technology, we don’t even need a sensor in every corner of an area to be effective. Because of our high range of detection, we need less physical hardware in place. That saves time and money for the governments and organizations we work with,” Mahdavi said. Mahdavi concluded, saying, “Sensofusion’s technology can also be impactful in the event of something large like an explosion, or even something as small as a gunshot. With the right sensors placed, we can actually use our radio frequency technology to collect cell phone MAC addresses of anyone standing in a given area when the event takes place. From there, local law enforcement would have a small pool of people who were in the area who might have witnessed a crime and/or have been the instigators. Gunshot detection technology is already being used in Camden, New Jersey and around some college



campuses, and we see this as a logical next step for a smart city.”

## Security Vs. Privacy – Standards for Surveillance Cameras in Public Places

Source: <http://i-hls.com/2016/10/security-vs-privacy-standards-for-surveillance-cameras-in-public-places/>



Oct 29 – **Surveillance cameras guidelines were issued in the UK in order to assure that the public is protected, but not spied on.** Surveillance Camera Commissioner Tony Porter recently launched a consultation on a draft national surveillance camera strategy for England and Wales.

This strategy aims to provide direction and leadership in the surveillance camera community to enable system operators to understand best practice and their legal obligations (such as those contained within the Data Protection Act and the Private Security Industry Act), according to the UK government website. It also aims to enable the surveillance camera community to demonstrate compliance with the principles of the surveillance camera code of practice and other guidance.

Porter explained to the [register.co.uk](http://register.co.uk) what “surveillance by consent” meant: “For me, it means that this public space surveillance – which doesn’t sit under a specific legislative framework – is trusted by the public to be there for its needs,” Porter said. It means that the community knows that “surveillance is there to protect them, and not spy on them.”

**Only a year ago, less than 2% of public authorities operating surveillance cameras were doing so in compliance to “any British standard”** according to Porter, who says that as of today 85% are now demonstrably “having

regard” for the Home Office’s Surveillance Camera Code of Practice.

The [register.co.uk](http://register.co.uk) reports that turnover for the video and CCTV surveillance sector topped £2.12bn in the UK in 2015. According to the most recent estimates – from 2013 – there are potentially over six million CCTV cameras in the UK, and that is not including body-cam footage, unmanned aerial vehicles, or the automatic number plate recognition system. Porter considers the number of cameras is probably much higher.

The commissioner’s strategic vision is to assure the public that surveillance cameras in public places are there to keep and make them feel safe, and that those cameras are deployed and used responsibly, as well as transparently, in a manner which is proportionate to their legitimate purpose.

The strategy has been divided into 10 key work strands each led by sector expert. Objectives have been developed for each strand with a supporting delivery plan setting out specific actions and outputs, which contribute towards achieving the strategic mission. Delivery plans will be completed and published in 2017.

The commissioner is consulting on the draft strategy for 6 weeks and people can respond to the consultation via the SCC website.





## Russia Developing Anti-UAS Weapon

Source: <http://i-hls.com/2016/10/russia-developing-anti-uas-weapon/>



Oct 28 – The Russian government is backing a military research project to develop a microwave-based weapon designed to take out unmanned enemy drones from up to half a mile away.

**The country's United Instrument Manufacturing Corporation (UIMC) created the gun to interfere and disrupt the electronics of enemy missiles.** Using the ultra-high frequency waves the weapon can completely disable aircraft communications, resulting in loss of control.

Destructive rays, which belong to a group of warfare technologies known as directed-energy weapons (DEW), will be emitted from surface-to-air Buk missile systems.

According to a United Instrument Corporation (UIC) spokesperson a unique radio-electronic weapon to disable enemy drones has been developed in Russia and may soon enter service with the Russian Armed Forces.

According to Sputnik, first radio-electronic weapons samples based on newly discovered physical principles (beam, geophysical, wave, kinetic and other types of weapons) have been first unveiled at a closed Russian Defense Ministry exhibition on the sidelines of the Army-2016 forum last month.

"Working models of these weapons have been already developed and proved their effectiveness. This is a completely new type of weapon that has no equals in this country or

anywhere else in the world," the UIC spokesperson said.

He added that the new weapons can strike targets without the use of ammunition — instead, a directed energy beam is used. Igor Korotchenko, editor-in-chief of the Natsionalnaya Oborona (National Defense) journal said that the test unit apparently uses ultrahigh frequency impulses to immobilize aircraft electronics and render them useless in a combat situation.

"With its effective range apparently not exceeding one kilometer, this weapon may be used against UAVs flying right above the battlefield".

The Military political analyst Alexander Perendzhiyev said that the new weapon is especially effective against systems with microelectronic elements.

"It is effective because there is no way you can hide from an electronic wave. This is a kind of weapon that is meant to disarm the enemy," he said.

It is especially effective when used against hi-tech microelectronic systems. "For example, if you have an electronic system of loading a projectile, the interference caused by this new weapon can make sure that the projectile explodes before it is fired destroying the enemy plane, drone, whatever," Alexander Perendzhiyev noted.



## Innovative Laser Weapon – to Equip Aircraft and Drones

Source: [i-hls.com/2016/10/innovative-laser-weapon-to-equip-aircraft-and-drones/](http://i-hls.com/2016/10/innovative-laser-weapon-to-equip-aircraft-and-drones/)

Oct 26 – **General Atomics is to start testing a potentially revolutionary weapon: a 150-kilowatt class laser.** It is not the only company developing laser weapons, however, “the technology is ripe for application on an **AC-130**”, says Lt. Gen. Bradley Heithold, head of



US Air Force Special Operations Command (AFSOC), in an interview with Breaking Defense.

General Atomics hopes to see the Command install a version of the weapon on the AC-130 gunship in the next few years. They also envision equipping the company's new jet-powered Predator C Avenger drone with a laser derived from their High Energy Liquid Laser Area Defense System (HELLADS).

Heithold elaborated on the various possible targets for an AC-130 laser. The silent, invisible beam might be used prior to a hostage rescue mission, for example, to covertly disable motor vehicles, boats, airplanes or any other “escape mechanism” an enemy might use to move the hostages or flee from U.S. forces. The laser might also be used to disable or disrupt an enemy's communications, he said.

The Air Force Research Laboratory (AFRL) and Defense Advanced Research Projects Agency (DARPA) will run the live-fire tests at White Sands Missile Range, New Mexico. The HELLADS beam will be fired at a wide variety of airborne targets over the next 18 months. It produces its silent, invisible, but blow torch-hot beam by pumping electricity through rare earth minerals to excite their electrons and generate energy.

HELLADS “is designed to counter rockets, artillery, mortars; counter cruise missiles; counter air[craft]; defend against surface to air missiles,” said Michael Perry, the vice

president in charge of the company's laser programs. During the tests at White Sands, the targets could include real rockets, real mortars, and real missiles.

According to [breakingdefense.com](http://breakingdefense.com), the system being tested is far too large to put on an airplane. But GA already has developed a smaller, self-contained Generation 3 High Energy Laser and is working on an even more compact Gen 4 HEL to respond to AFSOC's goal of putting such a weapon on AC-130 gunships by 2020.

“The reason that I want it on an AC-130 is, right now, when an AC-130 starts firing kinetic weaponry, everybody knows you're there,” Heithold said. “What I want on the airplane is to be able to silently disable something.”

**Heithold envisions equipping up to five AC-130Ws with a laser whose beam could be aimed by a directing device on the left side of the aircraft and used offensively.**

The Air Force is in the early stages of a separate program to develop a smaller laser that can fit inside a pod no larger than a standard 600-gallon external fuel tank and be used to defend legacy fighter aircraft such as the F-16 or F-15 against surface-to-air missiles. This defensive laser is known as SHiELD (Self-protect High Energy Laser Demonstrator).

Heithold said AFSOC is watching the SHiELD program but is not interested for now in pursuing the more difficult challenge of putting a defensive laser on its aircraft. “The hope is that the SHiELD program can learn from our efforts from putting an offensive capability on an AC-130,” Heithold said.

The **Gen 3 system** General Atomics has built can be entirely contained – laser system, power system and thermal management (cooling) system – in a box roughly 12 feet long, four feet wide and two feet high.

Perry said providing the electrical power the laser needs aboard an aircraft and cooling the system are the chief integration challenges, but they are relatively minor compared to the feat of generating a laser able to burn holes in steel from miles away.





## Suicide drone? Iran presents amphibious attack UAV

Source: <https://www.rt.com/news/364258-iran-amphibious-suicide-drone/>



A handout picture released on October 26, 2016 by the Tasnim news agency show what Iran's elite Revolutionary Guards referred to as "suicide drone" and capable of delivering explosives to blow up targets at sea and on land, in the Iranian capital Tehran. © Tasnim news / AFP

Oct 27 – Iran has unveiled a new drone reportedly designed for stealth suicide missions against both land and sea targets. It is the second drone to be introduced by the Islamic Republic this month.

Iran's Revolutionary Guards have reportedly announced that they have developed a "suicide drone" designed to deliver explosives to blow up land and sea based targets, Tasnim news agency reported, before taking down the article.

Designed to be used primarily for maritime surveillance, the UAV can also carry missiles in addition to "heavy payloads of explosives for combat missions to launch suicide attacks," Tasnim said, according to media reports.

**The new military hardware is said to be capable of flying at very low altitudes to avoid detection, descending to just two feet (half a meter) above water. However, it can also be flown as high as 900 meters (3,000 feet) at a speed of around 250 kilometers per hour (160 mph).**

*"Flying at a high cruising speed near the surface of the water, the aircraft can collide with the target and destroy it, either a vessel or an onshore command centre," the statement noted.*

In addition to its destructive capabilities, the drone also has an advanced military camera at its disposal, which can be used at night and in damp sea conditions. **Powered by two small propellers, it has a range of 1,000 kilometers (620 miles) and a flight time of four hours.**

Earlier this month, the Revolutionary Guards announced that it had cloned an American made attack drone. Production of the Saegheh (Thunderbolt) drone involved using reverse-engineering of a US Central Intelligence Agency (CIA) RQ-170 Sentinel drone that was captured in December 2011. The Iranian drone reportedly has high endurance and can carry a payload of four smart guided bombs.





## Forensic experts now able to identify Emirati criminals using DNA markers

Source: <http://www.thenational.ae/uae/forensic-experts-now-able-to-identify-emirati-criminals-using-dna-markers>

Nov 01 – **DNA markers exclusive to Emiratis have been identified by Khalifa University and Abu Dhabi Police.**

The discovery will help the authorities to better determine the ethnic backgrounds of victims and perpetrators of crimes.



Dr Habiba Alsafar, right, works with a researcher at the Khalifa University Centre for Biotechnology. Delores Johnson / The National

**Short tandem repeat (STR) markers are used across the world to identify the ethnicity of people**, but no research on STR markers that identify Emiratis had been done.

The announcement marks a turning point in the UAE's genetic research and crime investigation capability. It means that investigators will be able

to use traces of DNA left at crime scenes to identify whether those involved were Emirati.

"Analysing STR markers has become the preferred method among forensic scientists because of databases around the world, and the availability of STR DNA analysis kits," said Dr Habiba Alsafar, director of the Khalifa University Centre for Biotechnology. She is a co-supervisor of the landmark study.

**"There are at least 21 STR markers that have been studied extensively on six continents. But there was very limited information on STR markers unique to Emiratis before this study."**

The research was conducted in partnership with the University of Western Australia, the University of Central Lancashire and the Abu Dhabi Forensic Laboratory.

"Those 21 STR DNA markers have been used successfully to identify individuals for paternity testing and for analysing evidence from crime scenes in the UAE," said Osamah Alhmoudi, a captain at the laboratory. "And we can now add DNA traits we have identified that are unique to the local population to our database."

The findings of the research have been published in the journal *Forensic Science International: Genetics* for use by law enforcement agencies.

Prof Tod Laursen, president of Khalifa University, said: "We aim to not only do research of scientific importance but to make sure our research strategy leads to findings that are societally relevant."

"Dr Habiba and her team have expended huge time and effort in developing an international network of collaborators for the biotechnology centre and it is really gratifying to see the fruits of these efforts emerging now."

## New 3-D crime-scene forensics technology

Source: <http://www.homelandsecuritynewswire.com/dr20161103-new-3d-crimescene-forensics-technology>

Nov 03 – Researchers are developing a new type of portable crime-scene forensics technology designed to take **precise high-resolution 3-D images of shoeprints and tire tread marks in snow and soil.**

**The system will cost around \$5,000**, which is about one-tenth the cost of systems commercially available, and represents an

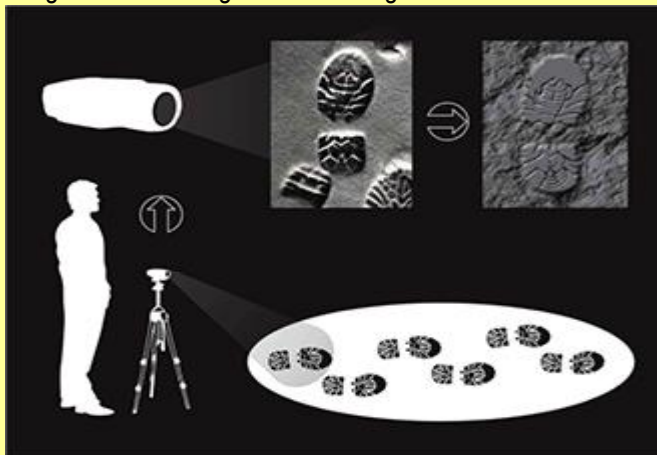
alternative to the traditional method of plaster casting, said Song Zhang, an associate professor in Purdue University's School of Mechanical Engineering.

Purdue says that the project is funded with a \$788,167, two-year grant from the National Institute of Justice. **The portable**



**3-D imaging system will have “auto-exposure control,” allowing investigators with no technical expertise to take high-quality images, and an intuitive user interface.**

“This is the biggest contribution we are making to the forensics community,” said Zhang, director of Purdue’s [XYZT Lab](#). “Current 3-D imaging products on the market are very difficult to use. You need expertise to be able to capture good images. What we want to do is bring in some intelligence to the algorithms so



the forensic examiner just has to click a button to capture good images.”

He will be working with two researchers in crime-scene forensics: forensic research scientist David Baldwin at the Special Technologies Laboratory, a U.S. Department of Energy-National Nuclear Security Administration facility in Santa Barbara, California; and retired forensic scientist and footwear and tire track examiner James R. Wolfe. The team also will include two doctoral students.

**The research team will work to develop a system that produces images with a resolution of 600 dpi.** Such an innovation would provide more precise results than casting and would produce images immediately, whereas casting takes up to an hour.

**“Most shoes have very small cracks from wear in addition to their design pattern, and our system will be able to capture these distinct features,” Zhang said. “These marks are unique to a specific shoe.”**

Zhang’s team has invented a “binary defocusing technique” that provides accurate

depth imaging by encoding data in LED light that is projected onto the snow or soil surface. The light bouncing back to the camera contains the pre-encoded information, allowing the system to determine the depth of surface features while using a single camera. A laptop computer will perform necessary computations needed to operate the projector and camera. Unlike some other systems, the new approach is “eye-safe” because it does not require the use of lasers.

This graphic depicts the operation of a new portable crime-scene forensics technology designed to take precise, high-resolution 3-D images of shoeprints and tire-tread marks. The technology works by encoding data in LED light that is projected onto the snow or soil surface, allowing the system to determine the depth of surface features while using a single camera. (Purdue University image/Song Zhang)

“Our project has promise to deliver a device that will improve the quality and accuracy of tire and footwear impression evidence,” Baldwin said. “We plan to develop an affordable and easy-to-use system that will provide the forensic science community with more and better evidence from crime scenes.”

**One challenge is to develop a system capable of taking high-quality images of shoeprints and tire tracks on mixed soil and snow.**

“Some substrates like snow and light sand pose major difficulties for crime-scene investigators when photographing and casting shoeprints and tire tracks,” Wolfe said. “This project has the potential to develop a system that can quickly obtain the 3-D detail in such impressions, maximizing the value of this type of evidence in a criminal investigation.”

**Another challenge is to take high-quality images for both diffuse and “specular” surfaces.** Some objects evenly reflect light, which is said to be diffuse, whereas shiny objects reflect bright highlights.

“This specular light presents problems for 3-D imaging because cameras do not respond properly to those highlights,”

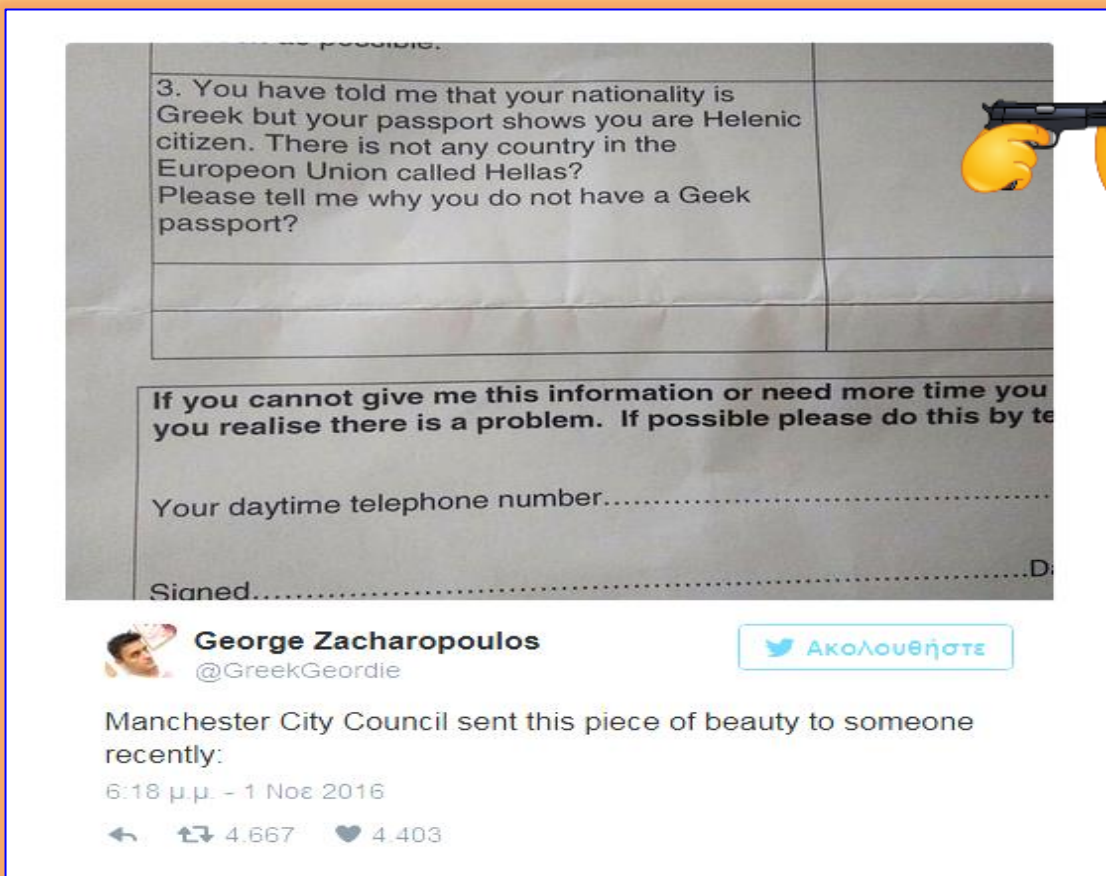


Zhang said. "So we have to adapt our sensor to be able to deal with both specular and diffuse light."

Purdue notes that the project officially begins in January.

► Watch the related video at: <https://www.youtube.com/watch?v=EMiaqiFOpb4>

## UK pearls...



## Dubai to Fujairah in 10 minutes? It could happen with a Hyperloop

Source: <http://www.thenational.ae/uae/science/dubai-to-fujairah-in-10-minutes-it-could-happen-with-a-hyperloop>

Oct 04 – Making the impossible possible was the theme of the International Hyperloop Competition, as teams from looked to reduce travel time between Dubai and Fujairah to only 10 minutes. Contestants were challenged to design three Hyperloop – high-speed tube – terminals, at Al Maktoum International Airport, Dubai International Airport and Fujairah International Airport. They also had to outline track infrastructure and the route between the terminals. Of the 67 shortlisted teams that took part in the 48-hour contest, six finalists explained their projects in front of judges on Tuesday at Dubai Future Accelerators in Emirates Towers.





**Mobius, a team of 20 staff from French transport consultant Systra, was named the winner.**

Paola Arellano, project architect, said their concept could become reality in a city as advanced as Dubai.



"Everybody is trying to do everything faster now," Ms Arellano said.



Michael Hoghooghi, general project director, said transport was about safety and security.

"In my opinion, the team won because of the totality of the solution and the approach they took," Mr Hoghooghi said.

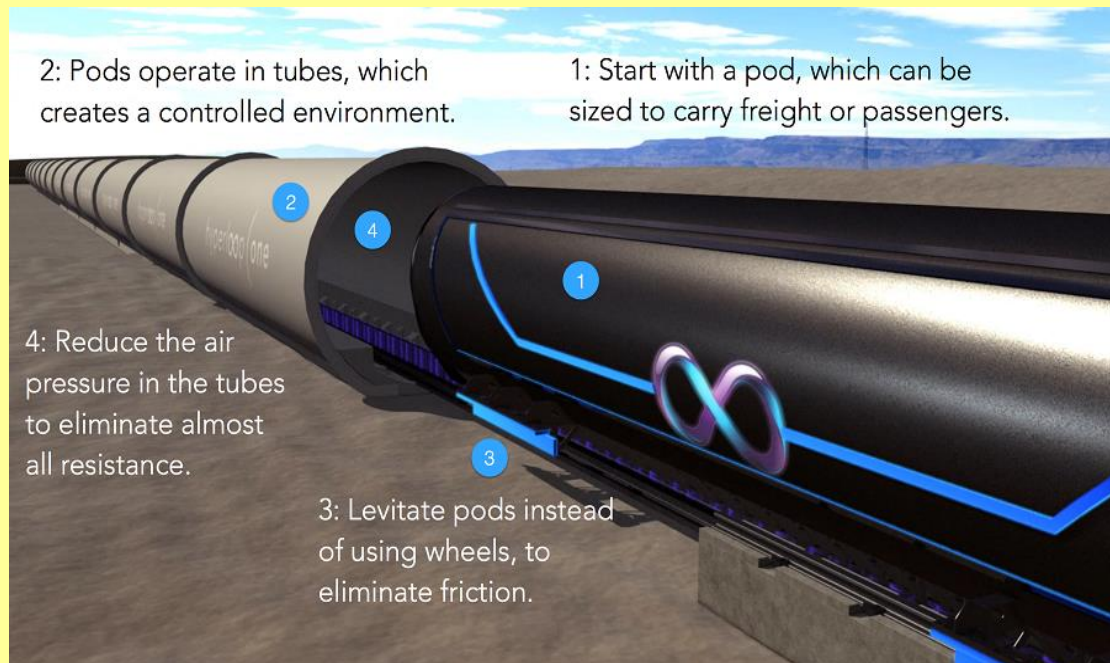
"It wasn't just about the form of the architecture. It included all the elements. We are at the cusp of transforming our business and industry and pairing up with the emergent technologies showing up."

He hoped that Dubai would implement the concept because it appealed to many elements that defined Dubai. "We are trying to transform not only our company, but our industry," Mr Hoghooghi said.



"We are primarily in the rail transport business so far but many solutions are emerging."

**Mohamed Salah, lead architect in the team, said a Hyperloop One system would cost about US\$6billion (Dh22bn), according to experts**



"The engine, the pod and a lot of engineering aspects and design concerns need to be addressed," he said.

The competition was hosted by the Dubai Future Foundation and organised by Asite.

**"Hyperloop capsules can reach speeds of 1,200kph and it has even been estimated that one day, they will reduce travel time from New York to Beijing to just two hours,"** said Saif Al Aleeli, chief executive of the foundation. "The UAE is looking to build a Hyperloop in the near future."

**EDITOR'S COMMENT:** We used to say: "If you want to see big things, go to the USA!" The last decade this has been changed to "If you want to see big things, go to the Emirates!" A small country with inspired leadership very close to hot geopolitical spots that materializes dreams even when one day they might be covered with mighty sand!

## Want to beat facial recognition? Get some funky tortoiseshell glasses

Source: <https://www.theguardian.com/technology/2016/nov/03/how-funky-tortoiseshell-glasses-can-beat-facial-recognition>



Nov 04 – **A team of researchers from Pittsburgh's Carnegie Mellon University have created sets of eyeglasses that can prevent wearers from being identified by facial recognition systems, or even fool the technology into identifying them as completely unrelated individuals.**



In their paper, [Accessorize to a Crime: Real and Stealthy Attacks on State-of-the-Art Face Recognition](#), presented at the 2016 Computer and Communications Security conference, the researchers present their system for what they describe as “physically realisable” and “inconspicuous” attacks on facial biometric systems, which are designed to exclusively identify a particular individual.

The attack works by taking advantage of differences in how humans and computers understand faces. By selectively changing pixels in an image, it's possible to leave the human-comprehensible facial image largely unchanged, while flummoxing a facial recognition system trying to categorise the person in the picture.

Where the researchers struck gold was by realising that a large (but not overly large pair of glasses) could act to “change the pixels” even in a real photo. By picking a pair of “geek” frames, with relatively large rims, the researchers were able to obscure about 6.5% of the pixels in any given facial picture. Printing a pattern over those frames then had the effect of manipulating the image.

But because computers don't read faces the same way people do, the patterns printed over the frames look to an untrained eye like a regular, if garish, tortoiseshell pattern. They're



cheap too: the researchers were able to print the pattern for just \$0.22 (£0.18) per frame, using a normal photo printer.

The end result is impressive. The glasses were able to fool both commercial facial recognition software Face++, as well as a more specific

model trained exclusively on five researchers and five celebrities. With just the pair of glasses on their faces, the researchers were able to successfully prevent the software from recognising their faces at all, as well as impersonate each other and celebrities including Milla Jovovich and Carson Daly.

The work is not without its limitations. The researchers warn that “the variations in imaging conditions that we investigate in this work are narrower than can be encountered in practice”.

The researchers took photos in a room with no external windows to control lighting, for instance. But they point out that many uses of facial recognition software, including biometric entry to a building, have similarly limited variations.

In other cases, that control is lost, of course: “An attacker may not be able to control the lighting or her distance from the camera when [a facial recognition system] is deployed in the street for surveillance purposes,” the researchers say.

If you're hoping to wear the glasses at boozy parties to fool your friends' auto-tagging ... well, as the researchers say, “the notion of inconspicuousness is subjective”. That is: someone is still going to ask why you're wearing those stupid glasses.

The CMU team aren't the first to demonstrate unusual hybrids of fashion and anti-surveillance tech.

Artist and technologist Adam Harvey first demonstrated his [CV Dazzle face-detection camouflage](#) in 2010 (photo; left) which is subtle in its own way: rather than trying the disguise the anti-surveillance system as conventional eyewear, Harvey hides it in plain sight. Bold makeup and hairstyles serve to baffle facial recognition technology while appearing to a human observer not as a subversive anti-tech kit, but as an outlandish style choice.

## French look to arm themselves after attacks

Source: <http://www.thelocal.fr/20161104/french-look-to-arm-themselves-after-attacks>

Nov 04 – **Recent shocking terror attacks in France have encouraged many to try to get hold of their own firearms, new figures reveal.**

A spate of shocking terror attacks on French soil in recent years has left many in France fearful.





As a result there has been a surge in the number of people joining gun clubs and looking to arm themselves.

An investigation by the [Nouvel Observateur website](#) found that the number of people signing up to become licensed members at shooting clubs has risen 38 percent in five years.

And in the past year alone there has been a 10 percent increase, believed to be down to the spate of terror attacks that began with the massacre at Charlie Hebdo in January 2015.

"Before the beginning of 2015, it was just a vague trend. But since the attacks at Charlie Hebdo, the Bataclan and Nice, the movement has amplified," writes the Nouvel Obs.

Having a gun no longer seems to be a taboo subject in France.

"It's just to have some means of defense at home," Marc, a 35-year-old father told the newspaper.

There are now some 201,450 people signed up at official shooting clubs and France can count 4.4 million legally owned weapons.

Although many of those who have signed up are police officers who want to practice firing their weapon.

The French government has recently given off-duty police officers the right to carry their arms and has encouraged municipal police to take their right to bear weapons on duty.

But Arpac, an organisation that is in favour of the public having the right to carry weapons, says it has received hundreds of inquiries since the terror attacks.

It seems not all of those who have decided to arm themselves are doing so legally with France seeing a steep rise in the number of illegal guns seized, according to the interior ministry.

**EDITOR'S COMMENT:** Europeans were always criticizing the "love" of Americans for weapons. Now they are just following their steps... And who are responsible for this change in mentality? The citizens or those who govern them?

Regarding the last sentence of this article, I copy from: "Public communication in acute CBRN incidents in Norway" (Kjersti Brattækås - Norwegian Defense Research Establishment (FFI); 9 January 2014): *"Communication which sets out to change or influence beliefs without recognizing the rational basis of those beliefs, or tries to divert attention away from people's real concerns, will almost certainly fail. A "we know best" attitude is often a formula for disaster."* Got the point?

## Dubai testing drone detectors after several airport incursions

Source: <http://www.reuters.com/article/us-eminates-airport-drones-idUSKBN12Y16E>

Nov 03 – Dubai is testing out ways to detect and track drones after a series of high-profile incursions upset flights at one of the world's busiest airports, the airport operator's top official said on Thursday.

The increasing use of drones for commercial and leisure purposes globally has led to a rise in the number of near-misses with aircraft and infringements into no-fly zones, spurring calls for their use to be better regulated.

Operations at Dubai's main airport, the world's busiest for international passengers, were halted for an hour on Oct. 29, delaying 40 flights. It was the third time they had been temporarily stopped in four months because of drones.





"We have got to find a way of controlling it immediately," Dubai Airports Chief Executive Paul Griffiths told Reuters.

"We just cannot have any more closures caused by infringements of drones in controlled airspace."

**Dubai Airports, which also oversees Dubai's Al Maktoum International Airport, is conducting trials to create a tracking system to detect the real-time location of any nearby drone and the radio frequency on which it is being operated.**

Countries around the world are grappling with how to control the booming drone industry. In the United States, rules for commercial drone usage were published on Aug. 29. Hobbyists must register crafts with the Federal Aviation Administration since December 2015.

In September, aviation associations representing airlines, pilots and airports across Europe called for mandatory registration and training of drone users following a number of near-misses.

#### **Punishment**

Dubai airport authorities have not said why operators fly drones at the airport but suggest

they are mostly leisure users unaware of the law or of how close they are to flying aircraft.

**Among the laws governing drone use in the UAE is a ban on flying vehicles in a "prohibited area", which includes the country's civil airports and military installations. Those caught breaking the drone law risk up to three years imprisonment and a fine of up to 100,000 dirhams (\$27,228).**

Griffiths did not know if anyone has been charged over the three recent incidents, but he wanted perpetrators jailed. "If people are caught infringing the airspace and threatening the safety of civil aviation, then clearly the penalties have to reflect that," he said.

Emirates, the largest airline at Dubai International, said on Nov. 1 that unauthorized drone activity at the airport caused stoppages costing it "millions of dirhams on each occasion" and urged authorities to "take strong measures" against it.

**"If people start to think you can't fly into Dubai because you may get diverted because they can't control the drone activity in the area, then that has a very serious reputational impact," Griffiths said.**

## **Study: more young people in Switzerland are right-wing**

Source: <http://www.thelocal.ch/20161104/study-more-swiss-young-people-are-right-wing>

Nov 04 – **A growing number of young people in Switzerland identify with the political right, according to a national survey.**

Commissioned by the Federal Defence Department (VBS), the [Young Adult Survey Switzerland](#) (YASS), published this week, **showed that 36 percent of young people in the country identified with the political right, up from 28 percent five years previously.**



The figures, which refer to the period 2006 to 2011, showed that the number of young people in the political centre had also grown, **from 31 percent to 36 percent, while those on the left had decreased from 41 percent to 28 percent during the five-year period.**

Conducted every four years, the YASS aims to evaluate how young people's values and views change over the years.

It questioned both young men entering their compulsory military service and around 3,000 19-year-old women in Switzerland about their views on work and training, health and sport, politics and public life, values, skills and outlook on life.

"Young adults are pioneers of a lifestyle that reacts constantly to the latest cultural, economic and social changes," YASS's authors said in a statement.

The study aimed to "provide information on young people passing from adolescence to adulthood".

The initial published results debunk the theory, often touted in the media, that second

generation immigrants are more right-wing than those born to Swiss parents, said the [report authors](#).

**Fewer than one in five second generation immigrants held conservative views, compared with a nearly quarter of youths born to Swiss parents.**

The study also analyzed the prevalence of xenophobia and homophobia amongst young people.

**More than half of Swiss without an immigrant background were hostile towards foreigners, found the survey, compared with only 14 percent of second generation immigrants.**

However the latter were more likely to hold homophobic views, it said.

Young people's views were also dependent on their educational background and their parents' political leanings.

**Overall 90 percent of those surveyed said they were happy with their lives in Switzerland, found the study.**

**EDITOR'S COMMENT:** What is exactly that "political right" mentioned in this article? Far right – right – central – left – far left: stupid labels people use for no apparent reason in order to categorize civilian sheeps. If only interviewers (part of the global game) could ask: "you favor political right. But what exactly is "right ideology" I am confident that only few could answer this question but also many related others. Generic meaningful question provide generic meaningful answers (also part of the game) facilitating political manipulation of the masses. But who am I to know? I am just a black sheep still thinking on its own!



## **'Absolute madness': German town to separate refugees, residents with barrier taller than Berlin Wall**

Source: <https://www.rt.com/news/365600-germany-wall-refugees-migrants/>

Nov 07 – **A town in Germany is erecting an enormous wall to separate its residents from refugees housed at a local migrant camp. The controversial 4-meter (13.1ft) barrier will stand higher than the Berlin Wall.**

Located in the **Munich suburb of Neuperlach Sud,** the stone wall is aimed at dividing the town's families from around 160 unaccompanied child refugees who are set to move into a nearby shelter currently under construction.

The wall's construction is being seen as a compromise between angry residents and the local government after seven locals previously filed a complaint against the shelter, Welt reported.

Those against the shelter have argued that the site will cause the value of their homes to plummet, and have raised fears about noise coming from the site. The nearest houses to the shelter are located 25 meters (82ft) away, and are separated from the construction by trees and a road, according to Ruptly.

The plan to build the wall was agreed by residents and the Munich Administrative Court in June.



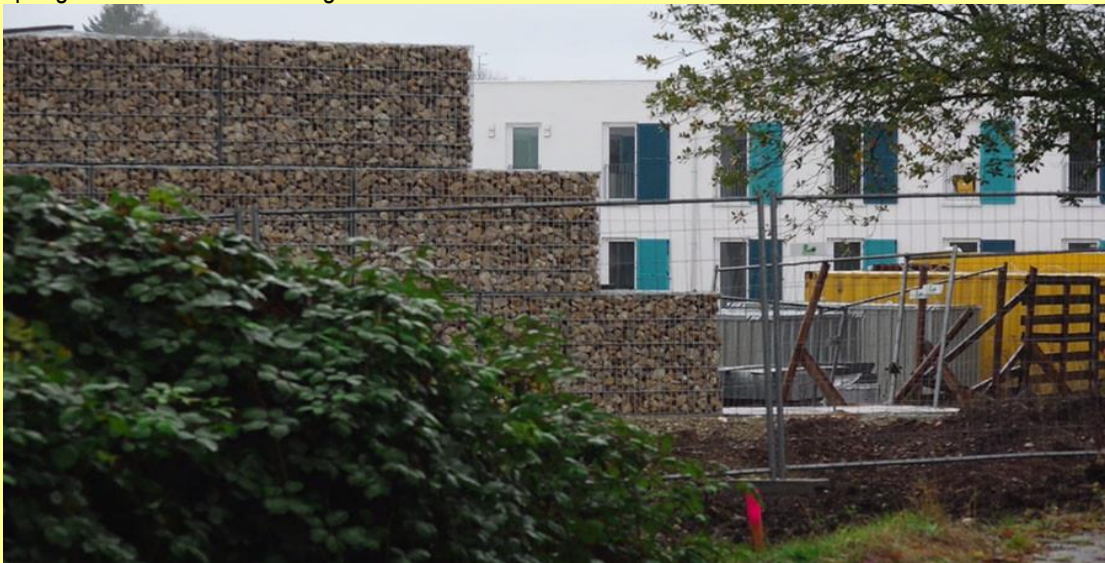


# Berlin? No, the Munich Wall to hide migrants



While some locals have praised the wall's construction, others have slammed it – including Deputy District Chairman Guido Bucholtz, who called it “*absolute madness*,” Merkur newspaper reported.

“*I just find it bad*,” Bucholtz said, adding that he believes the barrier – which is due to be completed in spring 2017 – will be far too high.



The wall is being seen as particularly significant because it will be higher than the Berlin Wall, which stood at a height of 3.6 meters (11.8ft).

“*Munich had to surpass that*,” Bucholtz said, adding that “*under integration I imagine something different*.”

Support for the wall is perhaps unsurprising in Bavaria, with many of the German state's politicians and residents repeatedly stressing their discontent with Chancellor Angela Merkel's open-door policy for those fleeing war and persecution.

**An October [poll](#) found that four in five people in Bavaria have a negative attitude towards Muslims. Only 27 percent of those surveyed were found to have no negative feelings towards refugees.**

In August, Bavaria's finance minister told Spiegel that asylum seekers who entered Germany during the refugee crisis should be sent back to their home countries within three years.



More than 1 million asylum seekers reached Germany in 2015, as part of the biggest refugee crisis since World War II.

**EDITOR'S COMMENT:** Europeans do not do things like this! They love illegal immigrants and refugees. It must be a mistake. Only bad Americans who recently voted Trump are building walls to keep poor (why?) Mexicans out! On the other hand, I sympathize local citizens that without notice saw their daily routine changed to the worst. Never criticize if not been for some seconds in other shoes!

## Italy – Can you tell the difference?

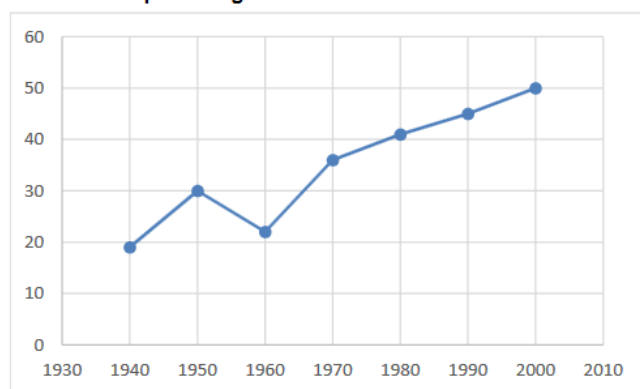


## Religious organisations and conflict resolution

Source: [http://www.europarl.europa.eu/RegData/etudes/BRIE/2016/593515/EPRS\\_BRI\(2016\)593515\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2016/593515/EPRS_BRI(2016)593515_EN.pdf)

Nov 09 – The role of religious groups in conflict and conflict resolution is at the centre of lively academic debate on the definition of religion, and of conflict, and on the link between intra- and inter-faith conflicts. Understanding these issues is key, as the number of people professing a religion in the world is set to increase in the next 40 years and the population share of the world's different religions will be affected by major demographic changes. Studies show that, in recent decades, the number of civil wars with a religious dimension has increased significantly.

**Figure 1 – Religious civil wars among civil wars in the world since 1940 in percentage**



Data source: Toft, 2007.

Nevertheless, many religious organisations are active in the field of conflict resolution and reconciliation, in Mozambique, Burma, Sierra Leone, Sri Lanka and at a more global level. International organisations, states and think-tanks are giving increasing consideration to the religious dimension of conflict resolution. In 2016, the European Union appointed its first ever Special Envoy for the promotion of freedom of religion or belief outside the European Union. The European

Parliament is meanwhile attentive to freedom of religion and belief in its resolutions. In recent years, the subject of engagement with local religious leaders has grown in importance for think-tanks, universities and governmental agencies in the USA.





## Sweden Takes Harsh Measures Against Camera Drones

Source: <http://i-hls.com/2016/11/sweden-takes-harsh-measures-against-camera-drones/>

Nov 04 - Aerial footage and photography professionals have been dealt a heavy blow in Sweden. **The country's Supreme Administrative Court decided that drones equipped with cameras are now to be categorised as surveillance equipment, whose use require a special license.**

Although a court had previously ruled against such categorisation of drones in the past, this decision has now been overruled. **Users wishing to use camera drones in public spaces must now apply for a permit and**



**pay a fee, just like with any other surveillance camera.**

Applying and paying does not, however, guarantee that the permit will be granted. To put it more clearly, the Swedish drone ban means you can put the new GoPro Hero5 on the Karma gimbal stick and you're good to go. Mount that on the Karma drone, however, and things quickly become illegal.

**Unmanned Aerial Systems Sweden, an industry group, reports that around 5,000 jobs could be in danger due to the new restrictions.**

According to cinema5d.com, different countries have taken various measures in response to the ever-increasing use of drones of both enthusiasts and professionals alike. For example, Dutch police were reported to have been training eagles to pick flying drones out of the sky around sensitive areas such as airports. In the US, the FAA recently released new regulations for drone operators, and in Europe there still isn't an cotenental overarching set of rules, as they vary greatly from country to country.

But Sweden's example sets a precedent with a particularly constraining set of rules.



## Immigrant “dreamers” fear deportation nightmare under Trump

By Jay Root and Travis Putnam Hill

Source: <http://www.homelandsecuritynewswire.com/dr20161110-immigrant-dreamers-fear-deportation-nightmare-under-trump>

Nov 10 – **Of all the people worried about a Donald Trump presidency, few are freaking out more than the young undocumented immigrants who were granted relief from deportation under President Barack Obama's 2012 executive order.**

Trump promised during his smash-talking presidential run to wipe away the order with a stroke of a pen, and with it the dreams of all those so-called “dreamers” who came out of the shadows under Deferred Action for Childhood Arrivals, or DACA.

On Wednesday, when Trump pulled off a historic upset against pro-DACA candidate Hillary Clinton, the fear that dreamers tried to push out of their minds for the last few months came spewing out. By next year, they could all be facing deportation — in some cases to countries they mostly know from pictures, if at all.

“I wouldn't even know how to get around Mexico right now. I have no sense of how things work there, how society works there,” said José Manuel Santoyo, 24, who grew up in





Corsicana and hasn't been back to his native Mexico since he left as a child in 2001. "Every society runs differently, and I wouldn't know what to do if I was there."

Santoyo wound up playing a bit role in the 2016 Republican primaries, when immigration hardliner Thomas McNutt ran against state Rep. [Byron Cook](#) of Corsicana. McNutt's family owns the company, Collin Street Bakery, that hired Santoyo even though he was undocumented and at the time didn't have DACA status — a revelation that contributed to McNutt's razor-thin loss to Cook. Santoyo was [featured](#) in news stories about the flap over undocumented workers at the bakery.

Santoyo's voice cracked when he contemplated his precarious future. He is scheduled to graduate from Southern Methodist University in December, a matter of days before Trump takes the oath of office. He has no idea if he'll be able to get a job or what his legal status will be after that.

"People are just afraid of what's going to happen. I feel like that's the worst thing: not knowing what's going to happen. That's what really kills you inside because you want things to be okay, but you don't know what these politicians will actually do in order to maintain their power," he said. "So that's what's impacting a lot of people. It's breaking them down mentally."

Santoyo joined thousands of fellow DACA beneficiaries who, in the span of a few hours, saw the unthinkable materialize into palpable fear.

Jessica Azua went to bed not knowing who won the presidential race Tuesday night and spent Wednesday in a state of shock and worry. She came to the United States from Tampico, Mexico, at the age of 14 to be reunited with a father she hadn't seen in three years.

She graduated early from Brackenridge High School in San Antonio and got a business management degree from Texas A&M University.

"I'm sad. I'm angry. I'm scared," said Azua, 25, a community organizer at the Texas Organization Project, or TOP, which fights for immigrants and low-income minorities. "I'm worried about what's going to happen to my family. I'm worried about what's going to happen to my job."

Omar Perez, 26, who recently graduated from University of Houston with a degree in mathematics, said he was planning to go to graduate school to study engineering but now figures that's "a really far-fetched idea." He doubts Trump will actually follow through with threats to deport people like him. What he fears instead is returning to the underground economy as an undocumented immigrant with no work authorization.

"Once you're undocumented you're treated like a second-class citizen in this country," he said. "It looks like that's going to be the reality."

**Obama's 2012 order granted relief from deportation to roughly 700,000 undocumented immigrants who arrived here as children. Nearly 200,000 of them are in Texas.** The recipients of the relief are named "dreamers" because they were targeted for DACA-like help by the DREAM Act, legislation that was introduced but never passed by the U.S. Congress.

DACA was restricted to immigrants without any serious criminal record and who had high school degrees, were on track to get them or an equivalent, or were honorably discharged U.S. military veterans. Besides shielding the immigrants from deportation, DACA gave recipients work permits, allowing them to leave jobs in which they often faced low wages and exploitation.

A July 2015 [study](#) published by the Center for American Progress, a progressive Washington-based think tank, found that 45 percent of DACA recipients reported a higher wage after receiving the benefit, while about 90 percent said they were able to get a state-issued ID. Another 90 percent said they were offered more educational opportunities with DACA than without.

Trump, whose hardline stance on immigration and border security became a signature issue of his winning campaign, said during an August appearance on NBC's Meet The Press that "the [DACA] executive order gets rescinded" in his presidency.

"They have to go," he said of those who benefited from it.

It's a scary prospect for Edgar Navarrete, 22, a University of Texas at Austin student who helps other immigrants navigate their DACA cases. Navarrete hasn't been to his native Coahuila, Mexico, since he was a toddler and couldn't even name the hospital where he was born. He continues to nurture hope that Trump will reverse course, but in the meantime he's had to contemplate the unimaginable: what to do if he is deported.



"I would contact a distant relative that I still have over there, and ask them for refuge for a while to figure things out," he said. "And I guess restart my life in Mexico."

Mary Moreno, another community organizer working for TOP, said revoking DACA would deal a blow not only to those who are shielded from deportation but also to the employers who are counting on them to show up for work no matter who's in the White House. She said DACA recipients are spread through the state and national economy — working as teachers, nurses and even doctors.

"It's still going to be a painful practice to extract that many people from the above-ground economy," she said. "They're doing essential jobs, and if they lose their status they lose their livelihoods, and it's going to have a significant impact on our economy and our state."

Despite hearing Trump's tough rhetoric for months, DACA supporters say they will fight to keep the benefit, through protests, community organizing and even direct appeals to Trump.

"Our hope is we can appeal to him to not be so cruel and callous about this and have some humanity," said Moreno. "I haven't seen any firm plans yet, but we are definitely going fight to preserve DACA."

*Jay Root was Austin bureau chief of the Fort Worth Star-Telegram, and also covered politics and the Legislature for The Associated Press before joining the staff of the Tribune.*

*Travis Putnam Hill is an investigative reporting fellow at the Texas Tribune.*

## Value of Israeli border fencing company's shares soar in wake of Trump victory

Source: <http://www.homelandsecuritynewswire.com/dr20161110-value-of-israeli-border-fencing-company-s-shares-soar-in-wake-of-trump-victory>

Nov 10 – **Magal Security Systems**, the Israeli company which built the defensive fence system around the Gaza Strip saw a surge in shares after Donald Trump was confirmed as the winner of Tuesday's election.

Magal had looked with anticipation at the prospect of a Trump victory how it would help the barrier-building business. Magal has built border walls and fences in Egypt, Somalia, and other African countries.

It is not clear whether Trump would follow through on his campaign promise to build a wall on the U.S.-Mexican border – and whether the wall, if built, would supplement or replace existing border barriers in urban areas along the 1,900 mile border.

"We would join forces with a major U.S. defense company that has experience with such projects worldwide," Magal CEO Saar Koursh told *Bloomberg* in August. "We've done it in the past and we would definitely want to do it."

The company has already enjoyed an increase in business as worries about ISIS have increase in Europe and around the world, and as European countries have been trying to cope with a wave of immigration. "The border business was down, but then came Isis and the Syrian conflict," Koursh said. "The world is changing and borders are coming back big-time."

## DONALD J. TRUMP'S VISION – IMMIGRATION

Source: <https://www.donaldjtrump.com/policies/immigration/>

- Prioritize the jobs, wages and security of the American people.
- Establish new immigration controls to boost wages and to ensure that open jobs are offered to American workers first.
- Protect the economic well-being of the lawful immigrants already living here by curbing uncontrolled foreign worker admissions
  - Select immigrants based on their likelihood of success in the U.S. and their ability to be financially self-sufficient.



- Vet applicants to ensure they support America's values, institutions and people, and temporarily suspend immigration from regions that export terrorism and where safe vetting cannot presently be ensured.
- Enforce the immigration laws of the United States and restore the Constitutional rule of law upon which America's prosperity and security depend.

### Donald J. Trump's 10 Point Plan to Put America First

1. Begin working on an impenetrable physical wall on the southern border, on day one. [Mexico will pay for the wall.](#)
2. End catch-and-release. Under a Trump administration, anyone who illegally crosses the border will be detained until they are removed out of our country.
3. Move criminal aliens out day one, in joint operations with local, state, and federal law enforcement. We will terminate the Obama administration's deadly, non-enforcement policies that allow thousands of criminal aliens to freely roam our streets.
4. End sanctuary cities.
5. Immediately terminate President Obama's two illegal executive amnesties. All immigration laws will be enforced - we will triple the number of ICE agents. Anyone who enters the U.S. illegally is subject to deportation. That is what it means to have laws and to have a country.
6. Suspend the issuance of visas to any place where adequate screening cannot occur, until proven and effective vetting mechanisms can be put into place.
7. Ensure that other countries take their people back when we order them deported.
8. Ensure that a biometric entry-exit visa tracking system is fully implemented at all land, air, and sea ports.
9. Turn off the jobs and benefits magnet. Many immigrants come to the U.S. illegally in search of jobs, even though federal law prohibits the employment of illegal immigrants.
10. Reform legal immigration to serve the best interests of America and its workers, keeping immigration levels within historic norms.

### KEY ISSUES

- Illegal immigrants and other non-citizens in our prisons and jails together had around 25,000 homicide arrests to their names. [\[United States Government Accountability Office, March 2011\]](#)
- Current immigration policy costs taxpayers \$300 billion a year [\[National Review, Sept. 22, 2016\]](#)
- There are at least 2 million convicted criminal aliens now inside the country. [\[Center for Immigration Studies, Oct. 2013\]](#)
- Since 2013 alone, the Obama Administration has allowed 300,000 criminal aliens to return back into U.S. communities.
- Between 9/11 and the end of 2014, at least 380 foreign-born individuals were convicted in terror cases inside the United States. [\[U.S. Senate Immigration Subcommittee, June 22, 2016\]](#)
- In the last five years, we've admitted nearly 100,000 immigrants from Iraq and Afghanistan – in these two countries, according to Pew research, a majority of residents say that the barbaric practice of honor killings against women are often or sometimes justified. [\[U.S. Department of Homeland Security, August 2016\]](#), [\[Pew Research Center, July 22, 2016\]](#)
- From the year 2008 through 2014, nearly 13,000 criminal aliens were released back into U.S. communities because their home countries would not take them back. [\[The Boston Globe, June 4, 2016\]](#)
- 62 percent of households headed by illegal immigrants used some form of cash or non-cash welfare programs, like food stamps or housing assistance. [\[Center for Immigration Studies, Sept. 2015\]](#)
- Nearly 1 million illegal immigrants, including nearly 200,000 with criminal convictions, had been ordered deported but remain at large. [\[Washington Examiner, July 1, 2015\]](#)
- Between 2013 and 2015, the Obama Administration released over 86,000 criminal aliens from custody. In 2015 alone, ICE freed 19,723 criminal aliens, who had 64,197





convictions among them. These included 8,234 violent convictions and 208 homicide convictions. [[Homeland Security Committee](#), Nov. 19, 2015]

## Leaked Photos Show Mexicans Overcome U.S. Border Security with Only a Raft

By Ildefonso Ortiz

Source: <http://www.breitbart.com/texas/2016/11/01/leaked-photos-show-mexicans-overcome-u-s-border-security-raft/>

Nov 01 – **Mexican drug cartel smugglers continue to penetrate the porous U.S. border with almost complete impunity.** A series of leaked images obtained exclusively by Breitbart Texas reveal the moment when a group of smugglers operating in Los Zetas cartel territory are able to use rafts to move across the Texas border.

The images were taken by law enforcement



officers in the area between Del Rio and Laredo, Texas. The black and white images taken at night show the moment that three suspected smugglers approach the river to get on a raft.

The images depict how the men were able to use the raft to move cargo across the waters of the Rio Grande. Breitbart Texas has reported in the past regarding lack of border security in

the area, which has made the location a prime



smuggling corridor for the Los Zetas cartel.

Despite assurances made by the federal government, the number of illegal immigrants crossing the border through cartel-controlled territories continues to increase to levels higher than those of previous years. One of the key statistics relates to the numbers of illegal immigrant families and unaccompanied minors continuously crossing the border from Mexico; which has risen sharply in FY 2016. **The apprehension of families has increased by 95 percent over FY 2015 numbers to 77,674,** according to a report from U.S. Customs and Border Protection (CBP). The number of Unaccompanied Alien Children (UAC) crossing the border stands a near record total of 59,692.

*Ildefonso Ortiz is an award winning journalist with Breitbart Texas and co-founder of the Cartel Chronicles project.*

## DONALD J. TRUMP'S VISION – VETERANS

Source: <https://www.donaldjtrump.com/policies/veterans-affairs-reform/>

- Ensure our veterans get the care they need wherever and whenever they need it. No more long drives. No more waiting backlogs. No more excessive red tape. Just the care and support they earned with their service to our country.
- Support the whole veteran, not just their physical health care, but also by addressing their invisible wounds, investing in our service members' post-active duty success,



transforming the VA to meet the needs of 21st century service members, and better meeting the needs of our female veterans.

- Make the VA great again by firing the corrupt and incompetent VA executives who let our veterans down, by modernizing the VA, and by empowering the doctors and nurses to ensure our veterans receive the best care available in a timely manner.



#### **Donald J. Trump's 10 Point Plan to Reform The Department of Veterans Affairs**

1. Appoint a VA Secretary whose sole purpose will be to serve veterans. Under a Trump Administration, the needs of D.C. bureaucrats will no longer be placed above those of our veterans.
2. Use the powers of the presidency to remove and discipline the federal employees and managers who have violated the public's trust and failed to carry out the duties on behalf of our veterans.
3. Ask that Congress pass legislation that empowers the Secretary of the VA to discipline or terminate any employee who has jeopardized the health, safety or well-being of a veteran.
4. Create a commission to investigate all the fraud, cover-ups, and wrong-doing that has taken place in the VA, and present these findings to Congress to spur legislative reform.
5. Protect and promote honest employees at the VA who highlight wrongdoing, and guarantee their jobs will be protected.
6. Create a private White House hotline, which will be active 24 hours a day answered by a real person. It will be devoted to answering veteran's complaints of wrongdoing at the VA and ensure no complaints fall through the cracks.
7. Stop giving bonuses to any VA employees who are wasting money, and start rewarding employees who seek to improve the VA's service, cut waste, and save lives.
8. Reform the visa system to ensure veterans are at the front of the line for health services, not the back.
9. Increase the number of mental health care professionals, and allow veteran's to be able to seek mental health care outside of the VA.
10. Ensure every veteran has the choice to seek care at the VA or at a private service provider of their own choice. Under a Trump Administration, no veteran will die waiting for service.





**KEY ISSUES**

- IG Report: 300,000 Vets Died While Waiting For Health Care At VA. [[Fox News](#), Sept. 3, 2015]
- Wait Lists Grow as Many More Veterans Seek Care and Funding Falls Far Short. [[The New York Times](#), June 20, 2015]
- Hundreds Of Appointment Wait Times Manipulated At Texas VA Facilities. [[Associated Press](#), June 21, 2016]
- A Fatal Wait: Veterans Languish And Die On A VA Hospital's Secret List. [[CNN](#), April 23, 2014]
- Report Finds Sharp Increase In Veterans Denied V.A. Benefits. [[The New York Times](#), March 20, 2016]
- Veterans Affairs Improperly Spent \$6 Billion Annually, Senior Official Says. [[The Washington Post](#), May 14, 2015]
- U.S. Veterans Commit Suicide At Rate Of 20 A Day, VA Says. [[The Wall Street Journal](#), July 7, 2016]
- White House Review Of Veterans Administration Finds 'Corrosive Culture.' [[Reuters](#), June 27, 2014]
- Few People Lost Jobs With V.A. in Scandal. [[The New York Times](#), April 22, 2015]
- Veterans Affairs Pays \$142 Million In Bonuses Amid Scandals. [[USA Today](#), May 22, 2014]
- VA Hasn't Fixed Wait-time Problems, GAO Finds. [[USA Today](#), April 18, 2016]

**White House in 2020**



## Can Water Bottles be Kept in Our Hand Luggage?

Source: <http://i-hls.com/2016/11/can-water-bottles-be-kept-in-our-hand-luggage/>



Nov 09 – **Two new screening systems that will allow passengers to leave liquids and laptops in their hand luggage when passing through airport security has been tested by Amsterdam Schiphol airport.**

New software in the scanning devices will give security staff a **360 degree view** of the contents of each bag being screened, allowing them to more closely inspect them for prohibited items, according to the Schiphol Group website.

The project will take place in two security lanes in the departure halls where transfer passengers are checked. Passengers will be notified of the trials before their baggage is screened, notes Amsterdam Schiphol.

All will still have to put their liquids and gels in a resealable, plastic bag with a volume of not more than one litre, with none of the containers in the bag holding more than 100 ml. However, in the specific lane where the pilot project is being carried out, passengers will receive a separate instruction: the one litre bag with liquids and gels may remain in their bag.

The airport sources say “another purpose of the pilot project is to find out whether the screening process can be made simpler and faster for passengers”.

“If everything goes according to plan and the pilot project is completed successfully, Schiphol will gradually introduce these new and innovative hand baggage scanning devices in all 67 security lanes”. **“We expect to see this process finished in late 2017.”**

The airport is certainly a pioneer in the creation of new, more customer friendly security areas, and claims to be “working continuously to improve the security process, with the aim of making the security check more pleasant and more comfortable for passengers and ensuring a safe and efficient security process at the airport”.

The pilot project is run in conjunction with the National Coordinator for Security and Counterterrorism and KLM. This collaboration over the past few years has, among other things, resulted in the introduction of the very first security scan for passengers, crew and staff and the new security lane in 2015.

## Jewish Soros orchestrating color revolution against Trump: Analyst

Source: <http://presstv.ir/Detail/2016/11/13/493455/Trump-Soros-US-Clinton-protest-Jones>

Nov 14 – **Jewish business magnate George Soros has orchestrated a “color revolution” against US President-elect Donald Trump, says an American political analyst, pointing to nationwide anti-Trump protests as evidence.**



E. Michael Jones, editor of the Culture Wars Magazine, told Press TV on Sunday that the unrest following Trump's crushing victory over

his Democratic rival Hillary Clinton on Tuesday was carefully planned by Soros.

He also argued that polls are being used as a means to undermine Trump's presidency, just like they were used against him before the election.

According to an ABC News/ Washington Post survey released on Sunday, 26 percent of Americans thought Trump's election victory over Clinton was not legitimate.

“What we are seeing here now is George Soros once again intervening in the internal politics of the United States by creating a color revolution,” Jones said.

Jewish billionaire George Soros (L) and former US secretary of state Hillary ClintonThe analyst said Hillary and her husband,



former president Bill Clinton, were wearing purple during the former secretary of concession speech, indicating the color of the revolution.

Jones said organizations such as MoveOn, which encourages people to stand against Trump, were being financed by Soros to forward his agenda.

Republican leaning media outlets like Fox News allege that MoveOn is much larger than what it looks and that it “owns” the Democratic Party. The network has openly suggested that Soros owns the organization.

**During the 2004 presidential election, Soros gave nearly \$1.5 million to the MoveOn.org Voter Fund.**

**In this year’s cycle, MoveOn issued a press release after Trump’s election, inviting Americans to hold “peaceful” protests across the US.**

“The gatherings – organized by MoveOn.org and allies – will affirm a continued rejection of

Donald Trump’s bigotry, xenophobia, Islamophobia, and misogyny and demonstrate our resolve to fight together for the America we still believe is possible,” the organization’s statement read.

MoveOn even boasted of creating “over 200” gatherings within two hours of issuing the call. Thousands of protesters have been holding rallies in various parts of the US, urging him to resign over his racist and divisive campaign pledges.

**Major US cities like Chicago, New York City, Los Angeles, Boston, Portland and several other cities have seen violent confrontations between protesters and security forces, with over 200 people being arrested in Los Angeles alone.**

According to leaked emails released by the anti-secrecy group WikiLeaks, Hillary Clinton’s top aide John Podesta had instructed Soros in 2008 on how to stir American voters through organizations similar to MoveOn.

## FBI releases hate crime statistics report

Source: <http://www.homelandsecuritynewswire.com/dr20161115-fbi-releases-hate-crime-statistics-report>

Nov 15 – The FBI says that hate crimes like these can have a devastating impact upon the communities where they occur, which is one of the reasons why the investigation of hate crimes that fall under federal jurisdiction is the number one priority under the FBI’s civil rights program.

But in addition to its investigative work, the FBI gathers and publishes — through its Uniform Crime Reporting Program — hate crime statistics from law enforcement agencies across the country to help provide an accurate accounting of the problem, by state and nationally. Yesterday, the Bureau released its latest [Hate Crime Statistics, 2015](#) — this one containing data for 2015 — which includes information detailing the offenses, victims, offenders, and locations of hate crimes. The 2015 collection marks the twenty-fifth anniversary of the Bureau’s work to compile data about bias-motivated crimes, which began in 1990.

**This year’s report, which contains data from 14,997 law enforcement agencies, reveals 5,850 criminal incidents and 6,885 related offenses that were motivated by bias against race, ethnicity, ancestry, religion, sexual orientation, disability, gender, and gender identity.**

**Additional findings in [Hate Crime Statistics, 2015](#) include the following:**

- There were 5,818 single-bias incidents involving 7,121 victims. Of those victims, 59.2 percent were targeted because of a race/ethnicity/ancestry bias; 19.7 percent because of a religious bias; 17.7 percent because of a sexual orientation bias; 1.7 percent because of a gender identity bias; 1.2 percent because of a disability bias; and 0.4 percent because of a gender bias.
- There were an additional 32 multiple-bias incidents that involved another 52 victims.
- Of the 4,482 hate crime offenses classified as crimes against persons, intimidation accounted for 41.3 percent of those offenses, while 37.8 percent involved simple assault and 19.7 percent involved aggravated assault.
- There were 2,338 hate crime offenses classified as crimes against property, and the majority of those (72.6 percent) were acts of destruction/damage/vandalism.
- During 2015, most reported hate crime incidents (31.5 percent) happened in or near residences or homes.



- Of the 5,493 known offenders, 48.4 percent were white, 24.3 percent were black or African-American, and race was unknown for 16.2 percent of the offenders. The rest were of various other races.

**New** to the 2015 *Hate Crime Statistics* report is the inclusion of seven additional religious anti-bias categories (anti-Buddhist, anti-Eastern Orthodox, anti-Hindu, anti-Jehovah's Witness, anti-Mormon, anti-other Christian, and anti-Sikh), as well as an anti-Arab bias motivation.

#### Importance of reporting hate crime data

In 1990, Congress passed the Hate Crime Statistics Act, which required the attorney general to collect data "about crimes which manifest evidence of prejudice based on race, religion, sexual orientation, or ethnicity." The attorney general delegated the responsibility to the director of the FBI, who, in turn, assigned the task to the Bureau's Uniform Crime Reporting (UCR) Program.

Since then, additional categories have been added in an effort to improve the quality of the data collected. The more detailed we can be with the collection, the better all of law enforcement can detect trends and add necessary resources to combat these crimes.

The FBI notes that the Bureau's annual *Hate Crime Statistics* report is only as good as the information it contains, and increased

participation from law enforcement agencies will provide a more complete picture of hate crime in America. Recently, the International Association of Chiefs of Police — with the assistance of the Anti-Defamation League — issued a model policy for law enforcement agencies around the country on the investigation of hate crimes. The IACP also encouraged each agency to develop a standard for collecting, analyzing, and reporting incidents of hate crime — and, in particular, to submit monthly reports on all hate crime occurrences to the UCR Program.

**According to FBI director James Comey, "We need to do a better job of tracking and reporting hate crime to fully understand what is happening in our communities and how to stop it."**



## Advanced anti-drone protection and neutralization system unveiled

Source: <http://www.homelandsecuritynewswire.com/dr20161115-advanced-antidrone-protection-and-neutralization-system-unveiled>

Nov 15 – **Elbit Systems** will use the Israel HLS & Cyber Conference, taking place this week in Tel Aviv, to unveil its **ReDrone system**, a solution for protection of closed air spaces, national infrastructures,



and other critical areas against hostile drones penetrating the protected perimeter. The company says ReDrone is designed to detect, identify, track, and neutralize different types of drones that are flown within a range of radio frequency communication protocols. The system will be presented at the conference along with Elbit Systems's SupervisIR, an infra-red wide-area persistent ISTAR (information, surveillance, target acquisition, and reconnaissance) system. SupervisIR can be integrated and operated within the ReDrone system, enabling full-scale Signal Intelligence (SIGINT) and thermal imaging detection capabilities of hostile drones.

The company notes that ReDrone's open system architecture allows multiple hardware configurations, including an array of controllers and sensors for target detection, tracking, and engagement. The system is also capable of separating a drone's signals from its operator's remote control signals, as well





as pinpointing both the drone and the operator's directions. The advanced detection system provides 360-degree perimeter protection and complete, up-to-the-minute situational awareness. It can also deal with a number of different drones simultaneously. The advanced passive detection features of ReDrone also enhances environmental protection and supports the safety of civilians and air platforms inside the secured airspace.



After detecting a target, the ReDrone system disrupts the drone's communication with its operator, blocks its radio and video signals and GPS positioning data, and sends it off track, preventing it from carrying out an attack. ReDrone's infrastructure is designed for rapid installation in different application areas and terrains, and is suitable for operation in all weather conditions. Its digital control unit, which is based on Android, features an easy-to-use user interface.

## New VR Combat Helmet – Also for Drone Pilots

Source: <http://i-hls.com/2016/11/new-vr-combat-helmet-also-for-drone-pilots/>

Nov 12 – **Russian drone pilots may soon get a revolutionary virtual reality helmet to pilot unmanned aircraft and get an HD view of terrain and enemy targets.**

The new feature allows for better situation awareness while flying combat missions, developers say.

Svarog – the new combat helmet, is the first-ever virtual-reality helmet to be designed for the Russian military. **It allows operators to fly drones by merely turning their heads and looking at the target, rt.com reports, basing on Izvestia newspaper.**





Aircraft helmets with mounted displays are usually used in fifth-generation fighter jets to improve the crew's ability to attack and destroy targets that the pilot sees. Such systems allow targets to be identified with minimal aircraft maneuvering, thus minimizing the jet's exposure to threats.

Alexey Pechkin, a researcher at Russia's Mari State University, which is involved in the development, said "the helmet is undergoing domestic tests and is expected to be delivered to the Defense Ministry in the beginning of 2017." The research and development is focused on "experimenting with the characteristics of the observation lens, but, even at this point, the [helmet's heads-up] screen has twice the resolution of its foreign competitors," he said.

**The high-quality image enables an operator to see terrain in detail, distinguishing between not only tanks and infantry fighting vehicles, but also individual soldiers.**

According to the developers, simple movements of the helmet can control a drone. The operator can change the aircraft's altitude by raising and lowering his head, a feature available due to built-in gyroscopes that track the helmet's position in real time.

The helmets also provide pilots with greater lethality, survivability, and situational awareness.

Drone technology is currently on the rise in Russia, as it is stepping up efforts to modernize and re-arm its military. One of the state-of-the-art projects involves "swarming" sixth-generation unmanned aerial vehicles (UAVs) that can self-organize and act independently.

The **'Svarog'** weighs only 400 grams and features two screens, one for each eye, with a resolution of 5120×2180 pixels, four times more than the most common PC monitors.

In July, Russian military high-tech officials told reporters that sixth-generation fighter jets will be rounding on the enemy in "swarms," flying at hypersonic speed. Each "swarm" will consist of a main aircraft, while the other UAVs will be assigned different tasks, such as reconnaissance, hitting ground targets, or destroying enemy aircraft.

## Start-Up: The Simulations World's Next Revolution – 3DOR Simulations

Source: <http://i-hls.com/2016/11/start-up-the-simulations-worlds-next-revolution-3dor-simulations/>

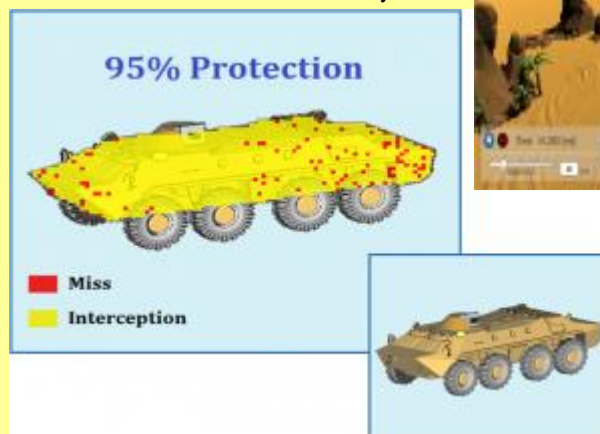
Nov 14 – The simulation field is one of the realms being developed in fifth gear in many industries, especially the security one. The young up-and-coming **3DOR** (3D Operations Research), which is participating in the iHLS Security Accelerator, may very well revolutionize this new and intriguing subject.



"We developed a simulation engine that takes into account many variables and data and can simulate, within seconds, how a system that wasn't tried in the field yet would operate" explained Ilan Grinberg, Chief Development Officer in the company. A concrete example would be instead of going out and hosting expensive tests with an already-built system made for active defense, which calls for tremendous amounts of space, time and resources, one can calculate the odds of a successful interception on the computer, in which scenario will the system fail to intercept – and also, analyse why it had failed and examine ways to improve the system. "The unique traits of our system", said CTO, Oren Cohen, "are its calculation speed, flexibility and ability to analyze to the highest resolution".

The speed means that within seconds a large number of scenarios is calculated in a logic and visible manner. In addition, as Oren stated the system is flexible – every project adds more capabilities to the simulation. In fact, after every project, the company will have additional software models, required in order to operate more rapidly the next project.

"Today, a new simulation system is developed for testing the probability of success of almost every defense system. Our technological target as a company is to build a generic infrastructure that would conform a wide range of fields, and achieve a large pool of software models so that for the simulation of a new system – we will already have most of the required software capabilities for a rapid testing. This will mean that precise answers can be obtained already in a



very early stage of the development" said the company's CEO, Amir Fishman.

**The last (and some say the most important) point is the ability to take small details in to account.** This point deserves to be highlighted – a large amount of variables can be changed within several seconds. If, for example, the aforementioned defense system

failed a test, the developers would have to go back to the drawing board, try and decipher what caused the dysfunction, create a solution, go through more days of testing, fail (without any knowledge what in fact were their chances of succeeding), go back to the planning, have more testing days and so on, until the optimal solution is achieved.

With 3DOR's development, this whole procedure is reduced. All that's needed is "feeding" the system with the threats data, as well as the data of the system under development, and checking the percentage of successful scenarios. If it's not effective enough you can "mend" the data in order to find the best balance and then create the actual system accordingly and test it. A procedure that would take months, and even years – shrunk to a short period of time.

The system is also possible for use in other fields: "we can also examine assault systems, passive defense, sensors and numerous other developments" said Fishman.

About the future of the company and where it's going to be a few years from today there are of course no certain answers, but it's clear where it's headed: "Our aim is to supply the customer with advanced simulation and operations research capabilities from the earliest possible stage of the project, already at the concept definition stage, and accompany the development process until the optimization and the formulation of the operation logic for the final product. Advanced simulation capabilities at hand will shorten the planning





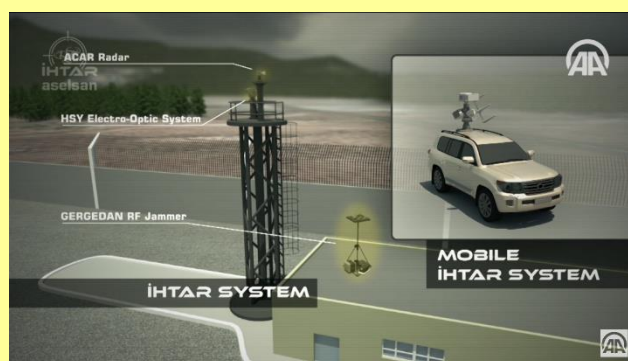
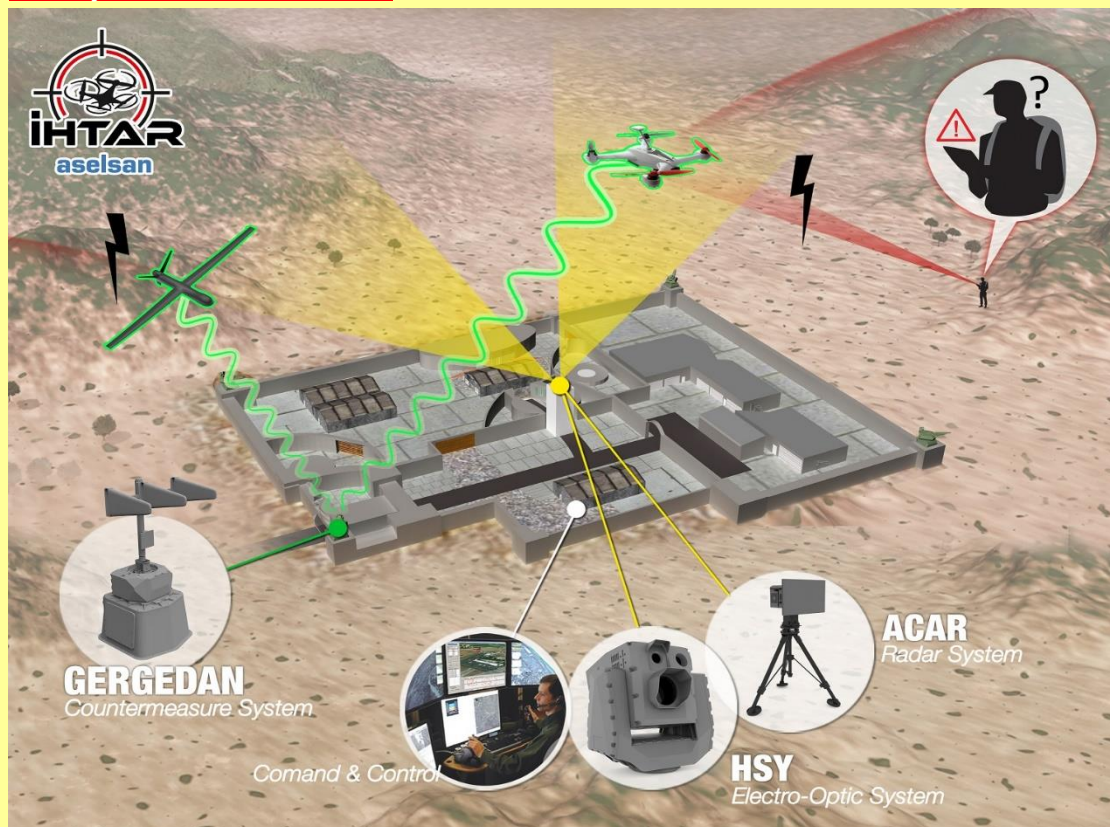
process, save testing and development costs, and bring to market a better product within a shorter period of time and with lower costs”.

## Turkish Competition Also to Israel – in Anti-UAV Defense

Source: <http://i-hls.com/2016/11/turkish-competition-also-to-israel-in-anti-uav-defense/>

Nov 13 – Turkey developed a fully integrated air defense system to detect, track and disrupt any illegal activity of small and micro unmanned aerial vehicles (UAV) on the public and commercial spheres. The technology uses radio beams to freeze drones in midair by interfering with their control channels.

**İHTAR – the Air Defense System against UAV – was developed by Turkey’s national defense industry manufacturer ASELSAN.**



According to yenisafak.com, the basic functions of the İHTAR system are the identification of the UAVs, automatic follow-up of the UAVs and labeling them as threats and preventing their illegal activities through most appropriate countermeasures.

**The full system consists of an electronic scanning air security radar, a stabilized electro-optic director, thermal and daylight cameras, a directional**

**radio frequency inhibitor and jamming system.**

According to the company, the new air defense system aims to protect public and commercial areas, including airports, power plants, civil facilities, border posts and military headquarters, against UAV’s illegal activities.





**İHTAR's jamming and deception systems can identify and follow any fixed or mobile threats via radar and cameras.** It enables the blunting of the signal of the UAVs' GPS channels, so that the drones lose control and cut contact with the operators.

This air defense system, which has an **ability to jam 360 degrees**, is managed by a central command. It is designed to protect individual targets against mass attacks.

The new system integrates multiple and various radar and preventive systems with its modular form. In addition to the radio disruptor / jammer, İHTAR also has an optical disruptor that can disrupt the auto focus on the drone's camera, rendering it useless.

## All military dogs go to heaven: JBA honors fallen dogs

Source: [http://www.dcmilitary.com/andrews\\_gazette/news/all-military-dogs-go-to-heaven-jba-honors-fallen-dogs/article\\_b0bbda1f-1eac-5267-8d73-00b6ee6037dc.html](http://www.dcmilitary.com/andrews_gazette/news/all-military-dogs-go-to-heaven-jba-honors-fallen-dogs/article_b0bbda1f-1eac-5267-8d73-00b6ee6037dc.html)



Nov 04 – The atmosphere was visibly solemn as defenders from the 11th Security Forces Group stood at attention on Joint Base Andrews Oct. 28 to pay their respects to two decorated American heroes.

The military working dogs — an Afghanistan veteran, and the other a vital part of JBA security — left



'pawsitive' impressions on their coworkers.

"Military working dogs are a vital asset to Air Force operations and are considered essential for detection of explosives and narcotics due to their sense of smell being 20 times more powerful than a human's," Staff Sgt. Derek Scrivener, 11th Security Support Squadron military working dog handler, said. "The dogs are highly skilled and can be used as attack dogs when necessary."

MWD Riso was born Oct. 23, 2006 and began his career in

the Air Force Dec. 7, 2007. Riso was certified for narcotics detection before starting his career at JBA. Riso worked with nine handlers over a span of 10 years, providing security



and multiple positive narcotics detections and was deployed to Afghanistan in 2011 and 2012. MWD Riso passed away Oct. 3 due to medical conditions.

His wingman, MWD Kart, was born Nov. 7, 2007 and was accepted into the Air Force in January of 2008. Kart was certified for explosive detection before starting his career at JBA where he worked with seven handlers in seven years. MWD Kart provided security for copious amounts of high-profile events and distinguished leaders and visitors from around the world. Kart was retired from duty June 13 and was adopted by Tech Sgt. Jake Twaddle, where he enjoyed civilian life. Kart had to be put down Oct. 6 due to medical complications.

"It didn't matter what we were doing, whether it was driving around base seeing the vet for a checkup or spending hours inspecting car after car at the search pit," Tech Sgt. Codi Carter, Pentagon military security force team leader, said. "No matter what, he was always happy."

The Military Working Dog Adoption Program, enacted by Congress in 2000, allows the adoption of retiring dogs to law enforcement agencies, former handlers and other persons capable of caring for the dogs. This program gives the dogs an opportunity to live life as a normal dog and allowed Kart to live his last days to the fullest.

"Our MWD's are truly one of a kind," Tech. Sgt. William Stone, 11th SSPTS MWD section kennel master, said. "From seeking our intruders, enforcing zero drug tolerance to protecting people and resources from explosives, these MWD's faced the most difficult tasks with no fear. All they want is to keep their handler safe and make them happy, and we are truly thankful for all they do."



## A Hero's Nature

By Cory Grimm, U.S. Air Force Veteran

*Originally posted on May 24, 2011*

Source: <http://stubbydog.org/2012/05/a-heros-nature/>

It wasn't long ago that I was both a soldier and whatever you call the opposite of a pit bull advocate. It wasn't that I hated the dogs, just that I – like so many others – heard all the horrible things that the breed was known for and flat out was not interested in testing the validity of the stories. Since then I've seen the truth behind a lot of the stigma and have grown to appreciate what the breed is really about.

**Pit bulls are protectors and companions. It's bred into their DNA to love and protect people, even if that means putting themselves at risk to do so.** It's a trait of the breed that has been exploited too many times to count, but I'm happy to say that there is one very famous dog that proved that the nature of a pit bull is, and always has been, to keep us safe.



## Stubby Enlists

Sergeant Stubby was a pit bull type dog that was found and "enlisted" by Private Conroy during World War I. The puppy's short tail gave him a name, and the Army gave him a mission.





Stubby would train with the Army every morning, running and exercising with the unit. It's important to mention that in the military, acting as a cohesive unit not only makes the team stronger, but also helps to firmly bond the members together. Stubby was no exception here, as the soldiers frequently used Stubby to set the pace for running and as a mascot for the unit as they trained for the war. It's also important to mention that dogs are not soldiers and are not shipped off to war.



Except, that is, for Stubby.

Private Conroy received orders to depart for Europe shortly after training had finished. He and his fellow soldiers were heartbroken at the idea of leaving their K-9 companion and mascot behind, so they worked together to smuggle the dog onto the ship, hide him until they were too far from land to return, then present him to the ship's crew, who quickly adopted the furry fellow as their mascot as well.

Stubby served to raise morale on the ship, a job at which he excelled. The entire crew came to love the dog as their own, even going so far as to have the supply officers craft him a custom-fit uniform and the machinists engrave him his very own dog tags.

When the ship arrived, the dog was smuggled on land and kept out of sight until orders were received to set out to battle in 1918. Stubby was discovered by the commanding officer.

The officer was not about to allow a

dog to be mingled with his troops and serve as a distraction.

Private Conroy claimed that he could prove that Sergeant Stubby wasn't just some dog, that he was as well trained as any soldier and could keep morale up during their mission. To prove this point, Conroy ordered Stubby to "Present Arms."

That's military speak for saluting. Stubby sat down, raised his right paw to his eye and held it there until ordered to "Order Arms," or military speak for lowering a salute.

The commander considered the values of increased morale amongst his men and eventually allowed Stubby to accompany the unit to the battlefield.

### Loyal Service

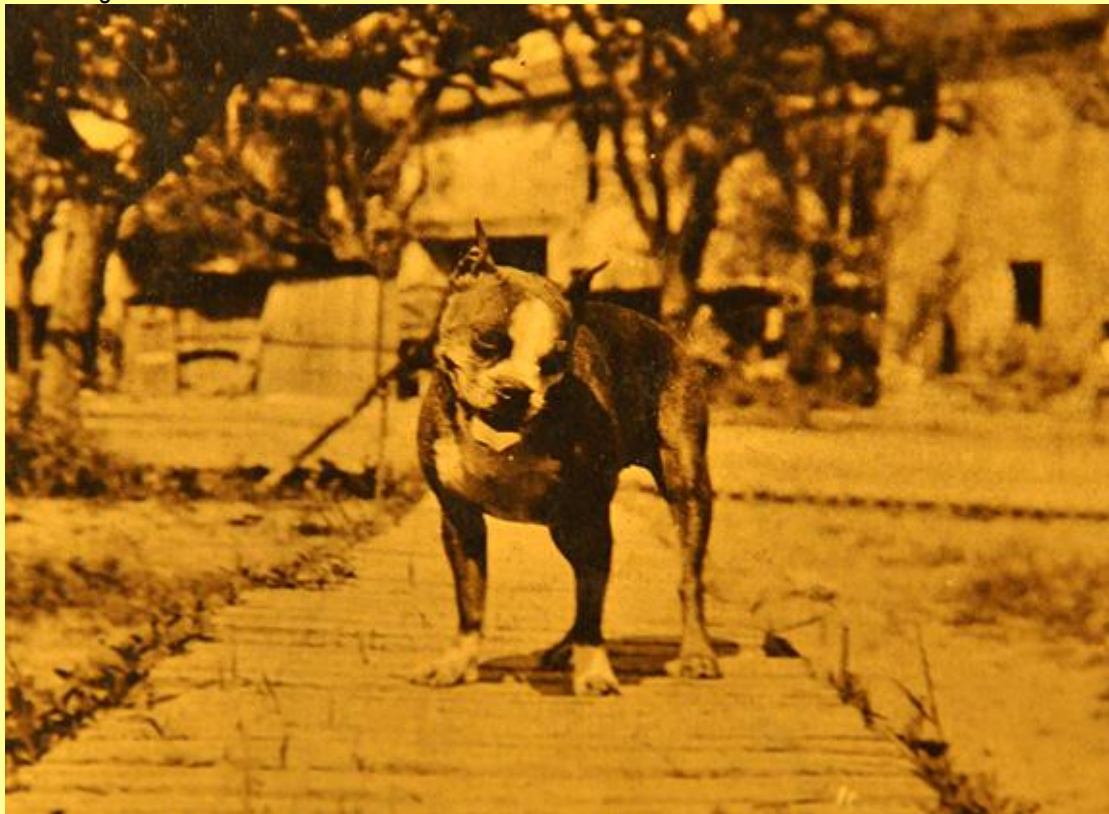
Stubby stayed with the unit for 17 major battles. The dog wasn't a fighter; in fact, he never left the American trenches. He was, however, a protector during those 17 engagements.

Stubby was exposed to mustard gas during the war, which nearly took his life. The pit bull was sent to the military hospital and given the same level of attention as the rest of the soldiers. During Stubby's recovery, he would roam the hospital from wounded soldier to wounded soldier, offering a bit of support and affection as the men recovered from battle. Eventually, Stubby was ready for action again.

The dog was returned to the trenches and to his buddy, Conroy. Stubby had learned how to stay low in the trenches during firefights and had learned how to identify injured – but living – soldiers and alert medics to their location. The wounded men would call to Stubby, who would seek them out during the night and help bring them back to safety.



Stubby's previous injury even gave him yet another way to protect his comrades: He could smell mustard gas before it was lethal.



The pit bull's keen nose and protective nature saved many American lives, as he would detect the toxic fumes before human noses would even know it was there. The entire unit was able to escape chemical attacks that would otherwise kill every last man while they slept.



During the following years Stubby was injured by stray bullets and grenade shrapnel. Each time, he was taken to the medics, nursed back to health, and then returned to the front lines where he served to keep his men safe. Stubby even learned to identify the German language, which led him to a German spy that was mapping out the location of American soldiers. During one of Stubby's routine searches for wounded American soldiers, he found the German hiding amongst the bushes and

managed to hold the man in place long enough for Americans to locate and capture the spy.

This act was what officially earned Stubby a promotion to the rank of Sergeant in the U.S. Army (a higher rank than Private Conroy).





### True Character

Eventually, Stubby and Conroy returned home to the United States, where Stubby was greeted with both a hero's welcome from the American public, and two visits from Presidents Harding and Coolidge. The story of Stubby is one that I wish more people knew. After the war, Stubby was not just the mascot of his unit, but of this country. The pit bulls seen with Uncle Sam and standing with soldiers during that era were all based on Stubby. His tenacity and courage was a source of pride for the Army and for America as a whole. The protective instincts and impossibly close bond that Stubby had shown were, at the time, the breed's defining characteristics.

Sadly, it has been many years since Stubby's time. His legacy has all but vanished in today's perspective of the pit bull: Tenacity and courage has been replaced with viciousness and aggression, love and companionship replaced with fighting and malice.

As a soldier, I can tell you that the pit bull's nature is one that I would gladly take with me into unknown territory. I would have been honored to have a dog like Stubby watching my back no matter what, keeping my spirits up and, most importantly, keeping me safe.

As a pit bull owner I can tell you that the dog's nature is one that I cherish. I am honored to have a friend that shows me love no matter what, a friend that keeps me smiling, and one that gives me the opportunity to share his amazing breed's *true* nature with the world.

The characteristics of a pit bull that make them frightful in the minds of many are the same that make them incredible in the minds of those that know. They are physically durable dogs, which is great for families with children. They are big dogs, which makes them great for people who choose to go for a jog after dark, or have a couch with big cushions – because make no mistake, if that's where you are, that's where your pit bull will want to be. And yes, they definitely have massive heads with big ol' jaws, which is perfect for a big hug and maybe even a few kisses if nobody else is around to see.

I am grateful for the work that Stubby did in the service to this country, and I'm grateful for the companionship that my dog has given me as well. I am sad to see that the world has all but forgotten about the four-legged Sergeant and his amazing deeds, but perhaps that just means that the world is ready for a new pit bull hero's story.

**Order arms, Sergeant Stubby!**

## NYC: Undercover journalist in full burka allowed to vote as Huma Abedin

Watch: <https://www.youtube.com/watch?v=hggabHmAdxY>



Nov 07 –“Yeah, but they could do it by wearing a burka. But then no one could say, ‘Oh, wait, let me see your ID,’ because they don’t have ID, because they don’t want to discriminate because they’re wearing a burka.”

This hesitancy to “discriminate” even to stop voter

fraud could be the death of the republic, and it all flows from today's general solicitude toward Muslims and anxiousness to avoid charges of “Islamophobia.”





## President Barack Obama's Full Speech in Athens November 16, 2016

Watch video: <https://www.youtube.com/watch?v=xKirW7AQ2o0>





**EDITOR'S COMMENT:** Mr. President gave a very inspired speech and had a great time in Greece. Apart from this, US will deliver to Israel a ten years free military aid costing 38 bil USD and to Turkey a military aid package costing 2.8 bil USD. As for Greece: a lot of shining "little [debt] mirrors" that always impress local natives! Nevertheless, we will always welcome the "citizen" Barak Obama when he will visit our country again to enjoy the sun and Greek spanakopita/ouzo combination that he loved so much!

### At the same time...

T-300 MLRS Kasirga (Hurricane) rocket systems (by ROKETSAN) with range 120km were deployed opposite Greek Lesbos Island (10 systems) and Chios and Samos Islands (5+5 systems). Based on Chinese Ws-1B they are also deployed in Imbros Island threatening Greek Lemnos Island. Systems are



attached on German MAN 26.372 6X6 10T trucks. The rocket (with CEP of ~1% of range.) can be fitted with various types of warheads including anti-armor/personnel submunition, blasting, fuel air explosive (FAE), and high-explosive (HE – 480 kg TNT+RDX). The ZDB-2





blasting warhead is loaded with 26,000 steel micro-balls and prefabricated fragments. The SZB-1 submunition warhead is designed to destroy large area targets such as armor formation and infantry troops. When the SZB-1 submunition warhead detonates, around 500 bullets are expelled under high pressure. Turkish Army has 80 systems in operation, in total.



Source: <http://www.acq.osd.mil/sts/docs/Unmanned%20Systems%20Integrated%20Roadmap%20FY2011-2036.pdf>

## Rape as an Act of Genocide

Source: [http://www.ohchr.org/Documents/HRBodies/HRCouncil/ColSyria/A\\_HRC\\_32\\_CRP.2\\_en.pdf](http://www.ohchr.org/Documents/HRBodies/HRCouncil/ColSyria/A_HRC_32_CRP.2_en.pdf)

A/HRC/32/CRP.2	
<b>Advance Version</b>	Distr.: Restricted 15 June 2016  English only
<hr/> <b>Human Rights Council</b> <b>Thirty-second session</b> <b>Agenda item 4</b> <b>Human rights situations that require the Council's attention</b>	
<b>“They came to destroy”: ISIS Crimes Against the Yazidis</b>	

A report to the UN human rights council has found that ISIL - also known as ISIS - has committed the crime of genocide against the Yazidis, an ethnically Kurdish religious group.





## What Can We Expect From National Security Adviser Michael Flynn?

By Fred Kaplan

Source: [http://www.slate.com/articles/news\\_and\\_politics/war\\_stories/2016/11/michael\\_flynn\\_is\\_an\\_unpromising\\_choice\\_for\\_trump\\_s\\_national\\_security\\_adviser.html](http://www.slate.com/articles/news_and_politics/war_stories/2016/11/michael_flynn_is_an_unpromising_choice_for_trump_s_national_security_adviser.html)

Nov 18 – Retired Lt. Gen. Michael Flynn has been called “[the best intelligence officer of his generation](#)” and an “abusive,” “erratic” “[right-wing nut](#).” There’s truth to both sides of this story. In any case, he seems an unpromising choice for the next president’s national security adviser.



**First, the good news,** though it turns out to be not as good as it may seem. Flynn was Gen. Stanley McChrystal’s intelligence officer at the Joint Special Operations Command and played a key role in boosting JSOC’s effectiveness at capturing and killing Taliban and al-Qaida fighters in Afghanistan—figuring out ways to fuse massive streams of data from several previously isolated intelligence agencies and making them available to troops on the ground.

**However,** as one intel officer who was involved in the feat told me, “JSOC is *hyper-tactical* at what it does. It focuses on killing *targets*. Flynn gained no experience at planning a military *campaign* and certainly none at *strategic* intelligence or national *policy*”—which is what a national security adviser deals with.

In 2012, Flynn was named director of the Defense Intelligence Agency, a sprawling bureaucracy of 16,000 officials, mainly career officers, and tried to whack it into a

different shape, reorganizing its divisions so they dealt with specific issues and putting some of its people into the field as clandestine agents. He received encouragement from Gen. James Clapper, the director of national intelligence who put Flynn in the post to fix what had long been a moribund organization. But several officers say Flynn proved inept, trying to impose change from the top down, spawning resistance and dysfunction. (By comparison, CIA Director John Brennan crafted a similar reorganization in his agency but paired senior officials with down-in-the-bowels officers, giving both a say in how to make the changes, and it worked with little angst.) Some of Flynn’s moves also drew protest from Brennan himself, who saw the planned DIA clandestine ops as a power grab for the CIA’s turf.

Flynn also began publicly voicing criticism of some assessments by the wider intelligence community, including its views about fledgling jihadi groups after the killing of Osama Bin Laden (Flynn thought, in some ways correctly, that they underestimated the threat), which also rubbed superiors the wrong way. “This was a classic case of the Peter principle,” says one former intelligence officer who was generally on Flynn’s side in these disputes. “He’d risen to the level of his incompetence.” Two years into Flynn’s three-year term, Clapper and the undersecretary of defense for intelligence, Michael Vickers, called him into a meeting and forced him to resign.

**It’s not merely wrong to see Islam as the root of the problem; it’s also dangerous.**

Some of Flynn’s former colleagues—including two who think that he was fired unfairly and that he’ll make a fine national security adviser—say that the dismissal embittered him. The Flynn we see today—America’s angriest general, screaming “[Lock her up—damn right!](#)” with an anti-Hillary Clinton crowd and tweeting “[Fear of Muslims is RATIONAL](#)”—bears little resemblance to the Flynn they knew. “I was mortified,” one ex-associate told me. “He’s always been hard to get along with,” a former senior intelligence officer said, “but the way he’s been behaving lately hits a new level.”



Many outside critics have denounced Flynn's remarks on Islam as racist, but intelligence officers are at least as disturbed by his analytical shallowness. The violent discord within Islam is certainly one cause of jihadi terrorism, but there are many other causes, not least the [breakdown of the Cold War's world order](#), the resulting of centuries-old sectarian schisms, and the aggravation of these splits by Iran's regional expansionism and by Russia's desperation to retain a Middle Eastern outpost.

In this sense, it's not merely wrong to see Islam as the root of the problem; it's also dangerous. Intelligence analysts take pride in parsing the terrorist threat—and the roots of conflict where the threat has risen—into its various sects, tribes, militias, and nation-state supporters. Not only does this give policymakers an accurate picture, it also provides insight into what they can do—ways they could play one faction off another, or exploit some converging interest, or even just identify the least of the evils at hand. Simply to view the whole array of threats as “radical Islamic terrorism” is to miss opportunities for action. It also risks becoming a self-fulfilling prophecy, as once-feuding militias or nations join forces upon seeing that the United States government really *is* fighting a war not against “terrorism” or “violent extremism” but against Islam itself, just as the most radical clerics warned. (This is why President Obama doesn't reduce these movements to the label that Donald Trump, Flynn, and Rudy Giuliani



demand. It's not that Obama is being “politically correct”; rather, he's being strategically smart.)

◀ Yet here is Flynn in a tweet of July 24, shortly after some terrorist attacks:

**The conflation of “Arab and Persian” leaders, as if they're the same; the poor syntax; the implied shrug at the fact that 1 billion Muslims around the world, including many who deeply oppose terrorism,**

**might read this tweet and take it as a provocation—this is not normal behavior from someone about to become the president's national security adviser.**

The national security adviser is the most important presidential appointee who does not face Senate confirmation, so Flynn will face none of these questions—nor any about his financial ties to Turkey (and how they might have motivated [his call for extraditing Fethullah Gülen](#), the dissident cleric now living in Pennsylvania, who Turkish President Recep Tayyip Erdogan wants to try for treason) or [to Russia](#).

In some administrations, the national security adviser focuses mainly on reconciling the views of the secretaries of state and defense, then presenting them as options to the president. (Retired Gen. Brent Scowcroft was the prototype of this approach with President George H.W. Bush.) In other administrations, the adviser focuses mainly on educating the president. (Condoleezza Rice, who was unable to control the feuding Cabinet secretaries, took this approach with Bush's son, though he wound up influencing her as much as vice versa.) Flynn will likely do both with Trump. We don't know how he'll do the former job, as Trump hasn't yet announced who those secretaries will be. As for the latter job, Trump seriously needs a strategic educator—he appears to know nothing about foreign policy, the military, or national security broadly speaking—but Flynn's shortcomings are also severe, and his main qualification, as far as we've seen, is that he reinforces, and as a retired general legitimizes, Trump's prejudices about Muslims and his oversimplified view of the terrorist threat.

**It's worth paying attention to what people say. Sometimes they mean it.**

*Fred Kaplan is the author of [Dark Territory: The Secret History of Cyber War](#).*



## Next Big Thing? New Portable Russian Radar Can Sense Terrorists Through Walls

Source: <https://sputniknews.com/military/201611151047473870-russian-latest-hightech-radar/>

Nov 15 – **A new portable radar designed by a Russian group of tech companies, allows for detection of offenders from behind a wall by sensing their heartbeat and breathing.** Sputnik spoke with the head of engineering reconnaissance of Logis-Geotech, Igor Vedeneev, about the new radar. The latest radar is called **Stenovizor PO-900** and it was developed by the Logis-Geotech group of companies. The device can detect living objects from behind multi-layer construction barriers and several walls. Sputnik spoke with the head of the department of engineering reconnaissance, Igor Vedeneev, who said, “Our product will allow law enforcement agencies and special forces to obtain critical information about the object behind the wall; it will increase the level of security and mobility of the operation.”



Talking about the new radar, Vedeneev said that the PO-900 is a portable device. It is intended for personal wear and use by special forces soldiers. **It weighs less than 800 grams and its maximum detection range (through a 40 cm brick) is 11 meters.**

“The detection modes include movement and breathing, as well as ‘geo-radar’ which are scanning modes for building structures, soils and other materials,” the head explained. The latest radar also has a scanning mode for mines, explosives and caches. **The PO-900 is similar to an ordinary radio without an antenna. It is equipped with a 3.5-inch color display, which displays real-time radar reconnaissance results.** Federal service of troops of the National Guard will receive the unique portable radars and it will permit the commandos to locate terrorists not only in the buildings but also in bunkers and underground tunnels. The radar will permit soldiers to detect terrorists at a safe distance not only inside a building but also on its opposite side. Stenovizor PO-900 operates on the principle of a GPR locator which is able to conduct radio waves not only through air but also through soil and solid walls of the buildings, registering all the reflections from various obstacles.

The data is displayed in the form of moving diagonal red stripes — the vertical direction of the screen displays information about the distance at which a person has moved and horizontal lines determine the time during which he made the maneuver.

Vedeneev further told Sputnik that the device is not a prototype. “It is a range of serial devices, which are produced in large quantities. They are exported abroad and they have good recommendations. In the future, we plan to expand the network of foreign offices and





increase the amount of supply to new countries.” Experts believe that the latest Stenovizor will be great asset in battle or in counter-terrorist operations in urban areas because carrying out such operations in a city requires a non-standard approach to reconnaissance as it is often impossible to accurately determine the number of intruders hiding in the building during the assault.

**Talking about similar devices on the market today, Vedeneev said that there are analogues of the radar in the US, UK and Israel. However, the main advantage of the Russian radar is its unique ability to detect through several multi-layered walls.**

“The pricing policy is also an advantage. As for the Russian market, we are aided by the policy of import substitution. At the moment, our devices are the only radar detector (stenovizor) serially produced in Russia,” Vedeneev said. By next year, Stenovizor is going to be supplied to the Federal service of troops of the National Guard. The Russian Interior Ministry and other security agencies have also expressed interest in the new radar. Particular interest was expressed by the representatives of Ministry of Emergency Situations, who plan to use the radar for emergency situations for example, to locate and rescue people in rubble.

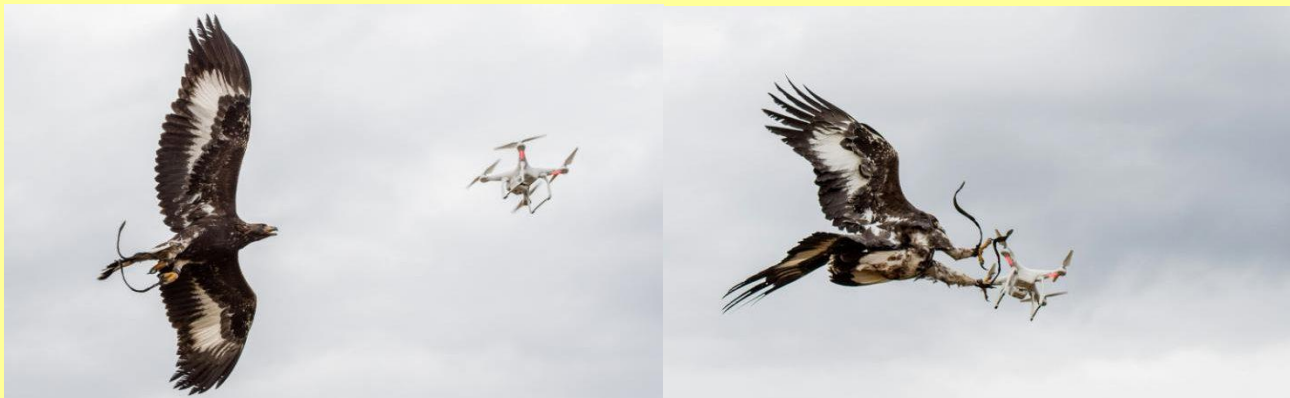
## French Air Force to use eagles against rogue drones

Source: <https://www.rt.com/news/367419-french-eagles-rogue-drones/>

Nov 18 – **The French military is preparing a new countermeasure to protect high-profile events from rogue terrorist drones.** The answer to the emerging threat is the millennia-old tradition of falconry.

The French Air Force is training a number of eagles to hunt drones, L'Express newspaper reported.

*“The eagles could be used in major events like the July 14, G20 meetings or big international conferences like the recent COP 21,”* an air force spokesperson told the newspaper.



*“In certain situations, when debris could fall onto the crowd below, the drone cannot be shot down. The eagle can intercept the device without causing extra damage.”*

**The program was launched in spring this year, when trainers acquired eagle eggs. The actual training started in summer, when the birds of prey were large enough. The drone-hunters may be ready for deployment in summer next year.**

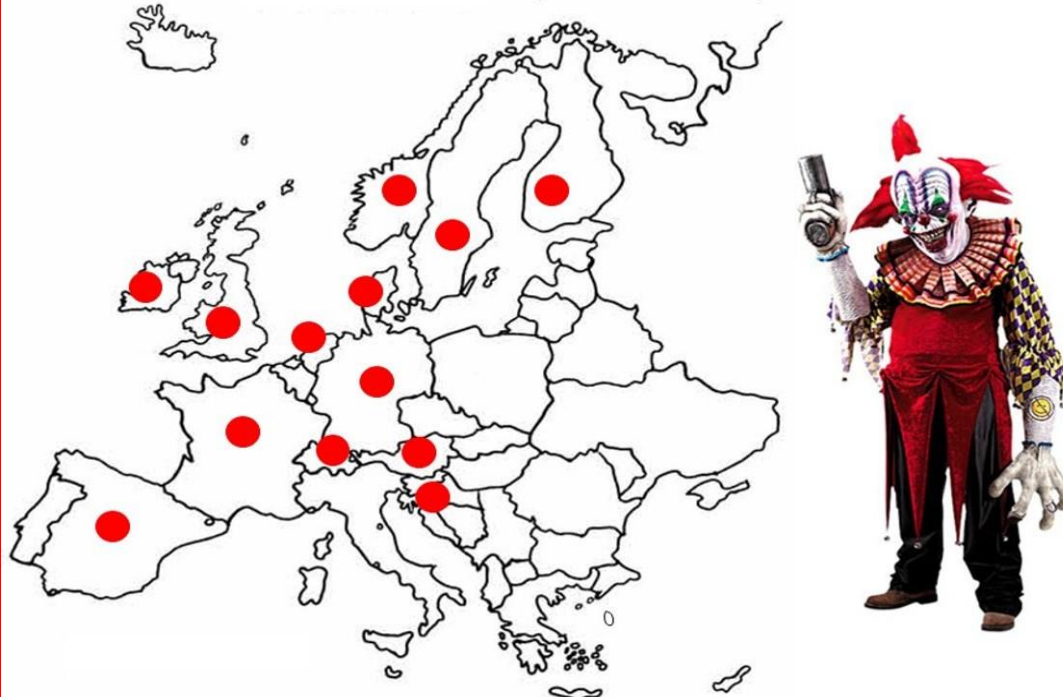
*“They have been taught that there is food on the drones, and now when they see one of these devices they intercept. We are training them not just to attack them, but to detect them,”* the spokesperson said.

While falconry is far beyond its popularity peak in Europe, birds of prey are currently employed by some airports, where they chase off other birds which might be sucked into an aircraft engine and damage it. They are also used for similar, if less crucial, pest control at landfills and commercial buildings.

**The French program follows in the footsteps of a similar effort by the Dutch police**



# **CLOWN ATTACKS – EUROPE** (as of November 2016)



Could be in  
Yemen  
Iraq  
Syria

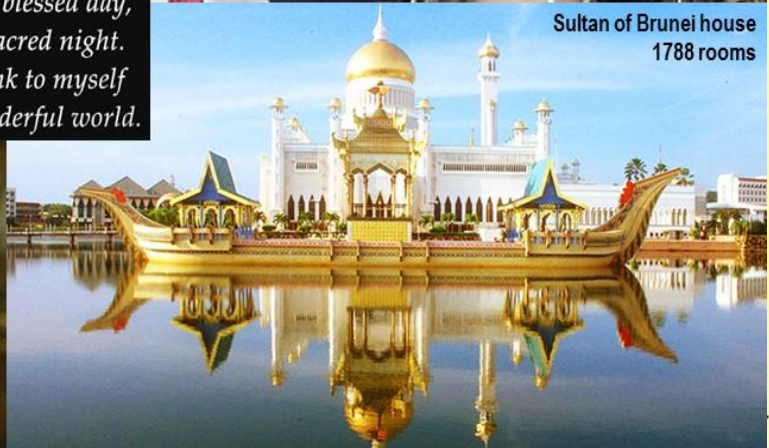


Paris Hilton voted for Trump



*I see skies of blue and  
clouds of white.  
The bright blessed day,  
the dark sacred night.  
And I think to myself  
what a wonderful world.*

Sultan of Brunei house  
1788 rooms



CALEXIT

Our world in 4 pictures







Did You Know?

Source: <http://brilliantmaps.com/united-states-stan/>

## If the "Stans" United



- The country would have a population of over 278 million, making it the 4th most populated country in the world.
- It would be 5.5 million sq. km large, making it the 7th largest country in size (behind Australia).
- The largest city (and probably capital) would be Karachi, Pakistan, with a population of over 9 million.
- It would have a total of 975,000 active military personnel - more than South Korea, France, the United Kingdom, Germany, or Russia.
- It would definitely be named Stanistan.



Winter Greece (Trikala – Cenral Greece)





## ISIS has a **massive stockpile** of deadly chemical weapons ready to use in the battle for Mosul

Source: <https://www.thesun.co.uk/news/2036031/isis-stockpile-chemical-weapons-to-use-against-advancing-troops-battle-for-mosul/>

Oct 24 – A 21-year-old Iraqi who recently escaped from south of Mosul has told The Sun that ISIS has “a lot” of chemical weapons and is “absolutely” willing to use them against the advancing Iraqi and coalition forces.

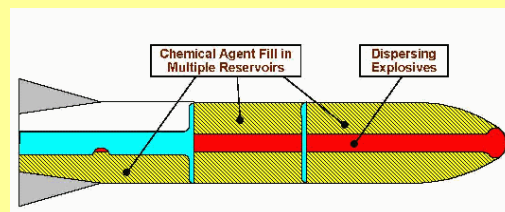
“When I went inside Mosul city centre...I heard a lot of taxi drivers talking about chemical weapons...they said ISIS was manufacturing them and have a lot of them,” said Ahmed, said sitting inside the main Mosque in Dibaga refugee camp in Northern Iraq.

Ahmed “does not know” exactly where the jihadists are stockpiling the weapons of mass destruction (WMDs) in the city.

**But, when asked if he thought they were willing to use them he responded emphatically: “Yes, absolutely.”**

The 21-year-old – who only escaped four days ago when the Iraqi army liberated his village –

believes one of the reasons ISIS is willing to use WMDs is their apocalyptic vision of the



war.

“ISIS will fight...they think this is the third world war and they want to fight to death,” he said.

This news will be of serious concern to those Mosul residents still trapped in the city.

The use of these weapons has largely been banned by the international community for their indiscriminate killing of innocent civilians.

And it is getting more and more difficult for the many there are many people still inside Mosul to escape from ISIS, Ahmed explained.

## Report warns of ISIS developing drones for chemical attacks

Source: <http://edition.cnn.com/2016/10/20/politics/terrorist-groups-and-drones/index.html>

Oct 20 – Terrorist groups like ISIS are looking for new ways to employ drone technology that could one day deliver chemical weapons or unleash similar catastrophes, according to a new report.

The [report from the Combating Terrorism Center](#) (CTC) at the US Military Academy at West Point documents at least four terrorist groups, mainly based in the Middle East, have programs studying how to leverage more resources and infrastructure for producing drones.

**While the report rates the current ability of terror groups to mount a lethal attack through a drone as “low to moderate,”** the threat posed by unmanned aerial vehicles and ISIS has already materialized on the battlefield. Earlier this month, ISIS attacked a Kurdish defensive post using a drone carrying “some sort of explosives,” a senior Peshmerga officer said at the time. The attack killed two

Peshmerga soldiers and injured two French military personnel north of Mosul, Iraq, the Peshmerga officer said.

While the technology employed by ISIS has been comprised of commercial items available to any consumer, Major Gen. Gary J. Volesky, commander of coalition forces fighting ISIS in Iraq, said the US is keeping an eye on it.

The drones are “clearly not the capacity or capability that, that we have, but they are using them,” he told reporters at the Pentagon Wednesday. “We have seen them, and we’re taking measures to mitigate that.”

Beyond the battlefield in Iraq and Syria, the CTC report says terror groups seem to have advanced the most at using drones for surveillance and strategic communications.

**But, the report finds, “terrorist interest in drones as an attack platform has been diverse and**



has spanned a number of ideologies and geographic regions."

And with the proliferation of various drones and reduction in their sizes, among other factors, the report warns that a "tipping point" of more diffuse use by terrorist groups may not be far off.

In June 2013, Iraqi authorities arrested five men tied to ISIS who were reportedly planning to use helicopters to release Sarin and mustard gas as part of an attack against targets in Iraq, North America and Europe.

Last month, the United States bombed an ISIS chemical weapons plant that was housed in a converted Iraqi pharmaceutical factory, and the

US-led coalition has targeted key ISIS figures involved in its chemical weapons program.

"We have been very, very focused with our targeting to go after those places where we think this is being produced, those individuals that are producing it, and the resources they require to do that," Gen. Joseph Votel, the top military commander for US forces throughout the Middle East, said at the Center for American Progress in Washington on Wednesday.

ISIS' development of chemical weapons is not "an overly sophisticated threat at this particular point, but yet it is out there, and so we have got to continue to address that" he said.

## World War 3 Scenarios: Chemical War Happening, Nuclear Attack Next?

Source: <http://www.thebitbag.com/world-war-3-scenarios-chemical-war-happening-nuclear-attack-next/194392>

Oct 25 – Amid America and its allies' massive anti-ISIS offensive in the Iraqi city of Mosul, security experts warn of a deadly chemical war erupting that will culminate into a devastating World War 3. The international community is facing the increasing threat of a chemical weapon proliferation with the war in the Middle East.

Just one week into the start of concentrated effort to recapture the key Iraqi city of Mosul from the ISIS, the military coalition has retaken and liberated 78 villages and towns, reports *CNN*. According to the Iraqi Joint Operations command center, at least 772 ISIS fighters have been killed and 23 captured. The joint forces have also destroyed 127 vehicle-borne explosive devices and discovered two bomb making factories.

The ISIS fighters are essentially on retreat, but security experts warn that the jihadi group will use mustard gas or the chlorine gas in last desperate efforts to cause as many casualties as possible.

### ISIS Chemical War Threat

Vladimir Platov, an expert in Middle Eastern affairs, told *Sputnik News* that Daesh has workshops specially equipped for the production of weapons of mass destruction, including chemical weapons. They particularly

have become proficient in the production of mustard gas (sulphur mustard) that is being loaded to conventional munitions like rockets and shells.

Earlier this year, CIA Director John Brennan also confirmed the ISIS's capability to produce chlorine and mustard gas.

In fact, ISIS is believed to have used mustard gas against the Kurdish forces earlier this month. Daesh had also used shells filled with chlorine near the town of al-Kiyara, south of Mosul on August 23.

The Pentagon is serious about the chemical war threat and already supplied the Iraqi army, Kurdish forces and Shiite militias fighting on the ground with gas masks.

### Syria Govt Forces Stockpiling Chemical Weapons

However, a far more dangerous threat is the Syrian government of Bashar al-Assad concealing chemical weapons to wage their own war against rebels. Though Damascus signed the 16-year-old Chemical Weapons Convention and handed over all its toxic materials to the Organization for



the Prohibition of Chemical Weapons (OPCW), there remains credible threat.

Rebecca Hersman, former U.S. assistant secretary of defense for countering weapons of mass destruction, warned that the Syrian government is still using chemical weapon attacks against civilians.

The Syrian-American Medical Society's 2016 report on the crisis alleged that over 160 chemical attacks have been carried out by

government troops. Two of which had been conclusively proven to have been perpetrated by Assad's forces. On September 6, over 100 civilians in Aleppo were killed by a gas attack.

**Analysts warned of the increasing threat of the Weapons of Mass Destruction proliferation in the region and the ISIS/ISIL could end up using chemical, biological and even radiological or nuclear weapons in the near future.**

## ISIL uses toxic chemicals in its defense of Mosul

Source: <http://www.homelandsecuritynewswire.com/dr20161025-isil-uses-toxic-chemicals-in-its-defense-of-mosul>

Oct 25 – In the run up to the U.S.-led coalition campaign to liberate Mosul, U.S. officials warned that ISIS would likely use chemical weapons to slow down the progress of coalition forces and terrorize the residents. **Last Thursday ISIS took the first step in its chemical strategy by setting ablaze the Mishraq Chemical plant and sulphur mine, located thirty km south of Mosul.**

The plant and mine were within the defense perimeter around the city held by ISIS fighters, but the advancing Iraqi and Kurdish forces pushed ISIS out of the external defense perimeter into the city, and the jihadists set the plant and mine on fire before retreating.

The *Financial Times* reports that so far, nine people have died and around 1,000 have been injured by the toxic cloud.

**The toxic cloud includes lethal sulphur dioxide and hydrogen sulphide.** When combined with residue from burning oil wells, it is deadly for people caught in the open or without gas masks.

**The cloud now stretches 20-30 km to the south,** but because of the wind pattern, it has been hovering over mostly sparsely populated area. If the wind changes to an eastward direction, there is a risk that the Kurdish capital Erbil, some sixty km away, could be affected.

**Military experts say that ISIS's use of chemical weapons in its desperate attempt to keep hold of the city was only to be expected, and that the organization is emulating the use of chemical weapons by the Bashar al-Assad regime in Syria – a strategy which have helped keep Assad in power.**

**In August 2013 the Syrian rebels closed in on Damascus and the city was on the verge of being overrun, but the Syrian military dropped up to 1000kg of the nerve agent Sarin on Sunni neighborhoods supporting the rebels, killing 1,500 people and injuring hundreds more and the rebels' attack was blunted.**

The attack led to an agreement to dismantle Syria's chemical weapons arsenal and production facilities under international supervision. Syria, in violation of the agreement, has kept some sarin gas munitions – and the Assad regime has been regularly using chlorine, which was not included in the 2013 agreement, to attack Sunni civilians and rebel positions.

During the past year the Assad regime has increased its use of chlorine barrel bombs, dropping them on Sunni towns and neighborhoods in order to force Sunni residents to flee, making those towns and neighborhoods easier to govern for his Alawite and Shi'a forces.

ISIS's chemical weapons effort has been run by veteran of the Saddam Hussein's chemical weapons program – and by foreign volunteers with advanced degrees in chemistry. The program worked on weaponizing mustard agents, and, in Mosul, had access to large quantities of chlorine to use in mortars and rockets. Over the past year, ISIS has used both mustard and chlorine munitions against the Peshmerga forces, and on a few occasions against Kurdish civilians.

**ISIS already demonstrated its ability to use chemical**



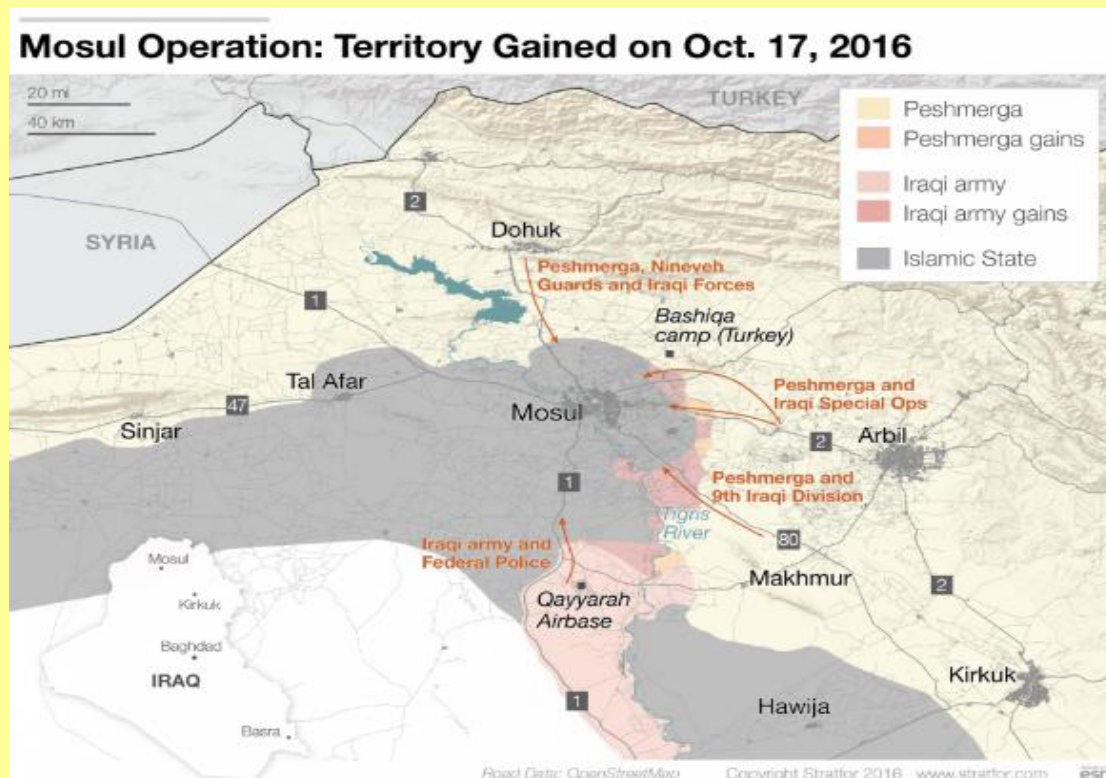


**weapons on a larger scale: in April 2015 the Islamist group used hundreds of chlorine IEDs to defend Tikrit, slowing down the advance of the attacking Iraqi Army.**

The U.S.-led coalition has been targeting ISIS chemical weapons capability since early 2015 – killing the program's top scientists, capturing others, and destroying the program's main research and production facilities.

**Military analysts say that ISIS's chemical capabilities, though limited, could**

Shi'a government in Baghdad, using Iraq's mostly Shi'a army and Iran-trained Shi'a militias. In the past two years, these Shi'a forces committed atrocities against Sunni residents of towns and villages liberated from ISIS. The government in Baghdad has every interest – and is under considerable international pressures – not to allow similar atrocities to occur in Mosul. But this sensitivity to the welfare of the city's Sunni resident also dictates a careful and slow approach, using



**complicate the campaign to liberate Mosul.** Taking a large city is difficult under any circumstances, as the Germany's failure to take Stalingrad and Leningrad during the Second World War shows – and as Israel's reluctance to go into the Gaza Strip in 2014 proves. The combined forces of Syria, Russia, and Hezbollah have so far failed to take Aleppo from a few hundred rebels.

The campaign to take Mosul is more complicated than the campaign to take Aleppo, for two reasons: **First**, ISIS forces defending Mosul are more numerous, better equipped, and better dug-in than the rebels defending Aleppo.

**Second**, and more importantly: the coalition-led campaign to take Mosul is conducted by a

precise munitions and careful targeting to minimize Sunni civilian casualties.

**In Aleppo, the Assad regime faces no such limits or inhibitions: The Sunni residents of Aleppo have been the Syrian regime's main targets.** Moreover, with the help of Russia's air attacks, the Assad regime has systematically destroyed the city's civilian infrastructure – hospitals, clinics, water facilities, sewage treatment plants, power plants, the electrical grid, and more – in an effort to make life in Aleppo unbearable for the Sunni population, forcing it to flee, this increasing the areas of Syria "cleansed" of Sunnis.

France, the United States, and other nations are now working in



the UN to have a war crime investigation launched against Syria and Russia over the manner in which they conducted the Aleppo campaign.

**The introduction of chemical weapons by ISIS will make any campaign to liberate the city while, at the same time, trying to minimize the cost in civilian and military lives, much more complicated.**

Military experts say health effects from the toxic fumes from oil and sulphur will likely subside in about eighteen months, but the toxic clouds could harm much of the plant and animal life in the area and make it difficult for local farmers to return to their fields until then.

"It is horrific for biodiversity and human health, but in the long term it will not have a hugely damaging impact," Justin Bronk, a military expert at Royal United Services Institute, told the FT.

**He says the fumes, while sometimes uncomfortable, will not be lethal if military**

**forces contain the fire at the Mishraq plant. Iraqi forces said at the weekend they had controlled the blaze.**

Bronk said Isis attempts to disrupt life and use toxic agents will only increase the more the Iraqi army and Kurdish Peshmerga forces close in on Mosul.

"This is a form of scorched earth policy," he said. "They want to make it terrible to go back. They want to keep a lingering suspicion: is there something in the water? In the air? It's doing the most you can do to destroy a sense of normality."

**Bronk said that the mustard gas stockpile in ISIS hands has likely degraded, but even in a weakened form, mustard gas could cause extreme blistering on the skin and even in inside the body, such as the lungs. But, he says, it is not likely to be fatal — the bigger threat is the lasting psychological impact.**

## Shark antibodies for chemical, biological threat detection, treatment

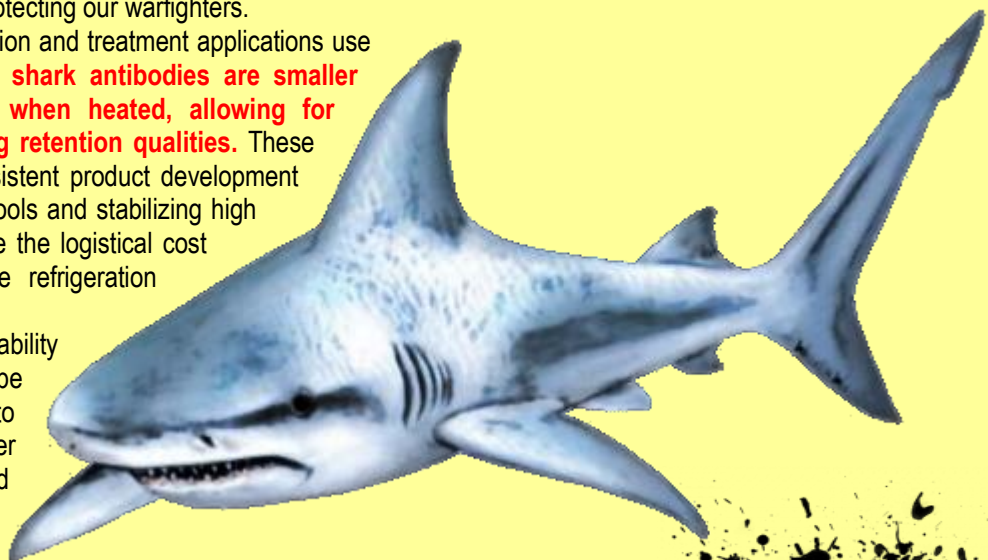
Source: <http://www.homelandsecuritynewswire.com/dr20161026-shark-antibodies-for-chemical-biological-threat-detection-treatment>

Oct 26 – In new research funded by the [Defense Threat Reduction Agency's](#) Joint Science and Technology Office (JSTO) and performed by U.S. Naval Research Laboratory (NRL) scientists, **shark antibodies** are proving to offer new alternatives to chemical and biological threat detection and treatment tools. In an era of Department of Defense belt-tightening, the goal is to find more innovative, cost-effective approaches to protecting our warfighters.

DVIDS says that current detection and treatment applications use mammal antibodies. However, **shark antibodies are smaller and more thermally stable when heated, allowing for greater structure and binding retention qualities.** These properties allow for more consistent product development of therapeutic and diagnostic tools and stabilizing high melting temperatures to reduce the logistical cost of shipping and storing since refrigeration would no longer be required.

**Other advantages** include the ability of single-domain antibodies to be rationally-selected, tailored to specific applications and easier to mass-produce by standard recombinant technology.

These benefits support the tenants of DoD's Better Buying Power 3.0 by developing new, cost-effective technologies for our nation's defense.



Offering the first demonstration of molecular engineering to increase the thermal stability of shark-derived antibodies, researchers published their success in *PLOS ONE*.

DTRA is the U.S. Department of Defense's official Combat Support Agency for countering weapons of mass destruction, addressing the entire spectrum of chemical, biological, radiological, nuclear and high yield explosive threats.

— Read more in George P. Anderson et al., "Importance of Hypervariable Region 2 for Stability and Affinity of a Shark Single-Domain Antibody Specific for Ebola Virus Nucleoprotein," *PLOSOne* (5 August 2016) (doi: [org/10.1371/journal.pone.0160534](https://doi.org/10.1371/journal.pone.0160534)).

## Be a First Responder or kick a ball?



Christian Ronaldo - \$672,500/week ... (new) Lamborghini Aventador LP 700-4.

**Plus:** Bentley Continental GTC; Bentley GT Speed; Ferrari 599 GTB Fiorano; Ferrari 599 GTO; Ferrari F430; Porsche 911 Carrera 2S; Audi R8; Audi RS6; Rolls- Royce Phantom and Bugatti Veyron (\$5 mil in total). ► New (2016) 5-yrs contract = 98,400,000 € = 410,133€/week = 58,590€/day...

## Turkey is on alert for a giant cloud of **ACID RAIN** that will burn through plants after ISIS set fire to Mosul sulphur factory

Source: <http://www.dailymail.co.uk/news/article-3887648/Turkey-alert-giant-cloud-ACID-RAIN-burn-plants-ISIS-set-fire-Mosul-sulphur-plant.html>

Oct 30 – Turkey is on high alert for a giant cloud of acid rain after ISIS set fire to a sulphur plant south of Mosul.

Turkey's deputy prime minister has sought to assure the nation that Turkish citizens will not be affected by the toxic gas that experts have warned could burn through the region's plants.

Deputy Prime Minister Veysi Kaynak said Turkey's meteorology and disaster management departments are working on multiple scenarios to prevent any accidents.

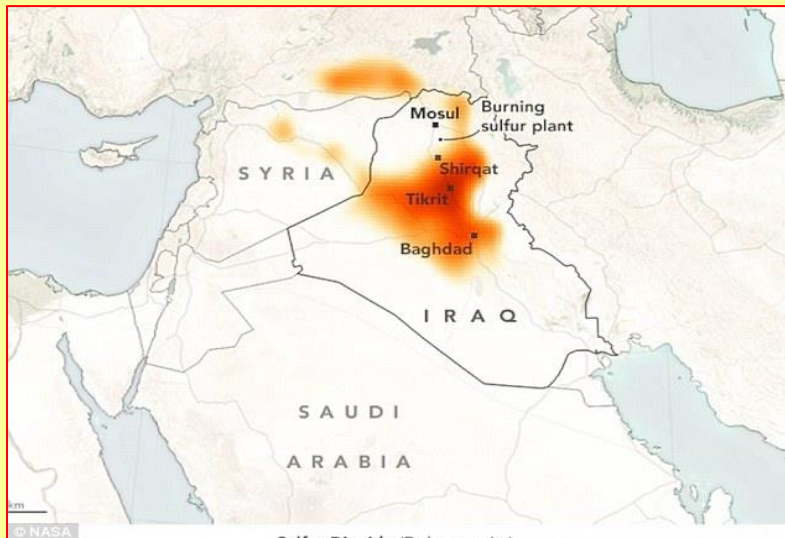
Kaynak said 'the worst scenario predicted by the Meteorology Directorate is that the toxic cloud will pass by our Hakkari borders and proceed directly to the Caspian Sea.' He was referring to Turkey's southeastern border province.

Meteorology editor of Turkish broadcaster NTV, Gokhan Abur, said: 'Starting from October 27, winds will blow from the southeast bringing the toxic smoke along with rainclouds,' according to Iraqi News.





He added: 'The rain will increase humidity in the area, so when water merges with sulphur dioxide and water vapour, it will form the acid known as sulphuric acid.'



will burn the plants in the region.'

ISIS blew up the al-Mishraq sulphur plant earlier this month to hamper the advance of Iraqi forces.

The fighters have also used concealing tactics - setting oil wells, tyres and in this case a sulphur plant on fire - to provide cover from aerial attacks.

The United Nations said Iraq's health directorate has treated more than 1,000 cases of suffocation in several locations south of Mosul, mostly in nearby Qayyarah.

The UN environment agency condemned 'what appears to be a scorched-earth policy employed by retreating' ISIS militants.

'This is sadly just the latest episode in what has been the wholesale destruction of Iraq's environment over several decades,' said UNEP chief Erik Solheim.

'This ongoing ecocide is a recipe for a prolonged disaster. It makes living conditions dangerous and miserable, if not impossible. It will push countless people to join the unprecedented global refugee population,' he said.

These raindrops will be loaded with acid, and



## Disgruntled employee 'put POISON in her office coffee machine and made several of her coworkers sick'

Source: <http://www.dailymail.co.uk/news/article-3869144/Disgruntled-employee-arrested-poisoning-coworkers-coffee-machine-making-severely-sick.html>



Oct 25 – A disgruntled shipping company employee is facing criminal charges after she allegedly made her coworkers sick by sneaking **cleaning products into their coffee machine.**

Mayda E. Rivera-Juarez, 32, was arrested on Friday after cops say she poured cleaning fluid meant for windows and bathrooms into the Keurig coffee machine at, JAS Forwarding Worldwide in Sterling, Virginia, according to WTOP.

It is unclear when she worked there, but police say the poisoning seemed to take place over several weeks, possibly even months.

Several employees were severely sickened, and suffered digestive problems and diarrhea, said Loudoun County Sheriff's Office spokeswoman Alex Kowalski. 'The employees at this place had been getting sick, didn't quite know what was going on,' Loudoun County Sheriff



Mike Chapman told WJLA. 'When [Rivera-Juarez] was coming in to get terminated, some of this came to light.' The company had about eight employees.

Rivera-Juarez is charged with felony assault. She is being held on no bond at the Loudoun County Adult Detention Center.

ARTICLES

## Seeking for Protective Agents Against Sulphur Mustard Gas: 14 Years of Researches Conducted in the Gulhane Military Medical Academy Using Nitrogen Mustard Model.\*

By A. KORKMAZ<sup>✉</sup>, F. KALKAN<sup>✉</sup>, T. TOPAL<sup>✉</sup>, S. OTER<sup>✉</sup> and B. UYSAL<sup>✉</sup>. Turkey

Source: [http://asp-uk.secure-zone.net/v2/indexPop.jsp?id=5/6/2423&lng=en\\_fr](http://asp-uk.secure-zone.net/v2/indexPop.jsp?id=5/6/2423&lng=en_fr)

### SUMMARY

Mustard gas was the most commonly employed chemical weapon during the past century and led to hundreds of thousands of people being injured and killed. Mustard gas continues to be a very serious threat to both military personnel and civilians. Even though long-term studies conducted over recent years have reached a stage of maturity in terms of what has been uncovered, the mechanisms that lead to toxicity as a consequence of mustard gas are not fully understood. The mustard group of agents are also known as alkylating agents based on the addition of alkyl groups to DNA chains. Furthermore, it has been demonstrated that the means by which acute toxicity is brought about also causes oxidative and nitrosative stress.

For years, studies related to mustard gas derivatives in various laboratories have resulted in the hypothesis that the toxicity of the chronic period may be from epigenetic changes. This article summarizes the research on and conclusions from all these pathophysiological mechanisms from the authors' laboratories from 2001 to the present.

✉ Colonel, MD,  
Department of Physiology, School of Medicine, School of Medicine,  
Gulhane Military Medical Academy, Ankara, Turkey.

✉ Medical Sergeant,  
Department of Physiology, School of Medicine, School of Medicine,  
Gulhane Military Medical Academy, Ankara, Turkey.

#### Correspondence:

Colonel Ahmet KORKMAZ, M.D.  
Gulhane Askeri Tıp Akademisi, Fizyoloji Anabilim Dalı, 06018 Ankara, Turkey.  
Phone: +90 312 3043601  
E-mail: [korkmaza@gata.edu.tr](mailto:korkmaza@gata.edu.tr); [drakorkmaz@gmail.com](mailto:drakorkmaz@gmail.com)

\* Presented at the 3<sup>rd</sup> ICMM Pan-European Congress on Military Medicine, Belgrade, Serbia, 2-6 June 2014.

## Chemical Accidents in China Have Killed Nearly 200 This Year, Report Finds

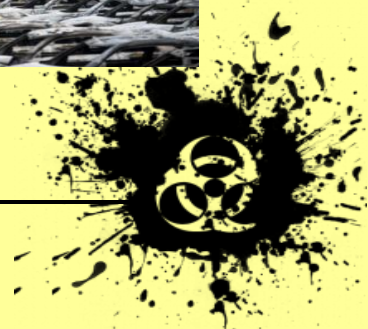
Source: [http://www.nytimes.com/2016/09/22/world/asia/chemical-accidents-china-greenpeace.html?\\_r=1](http://www.nytimes.com/2016/09/22/world/asia/chemical-accidents-china-greenpeace.html?_r=1)

Cars and buildings last year after an explosion at the site of what had been a warehouse storing thousands of tons of chemicals in Tianjin, a city in northeastern China. Credit Fred Dufour/Agence France-Presse — Getty Images

Sep 21 – Nearly 200 people have died in accidents related to the production, storage and transportation of chemicals in China this year, according to [a report by Greenpeace](#)



released on Wednesday. The report suggested that regulation



of China's powerful chemical industry remained lax and inconsistent, a year after [a deadly explosion](#) in the port city of Tianjin prompted public outrage and calls for greater oversight.

"China's chemicals industry is the largest in the world, but it is appallingly underregulated," Cheng Qian, a [Greenpeace](#) activist who studies toxic chemicals, said in the report. "The government must take urgent action."

The investigation by Greenpeace, which relied on government statistics, found that chemical accidents occurred with alarming frequency in China. **From January to August, there were 232 — an average of nearly one a day — killing 199 people and injuring 400 others, the report said.** The group did not examine how those figures compared with those from previous years.

Many of the accidents involved highly toxic substances, the report found, and more than half occurred while workers were transporting chemicals. Explosions were the cause of two of five deaths, according to the report.

Chemical accidents in China are often deadly because chemical plants are [built dangerously close](#) to residential areas, schools or major roads, in violation of safety regulations.

The Greenpeace investigation found that nearly a fifth of major chemical companies have facilities near important natural resources, including rivers and lakes. Most chemical

producers are in densely populated areas along China's eastern coast, the report said.

On Wednesday, a chemical plant in Yantai, a city in the eastern province of Shandong, about 370 miles southeast of Tianjin, reported that four workers had been killed in an explosion. The plant, Wanhua Chemical, which produces chemicals used to make foams and paint, among other things, pledged to investigate the cause of the accident.

**The explosion last year in Tianjin, one of the deadliest industrial accidents in China's history, killed 165 people and injured nearly 800, causing \$1.1 billion in damage to the city, a busy seaport.** The government punished executives who ran the warehouse where the blast occurred for [poor safety practices](#) and local officials for lax oversight.

After the Tianjin accident, the Chinese government faced unusual public pressure to rein in the country's booming chemical industry, a major source of economic growth in many provinces. Activists have urged the government to require chemical companies to disclose more information about their practices and to provide better safety training for workers.

Officials at the Ministry of Environmental Protection and the State Administration of Work Safety did not immediately respond to faxed requests for comment on Wednesday.

## **Sudan: Credible evidence of the use of chemical weapons to kill and maim hundreds of civilians including children in Darfur revealed**

Source: <https://www.amnesty.org/en/latest/news/2016/09/sudan-credible-evidence-chemical-weapons-darfur-revealed/>

Sep 29 – An Amnesty International investigation has gathered [horrific evidence](#) of the repeated use of what are believed to be chemical weapons against civilians, including very young children, by Sudanese government forces in one of the most remote regions of Darfur over the past eight months.

**Using satellite imagery, more than 200 in-depth interviews with survivors and expert analysis of dozens of appalling images showing babies and young children with terrible injuries, the investigation indicates that at least 30 likely chemical attacks have taken place in the Jebel Marra area of Darfur since January 2016. The most recent was on 9 September 2016.**

"The scale and brutality of these attacks is hard to put into words. The images and videos we have seen in the course of our research are truly shocking; in one a young child is screaming with pain before dying; many photos show young children covered in lesions and blisters. Some were unable to breathe and vomiting blood," said Tirana Hassan, Amnesty International's Director of Crisis Research.





"It is hard to exaggerate just how cruel the effects of these chemicals are when they come into contact with the human body. Chemical weapons have been banned for decades in recognition of the fact that the level of suffering they cause can never be justified. The fact that Sudan's government is now repeatedly using them against their own people simply cannot be ignored and demands action."



Based on testimony from caregivers and survivors, Amnesty International estimates that between 200 and 250 people may have died as a result of exposure to the chemical weapons agents, with many – or most – being children.

Hundreds more survived attacks but in the hours and days after exposure to the chemicals developed symptoms including severe gastrointestinal conditions involving bloody vomiting and diarrhoea; blistering and rashes on skin which reportedly hardened, changed colour and fell off; eye problems including complete loss of vision; and respiratory problems which were reported to be the most common cause of death.

One woman in her twenties was injured by shrapnel when a bomb which emitted a toxic cloud of smoke fell inside her village. She and her baby became sick and six

months later they are still suffering from the effects.

"When [the bomb] landed there was some flames and then dark smoke...Immediately it caused vomiting and dizzying...My skin is not normal. I still have headaches, even after I took the medicine...The baby is not recovering...he is swollen...he has blisters and wounds...they said he would get better...but it is not working."

Another woman in her thirties was at home with her children in the village of Burro when it was attacked. She told Amnesty International that she saw several bombs discharge black smoke which then turned blue.

"Several bombs fell around the village and in the hills...Most of my kids are sick from the smoke of the bombardment...They got sick on the day of the attack...They vomited and they had diarrhoea...They were coughing a lot...Their skin turned dark like it was burned."

Many of the victims told Amnesty International that they had no access to medicine and were being treated using a combination of salt, limes and local herbs.

One man helped to care for many people in his village and neighbouring villages who he believed had been exposed to chemicals. He told Amnesty International that he had been helping to care for victims of the conflict in Jebel Marra since it began in 2003 and had never seen anything like these ailments before.

Nineteen of those who he cared for died, including children, within a month of exposure. He said that all those who died experienced major changes to the skin. About half had wounds that turned green and the other half had skin fall off and weeping blisters appear.

The chemical weapons agents were reportedly delivered by bombs dropped from planes and rockets. The vast majority of survivors reported that the smoke released when the bomb or rocket exploded changed colour between five and 20 minutes after release. Most witnesses said it started very dark and then became lighter. Every survivor said that the smoke smelled noxious.

Amnesty International presented its findings to two independent chemical weapons experts. Both concluded that the evidence strongly suggested exposure to vesicants, or



blister agents, such as the chemical warfare agents sulfur mustard, lewisite or nitrogen mustard.

"This suspected use of chemical weapons represents not only a new low in the catalogue of crimes under international law by the Sudanese military against civilians in Darfur, but also a new level of hubris by the government towards the international community," said Tirana Hassan.

"The use of chemical weapons is a war crime. The evidence we have gathered is credible and portrays a regime that is intent on directing attacks against the civilian population in Darfur without any fear of international retribution."

The suspected chemical attacks come amid a large-scale military offensive launched in January 2016 by Sudanese forces in Jebel Marra against the Sudan Liberation Army/Abdul Wahid (SLA/AW) who they accuse of ambushing military convoys and attacking civilians.

In the eight months since the offensive was launched, Amnesty International has documented scores of instances where government forces deliberately targeted civilians and civilian property.

Survivors and local human rights monitors provided the names of 367 civilians, including 95 children who were killed in Jebel Marra by government forces in the first six months of this year. Many people, including children, also died as a result of starvation, dehydration or a lack of medical care in the aftermath of attacks.

Using satellite imagery, Amnesty International can confirm that 171 villages have been destroyed or damaged in the last eight months of the military campaign. The overwhelming majority of these had no formal armed opposition presence at the time they were attacked.

The attacks were also characterized by gross human rights violations including the systematic bombing of civilians, killings of men, women and children, the abduction and rape of women, forced displacement of civilians and looting.

The evidence documenting all these attacks has been organized and presented via an interactive digital platform designed by SITU Research in collaboration with Amnesty International.

"Scorched earth, mass rapes, killings and bombs – these are the same war crimes being committed in Darfur as in 2004 when the world first woke up to what was happening. This region has been stuck in a catastrophic cycle of violence for more than 13 years, nothing has changed except that the world has stopped watching," said Tirana Hassan.

"Absolutely no effective measures have ever been put in place to protect civilians despite being under the watch of a joint AU and UN peacekeeping mission. Peace talks and agreements have brought no security or respite for the Darfuri people. So far, the international community's response has been deplorable. It cannot continue to avert its eyes in the face of such horrific and endless abuses."

#### **Amnesty International is calling on the UN Security Council to:**

- Apply sufficient political pressure on the Government of Sudan to ensure that peacekeepers and humanitarian agencies are allowed to access remote populations like that in Jebel Marra;
- Ensure the current arms embargo is strictly implemented and extended to cover the whole country.
- Urgently investigate the use of chemical weapons and, if there is sufficient admissible evidence, prosecute all those suspected of responsibility.

#### **Background**

- Credible information about the impact of the violence on the civilian population inside Jebel Marra is extremely difficult to find. Restrictions on access imposed by the government means no journalist, human rights investigator or humanitarian actor has been permitted to conduct any assessment of the area in 2016.
- Amnesty International conducted research for this report remotely, interviewing 235 people by phone. Local intermediaries helped identify and contact survivors. Interviews were in depth and lasted between 30-120 minutes. Many individuals were interviewed on multiple occasions.
- At the end of July 2016, the UN estimated that a quarter of a million people may have been displaced by violence in Jebel Marra. Many fled to the nearest UN/AU peacekeeping base in Sortini on the northern edge of Jebel Marra.



- The interactive digital platform designed by SITU Research allows geo-spatial information, satellite imagery, witness testimony and photographs to be viewed in a single interface. This tool is intended to provide a spatial and temporal account of previously undocumented violations by synthesizing disparate assets into a single digital interface. The goal of this collaboration and the platform itself is to render visible the developments and scale of ongoing human rights violations in a remote and inaccessible part of Sudan.
- The latest Amnesty Decoders project, launching next week, will call on digital volunteers to help analyse satellite imagery from Darfur and identify whether villages appear to have been attacked, damaged, or destroyed.

## INDODFENCE 2016

### Keeping the genie in the bottle

Source: <http://www.janes.com/article/65129/keeping-the-genie-in-the-bottle-indodef16-d1>



**INDODFENCE**  
2016 EXPO & FORUM



vehicles, equipment or personnel. The special lightweight and compact lance enables the operator to carry out three operations at the same time: pre-washing, decontamination/detoxification and rinsing.

Nov 01 – CBRN (chemical, biological, radioactive, nuclear) is dangerous. Getting it cleaned up takes some effort, but Italian firm Cristanini (Hall A, Stand 098) has an innovative range of decontamination/detoxification systems that makes it easier.

**The Sanijetgun** (photo) puts the operation in the hands of a single person, allowing hot or cold water under high pressure to mix with BX 24 powder, which is sprayed onto





"Unlike most decon/detox systems requiring the decontaminant to be mixed beforehand, our Sanijetgun mixes the chemical with water as it is operated," explained a company spokesman, adding that on sensitive equipment such as aircraft instruments, computers and electro-optics, it uses a non-corrosive, nontoxic decontaminant such as SX 34, which is environmentally friendly and does not damage sensitive equipment when cleaned. "CBRN is the genie in the bottle," said Cristanini. "We need to make sure it remains contained."

#### SX-34 (for sensitive electronics)

Among other products is the LDV-X (Large Decon Volume System) for effective protection inside critical infrastructures and decontamination of large volumes; Shelter CBRN/2, a self-contained large capacity mobile field station for continuous and simultaneous detoxification; BX 40 liquid for the decontamination of aircraft and helicopters; and the PSDS 1.5 Mil small system for manual use.



## Crna Gora 2016

Photos by Wim Vanhamme (© NATO)



► **EDITOR:** How safe is to kneel down with Level B or Level A PPE (photo from recent Crna Gora 2016 drill held in Montenegro).





► **EDITOR:** Was divers' decontamination performed during this drill? (**Update:** Yes!)

## Meridian Medical Granted DHS SAFETY Act Certification for Medical Countermeasures

Source: <http://www.hstoday.us/single-article/meridian-medical-granted-dhs-safety-act-certification-for-medical-countermeasures/c9536504889404860fb14c96022d0032.html>

Nov 04 – Meridian Medical Technologies has been granted the Department of Homeland Security (DHS) SAFETY Act Designation and Certification for its portfolio of medical countermeasures intended for the treatment of chemical nerve agent exposure or for the management of pain. The designation and certification, granted after an extensive application process, validates the company's leadership in providing emergency care products to military and civilian defenders and first responders.

**Meridian Medical Technologies provides ATNAA, Diazepam, DuoDote, Pralidoxime Chloride, AtroPen, and Morphine Auto-injectors.** The technology is a series of ready-to-use, pre-filled auto-injectors intended for the treatment of chemical nerve agent exposure or for the management of pain. The technology is approved for use by the Food and Drug Administration. It also includes packaging, stockpile storage of sterile auto-injector assemblies, stockpile storage of medical solutions, training auto-injectors and the associated use protocols, labeling and package inserts. This Designation and Certification will expire on October 31, 2021.

Meridian Medical Technologies has been putting emergency care treatment options into the hands of military and civilian defenders for more than 50 years. Meridian is committed to help defend against critical, time-sensitive, life-or-death situations by providing medical countermeasures to the Department of Defense, Emergency Medical Services, DHS and more than 30 nations around the world.



## Daesh stockpiling chemicals in Mosul: UN

Source: <http://www.presstv.ir/Detail/2016/11/11/493109/Iraq-Daesh-executions-chemical-attacks-mass-graves>

Nov 11 – A UN official says Daesh terrorists are stockpiling **ammonia** and **sulphur** in civilian areas, possibly for use as chemical weapons, in Mosul amid an Iraqi army operation to retake the city.





*join us*



**CBRN  
Knowledge Center**



**Explosives  
Knowledge Center**

**[ici-belgium.be/en/](https://ici-belgium.be/en/)**



## Experts Discuss Libya, Syria and Chemical Weapons

By: John Grady

Source: <https://news.usni.org/2016/11/11/libya-syria-chemical-weapons>



Nov 11 – **The key difference between Libya and Syria in the removal of chemical weapons and their precursors from their countries was the trust, transparency and openness that Libyans showed—from removal to transport to destruction.**

Mallory Stewart, deputy assistant secretary of State for emerging security challenges and defense policy, said Thursday, “[Libya] went out of its way to keep the international community informed” of where the heavy industrial chemicals that could be transformed into weapons were, the security around the stockpile and details of its movement from a desert storage site to the port for eventual shipment to Germany.

“Libya showed what good behavior could be,” he said.

In contrast, Syria, like Libya “a country in turmoil,” “does not answer questions,” she told a forum at the Center for Strategic and International Studies, a Washington, D.C., think-tank.

Simon Limage, deputy assistant secretary of State for nonproliferation programs, said the central question for the United States, when the Libyans approached the Organization for the Prohibition of Chemical Weapons [OPCW] in the Hague in December 2015, came down to: “Who were we dealing with?”

Libya has been racked by civil war and the rise of militant extremist militias controlling different sectors of the country since the overthrow of Muammar Gadhafi in 2011. Gadhafi in 2004 began a program to rid Libya of weapons of mass destruction, in part a response to the United States’ invasion of Iraq.

“We wanted to keep eyes on” from start to finish, Limage said, even with a minimal physical presence on the ground. “The political context [of the operation] was completely different,” he said. Syria was bowing to international pressure to remove the weapons after they were used on civilians in its civil war, and Libya’s government and different factions inside its borders wanted the stockpile destroyed.

Deepti Choubey, head of the public affairs branch for OPCW, which is not a U.N. agency, said another complication was that the Libyans believed that they could simply request assistance in the removal and destruction of the weapons—as had happened in Syria—and it would occur.

**But the treaty, signed by more than 190 countries, bans the export of those weapons. Taking the weapons out of Libya even for destruction would constitute export. It had to grant an**



**exception.** The organization also operates under a principle that past action is not precedent. Maneuvering through the organization itself, as well as gaining a U.N. Security Council resolution to destroy the Libyan chemicals and drawing together an international effort, was done comparatively quickly, she said.

“This was not an incremental win. It was a big win” in keeping the chemicals out of the hands of terrorists. “They will never be made into chemical weapons,” such as mustard gas, sarin or nerve agents.

**As it did with the Syrian mission, Denmark stepped forward to ship the material out of Libya.** Jonas Parello-Plesner, head of the foreign and security policy team at the Danish embassy in Washington, said because there was a military element to the effort parliamentary approval was needed and granted.

**By having to go to the Parliament, the Danes and other nations faced a serious challenge “in when to go public” and possibly compromise operational security.**

There was “a degree of urgency” to complete the mission as quickly and secretly as possible to keep terrorists, such as the Islamic State which is operating in Libya, in the dark about

security around the desert storage site, how and when the chemicals were being moved, security at the port and surrounding the ship arriving in port and loading the material.

The main reason the Danes took on the mission, said Parello-Plesner: “We’re a small country but committed to global governance.”

**As it had in the Syrian operation in the late spring and early summer of 2014, Germany agreed to be the site where the chemicals were destroyed.**

Christoph Israng, Berlin’s permanent representative to the organization, said because his nation is a federal republic, permission had to be secured to transport the chemicals across the various states to the destruction site.

Limage said the State Department worked closely with the authorizers and appropriators on Capitol Hill to keep them informed of what the United States was doing in this international effort.

Although the process was the same for Germany in moving and destroying the chemical as it had been for Syria, “every case will be different” in conditions and how to proceed. Israng added, “The Libyans really wanted to get rid of their chemical weapons,” and their African neighbors agreed with that decision.

*John Grady, a former managing editor of Navy Times, retired as director of communications for the Association of the United States Army. His reporting on national defense and national security has appeared on Breaking Defense, GovExec.com, NextGov.com, DefenseOne.com, Government Executive and USNI News.*

## Mass Casualty Decontamination Guidance and Psychosocial Aspects of CBRN Incident Management: A Review and Synthesis

October 03, 2016

Mass casualty decontamination is an intervention employed by first responders at the scene of an incident involving noxious contaminants. This report reviews decontamination guidance for emergency responders and associated research evidence, in order to establish the extent to which psychosocial aspects of casualty management have been considered within these documents.

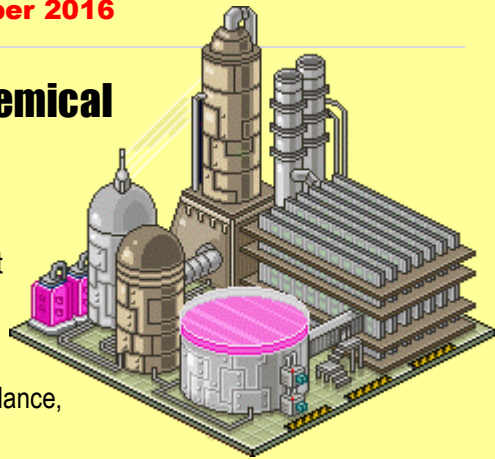
[View Full Report](#)



## Decontamination Guidance for Chemical Incidents

May 15, 2016

The Primary Response Incident Scene Management (PRISM) series was written to provide authoritative, evidence-based guidance on mass casualty disrobe and decontamination during a chemical incident. The PRISM documentation comprises three volumes: Strategic Guidance, Tactical Guidance, and Operational Guidance.



[View Full Report](#)

## Shocking Pink: An Inexpensive Test for Chemical Weapon Attacks

Source: <https://www.scientificamerican.com/article/chemical-weapon-litmus-test/>



*Credit: Courtesy of University of Michigan College of Engineering photographer Marcin Szczepanski*

March 2012 – It seems unlikely that the maker of hundred-million-dollar Hollywood blockbusters such as *Armageddon* and *The Transformers* could inspire scientists to develop an ultralow-cost tool for quickly sensing airborne [chemical weapons](#). Yet one former University of Michigan at Ann Arbor (U.M.) researcher says his idea to use a nerve-gas antidote to create an inexpensive litmus paper–like nerve-gas sensor emerged shortly after watching *The Rock* on DVD a few years ago.

During the climax of that 1996 Michael Bay movie, chemical weapons specialist Stanley Goodspeed (played by Nicholas Cage) injects himself in the heart with [atropine](#) to prevent certain death from [VX gas](#). After watching the movie with his wife, [Jiseok Lee](#) became intrigued by the possibility of using the nerve-agent antidote pralidoxime (also known as [2-PAM](#)) to detect the presence of organophosphate nerve gases such as VX and [sarin](#).





"I was inspired to use an antidote because an antidote always has a nice affinity to poison," says Lee, now a postdoctoral associate in the Massachusetts Institute of Technology's Department of Chemical Engineering. "That was the start of this research."

Lee and his U.M. colleagues were able to detect the presence of a nerve agent related to sarin gas at a low concentration of 160 parts per billion using a litmus-like paper sensor designed to change color from blue to pink (Lee says although it looks pink, technically, it is red) within 30 seconds of exposure to trace amounts of the toxic gas. The sensor combines a group of atoms from a nerve gas antidote with a molecule that changes color when it is under stress, the researchers reported recently in the online version of [Advanced Functional Materials](#).

"The test can be done using a simple filter paper, and the sensory materials can be synthesized quite easily," says [Jinsang Kim](#), an associate professor in U.M.'s Materials Science and Engineering; Chemical Engineering; and Biomedical Engineering departments. Kim, who advised Lee and his colleagues during their research, adds that it costs about \$1 for the chemical reagents and solvents used to make each filter.

"This work is very novel in that we don't need complicated lab-scale analytical devices," Lee says. "[With some] technical modification we might be able to easily commercialize the sensor with extremely low cost."

A litmus-paper test is a low-tech alternative to some of the more sophisticated chemical and radiation detection tools developed in recent years. These include [self-contained mobile land and airborne laboratories](#) for monitoring air quality, which the U.S. Environmental Protection Agency (EPA) has poured millions of dollars ([pdf](#)) into over the past decade. The EPA's Trace Atmospheric Gas Analyzer ([TAGA](#)) bus performs real-time sampling and analysis to detect chemicals at very low levels; and the agency's Airborne Spectral Photometric Environmental Collection Technology ([ASPECT](#)) aircraft uses chemical and radiological detectors, high-resolution digital photography, video and GPS technology combined with sophisticated software to remotely detect chemicals and radiation. In addition, handheld Chemical Agent Monitor ([CAM](#)) devices used by the military and first responders weigh several kilograms and cost upward of [\\$6,500](#). CAM devices, of course, are also [more sophisticated](#) than litmus paper, detecting and discriminating between, for example, vapors of nerve and blister agents and displaying their relative concentration.

Paper-based sensors would be a more practical alternative in equipping large numbers of soldiers and first responders. Litmus paper could warn them to don gas masks, even if specific details about a particular chemical attack aren't available.

The Michigan researchers are now developing a way for sensory chemicals to self-assemble into nanofibers that could be used to make a new type of sensor device that provides three different sensory signals—color change, fluorescence development and conductivity change—that can alert to the presence of a number of chemical and even biological weapons such as anthrax, Kim says.

Perhaps the biggest litmus test lies ahead—finding a way to commercialization these technologies and put them in the hands of those who need them the most.

## Paper-based chemical and biological sensors: Engineering aspects

By Snober Ahmed, Minh-Phuong Ngoc Bui and Abdennour Abbas

Department of Bioproducts and Biosystems Engineering, University of Minnesota Twin Cities, USA

*Biosensors and Bioelectronics*; Volume 77, 15 March 2016, Pages 249–263

Source: <http://www.sciencedirect.com/science/article/pii/S095656631530436X>

### Abstract

Remarkable efforts have been dedicated to paper-based chemosensors and biosensors over the last few years, mainly driven by the promise of reaching the best trade-off between performance, affordability and simplicity. Because of the low-cost and rapid prototyping of these sensors, recent research has been focused on providing affordable



diagnostic devices to the developing world. The recent progress in sensitivity, multi-functionality and integration of microfluidic paper-based analytical devices (μPADs), increasingly suggests that this technology is not only attractive in resource-limited environments but it also represents a serious challenger to silicon, glass and polymer-based biosensors. This review discusses the design, chemistry and engineering aspects of these developments, with a focus on the past few years.

► Read also: <http://rcrooks.cm.utexas.edu/research/resources/Publications/rmc283.pdf>

## Wearable chemical sensors from nanotechnology

Source: [http://cordis.europa.eu/result/rcn/175020\\_en.html](http://cordis.europa.eu/result/rcn/175020_en.html)

**EU researchers have created paper-, rubber- and cloth-based wearable sensors that can detect pH, chemical concentrations and even cholesterol.**

Recent developments in carbon nanotubes (CNTs) and printed electronics mean that electronics can now be incorporated into everyday materials such as paper and cotton. When used in conjunction with conductive membranes, the potential for cheap and disposable sensors is almost limitless.

The EU-funded **FLEXSENS (FlexSens: Chemical sensors for the 21st century; 2011-2015)** project used this strategy to create a flexible chemical sensor platform that can be easily adapted to different uses. The team focused on incorporating sensors into everyday objects and creating disposable, paper-based sensors.

Researchers began by defining strategies to incorporate electronics into paper, cotton and rubber, and testing different ways to create chemical sensors. They used an ink made with CNTs to create conductive materials, testing these with different conductive polymers to create the sensor.

FLEXSENS created paper sensors for sodium, potassium, calcium and magnesium, and used a lithium paper sensor as a proof-of-concept. Using a similar approach with cotton, researchers created an adhesive bandage that incorporates all of these sensors.

The development of solid-contact reference electrodes was a major step forward as they can be used in a wide range of different applications. Moreover, the development of a fully integrated paper-based potentiometric cell will enable the direct determination of lithium in blood. In addition, the creation of a novel creatinine sensor has resulted in the creation of a start-up company for home-based diagnostics. Collaborations with other research groups have yielded other potential sensors that can be worn as a 'tattoo' or that incorporate radio signalling for remote sensing. These low-cost sensors herald the beginning of a revolution in medical sensing technology.

## ERROR in 2016 Emergency Response Guidebook

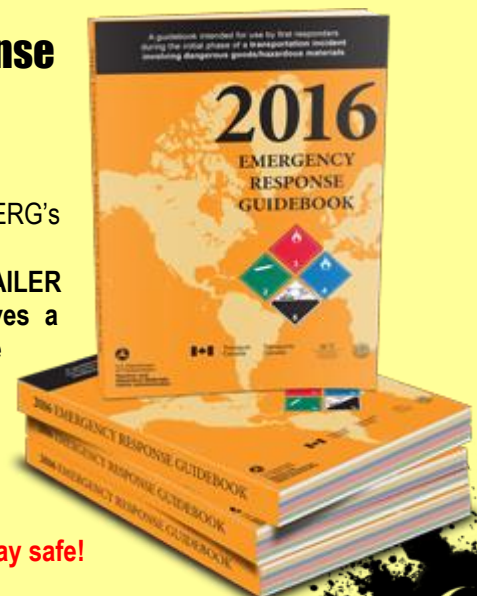
Source: [www.hazsim.com](http://www.hazsim.com)



An issue has been found with the 2016 ERG's that were part of the free distribution.

On page 13, ROAD TRAILER IDENTIFICATION CHART, Compressed Gas/Tube Trailer, gives a guide page of 137. This is incorrect and should state Guide 117. This was discovered and reported several months ago and apparently **this issue only is in the free guidebooks** and **was corrected in the ERG's for purchase**.

Please make sure your instructors/personnel are aware of this issue when utilizing the ERG's.



Stay safe!

## Recommendations to the New President on Countering WMD and Terrorism

By Rolf Mowatt-Larssen and Monica Duffy Toft

Source: <https://www.justsecurity.org/34603/recommendations-president-countering-wmd-terrorism/>

Nov 17 – After the U.S. Presidential election, we are entering a particularly vulnerable period as militant Islamists seek to test the new American president just as al-Qaeda (AQ) tested President George W. Bush shortly after the 2000 election.



We are now 15 years into the fight against Islamic-inspired terrorism. The day after the September 11, 2001 attacks, the US and its allies launched a global anti-terrorism coalition to crush AQ and its allies; a fight that many expected to last a generation. The timing was not wrong, but the nature of the threat itself was both misunderstood and underestimated.

That threat is now even greater than it was before 9/11.

A war that was expected to last a generation has become entrenched and intensified, and has expanded globally. It will last for decades to come. It has and will continue to intensify beyond the historic lands of the Caliphate. It is therefore noteworthy that the Islamic State has shifted its focus from a Muslim audience to a western audience in its magazine, “Dabiq,” at a time when the Islamic State has also called on its followers to carry out attacks in their home countries rather than travel to Syria or Iraq, the lands of the ISIS-proclaimed caliphate.

Today, there should be no doubt that both the Islamic State and AQ are interested in acquiring and using weapons of mass destruction (WMD); their words and actions confirm their intentions in this regard. The appeal of WMD lies in possessing a capability to confront a militarily superior adversary, in advancing their shared ideology, and in accomplishing their ultimate goals and objectives. The debate within the leadership of AQ in the mid 1990s for and against introducing WMD into the war was settled in 1998 by the group’s leader himself. Following Osama bin Laden’s 1998 fatwa and declaration of war against the United States, al-Qaeda launched leadership-driven programs to acquire nuclear and biological weapons. The appeal of acquiring WMD has not been questioned within the militant Islamist movement since the use of WMD was first justified in a 2003 fatwa published by three Saudi clerics.

This raises the critical question of whether the world is better prepared now to counter large-scale terrorist plots. The US missed the 9/11 attacks despite serial warning signs, including the February 1993 World Trade Center Bombing; the disrupted January 1995 “Bojinka” plot, which was a large-scale, three-phase attack planned by Islamists Ramzi Yousef and Khalid Sheikh Mohammed involving airliners and the assassination of the Pope; Osama bin Laden’s 1998 Fatwa extraordinary declaration that AQ would attack the West, invoking both his religious authority and the Islamic duty to warn enemies; and changing patterns of the movement of people and money in East Africa before the 2001 Cole bombing.

The warning signs were there, but the buildup to 9/11 revealed surprise and a failure of imagination. We failed to predict the attack because we could not imagine a plot of such a creative design and unprecedented scale. If recent events in Europe are any indication, the evidence indicates that we may not predict the next surprise. The attacks in 2015 and 2016 in Belgium, France and Germany revealed structural weaknesses in laws, information sharing and joint cooperation among counterterrorism partners. Furthermore, inadequate surveillance in Europe on terrorist networks was not due to lack of technology but to the law. On policy, law enforcement and intelligence, more generally, the US and its allies have rejected intrusive surveillance and harsh interrogation measures that challenge our norms of morality and justice.

Taking this reality into account—that we cannot eliminate the terrorist threat—two principles follow in making adjustments to U.S. efforts in combating terrorism. First, we must accept the fact that we are in a perpetual state of terrorist threat and must plan our lives around the threat, managing the risks as a routine in our way of life that does not capitulate to fear nor change the values that we hold most dearly.





Second, we must recognize that WMD terrorism risk factors rise and fall based on many factors, including the effectiveness of global efforts to secure nuclear and biological weapons-usable materials and reduce the risks of their proliferation. The evolving nature of militant Islamic movement itself, and by the changes to our (largely) quantitative means of combating terrorism also impact on risks associated with mass casualty attacks. Accordingly, the qualitative character of militant Islamist plans and intentions to acquire WMD must also be continuously assessed on the basis of the attractiveness of such weapons as a means to accomplish the jihadist's ends. Such predictive analysis requires an understanding of militant Islamists' motivations, goals, and terms of victory in their long war against the US and its allies.

**In this context, there are three easy and three difficult ways to lower the WMD terrorism threat over time.**

### Three Easy Things to Do

First, the US needs to broaden the terms of its bilateral intelligence engagement. Such an effort should include: comprehensive, rapid information sharing across agencies at home and abroad; closer integration of intelligence with law enforcement agencies at all levels; and emphasizing joint operations (active forms of engagement) over liaison sharing (passive sharing of information and analysis) with foreign allies, friends and even our adversaries. In all, we need to exercise prudence but not restraint in reaching out to any and all sources for leads, indicators and harbingers of terrorist WMD plans and intentions.

Second, the US should ensure there are dedicated resources to counter terrorist weapons of mass destruction and other asymmetric threats, such as cyber and attacks on critical infrastructure. Special threats must be managed with special means that are tailored to meet the demands of the problem.

Third, the President should designate who is in charge of WMD terrorism in the policy, military and intelligence communities. Countering WMD terrorism requires a counter-proliferation (CP) effort to thwart the acquisition of WMD capability (supply side), as well as a counterterrorism (CT) effort to identify and neutralize terrorist WMD plans and intentions (demand side). Accordingly, senior officials must ensure clear lines of responsibility and accountability are drawn to ensure there are no gaps in coverage between the CP and CT policy and intelligence communities.

### Three Hard Things to Do

The most immediate requirement to reverse the gains of militant Islam globally is to end the Syrian civil war. The Lavrov-Kerry agreement was a potential basis for action, because it defined a common enemy—both US and Russia want to defeat IS and AQ—and both want Syria to remain a unified state. But there are key points of disagreement, including what to do with Syrian President Bashar Assad once the war ends and the operational measures needed to bring that war to an end. Also in dispute are which groups are the enemy (Russia sees all opposition to Assad as ripe for bombing, while the US differentiates among hardline and extremist opposition to Assad) and concern over the longer-term regional and global balance of power. Despite such areas of disagreement, the U.S. and Russian defense and intelligence communities ("special services") must set aside their differences and work together in the Iraq-Syrian theater to eliminate the militant Islamist threat and help forge a political agreement that will be accepted by the Syrian people.

As great powers, the US and Russia bear a special responsibility to help lead a multilateral international coalition to combat the global jihad, an idea Russia proposed to the Harvard-sponsored US-Russian Elbe Group. Setting up a coalition to stamp out militant Islam globally must start by defining the enemy – the terrorist – in specific, objective terms that are consistent with international law. Creating a global counterterrorism coalition requires a long view of confronting the militant Islamist movement that the US, Russia and their allies lack at present. However, given the fact that Russia faces its own jihadist struggles within its borders, emanating from the Caucasus and now in the form of returning foreign fighters, its national security interests are clearly aligned with the Europeans, as well as with the US on this question. For its part, the possibility of another terrorist attack on the U.S. homeland should inspire a greater sense of urgency to broaden



and deepen U.S. exchange of military and intelligence information on a global multilateral basis. Finally, the US should engage the Islamic world on the problem of the ideology of militant Islam, recognizing that matters of the Muslim faith must be addressed by the Islamic world, not the West. With due regard for the sensitivity and appropriateness of addressing the social, economic and political underpinnings that fuel and sustain Islamic terrorism, the US should encourage and support the efforts of Islamic authorities to refute violent Islamism at its religiously based core of support.

The unwillingness, and perhaps incapacity of Arab governments to address the root causes of this conflict, remains the sustaining element of the “global jihad.” While it is true that the long war within Islam cannot be fought and won by the West, neither can the US fail to support constructive efforts in the Muslim world to represent and defend the true believers of their faith. In the end, the world’s ability to vanquish violent Islamic extremism hangs in the balance of the Islamic world’s ability to purge itself of this malignancy in its ranks and in the perversion of its teachings.

*This article draws on a paper co-authored by Rolf Mowatt-Larssen and Monica Toft that was commissioned by the Nuclear Threat Initiative (NTI). The authors wish to acknowledge NTI’s support in contributing this article and these recommendations for countering WMD terrorism. This post reflects the views of the authors alone and not the U.S. Navy.*

*Rolf Mowatt-Larssen is senior fellow at the Harvard Kennedy School’s Belfer Center for Science and International Affairs. He served as the Director of Intelligence and Counterintelligence at the Department of Energy; Chief of the Europe Division in the Directorate of Operations; and Chief of the Weapons of Mass Destruction Department, Counterterrorist Center.*

*Monica Duffy Toft is Professor of Strategy at the Naval War College and is Professor of Government and Public Policy at the Blavatnik School of Government, University of Oxford, where she is on leave this academic year.*

## OPCW Executive Council Adopts Decision Regarding the OPCW-United Nations Joint Investigative Mechanism Reports About Chemical Weapons Use in the Syrian Arab Republic



Source: <https://www.opcw.org/news/article/opcw-executive-council-adopts-decision-regarding-the-opcw-United-nations-joint-investigative-mechanism-reports-about-chemical-weapons-use-in-the-syrian-arab-republic/>

Nov 11 – The Organisation for the Prohibition of Chemical Weapons’ (OPCW) Executive Council (EC) adopted by vote a decision today that expresses grave concern about and condemns in the strongest possible terms the use of chemical weapons in the Syrian Arab Republic, calls on all parties identified in the OPCW-United Nations (UN) Joint Investigative Mechanism (JIM) reports as responsible for chemical weapons use to desist immediately and authorises additional inspections at selected sites and facilities of concern in Syria.

The Executive Council decision follows the JIM’s recent findings, contained in its third and fourth reports, that the Syrian Arab Armed Forces and the so-called Islamic State of Iraq and the Levant (ISIL) have been involved in the use of chemical weapons and toxic chemicals as weapons.

The Executive Council expressed its deepest sympathy for the victims of chemical weapons attacks and its conviction that “every actor involved in these chemical weapons attacks should be held accountable”.



The continued interest in the development, acquisition, and use of chemical weapons by non-state actors and the potential for this threat to increase over time was also addressed by the Executive Council. It expressed its grave

concern and underscored the essential role of the OPCW with respect to preventing and responding to the threat posed by non-state actors to the object and purpose of the CWC.

With the decision, the Council determined that necessary next steps include the OPCW Technical Secretariat undertaking, as soon as the security situation

permits, further verification activities such as “conduct[ing] inspections in the Syrian Arab Republic at those sites identified by the OPCW-United Nations Joint Investigative Mechanism in its third and fourth reports, as involved in the weaponisation, storage,

delivery, and use of toxic chemicals as weapons”.

The Executive Council’s decision further includes that the Technical Secretariat will conduct inspections, including sampling and analysis, at the Barzah facilities of the Syrian Scientific Studies and Research Centre (SSRC) as well as the Jamrayah SSRC facilities, twice a year on dates to be determined by the Secretariat. The Syrian Arab Republic is obliged to “facilitate promptly, and fully cooperate with, these inspections,” until the Executive Council decides to end them.

The Council expressed grave concern that all gaps, inconsistencies and discrepancies related to the initial declaration were not resolved and demanded that the Syrian Arab Republic comply fully with its obligations including the expeditious resolution of all outstanding issues regarding its declaration and related disclosures.

In addition, the Technical Secretariat is tasked with analysing any information or materials “relevant to existing or future allegations of chemical weapons possession or use”.

## Statistics

**192** States Parties covering  
**98%** of the global population

**93%** of the world’s declared stockpile of 72,304 metric tonnes of chemical agent have been destroyed.

**6,327** inspections have taken place at 235 chemical weapon-related and 2,255 industrial sites on the territory of 86 States Parties since April 1997.

**4,732** industrial facilities are liable to inspection.

## Sixteenth Annual Workshop to Coordinate Assistance and Protection under Article X of the Chemical Weapons Convention


**13 —15 December 2016**

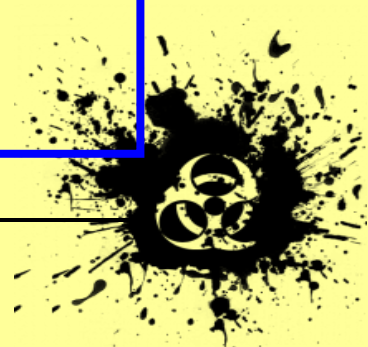
**Doha, Qatar**

On behalf of the Government of Qatar and the Organisation for the Prohibition of Chemical Weapons (OPCW), the Technical Secretariat (hereinafter “the Secretariat”) wishes to invite Member States to nominate participants for the “Sixteenth Annual Workshop to Coordinate Assistance and Protection under Article X of the Chemical Weapons Convention”, which will be held in Doha, Qatar, from 13 to 15 December 2016.

The workshop will provide a forum in which States Parties will share their experiences in relation to the implementation of Article X of the Chemical Weapons Convention (hereinafter “the Convention”), and exchange views on new approaches and trends in this regard.

The workshop is intended to draw together officials and experts from National Authorities, government ministries involved in responding to chemical emergencies, the chemical industry, and relevant organisations associated with the implementation of Article X. Participants will review relevant OPCW activities during the last year, exchange ideas regarding challenges relating to the implementation of Article X, and discuss issues related to the preparedness of the OPCW to respond to an incident involving chemical weapons.

 [Sixteenth Annual Workshop to Coordinate Assistance and Protection under Article X of the Chemical Weapons Convention, Doha, Qatar, 13 – 15 December 2016](#)





## New UAVs to Detect Radiation and Chemical Agents

Source: <http://i-hls.com/2016/11/new-uavs-to-detect-radiation-and-chemical-agents/>

Nov 17 – FlyCam UAV launched two new UAVs. The **Cypher 6**, a commercial-grade hexacopter, and the **NEO**, an all-weather commercial co-axial octocopter (photo). The new developments can be used to detect radiation leaks in nuclear power plants or flown into plumes of smoke from a burning building to give first responders immediate data about what kinds of hazards might be present. It can also be used to monitor public events, sea ports or geographic areas to detect possible dirty radiological bombs or the use of chemical and biological agents.

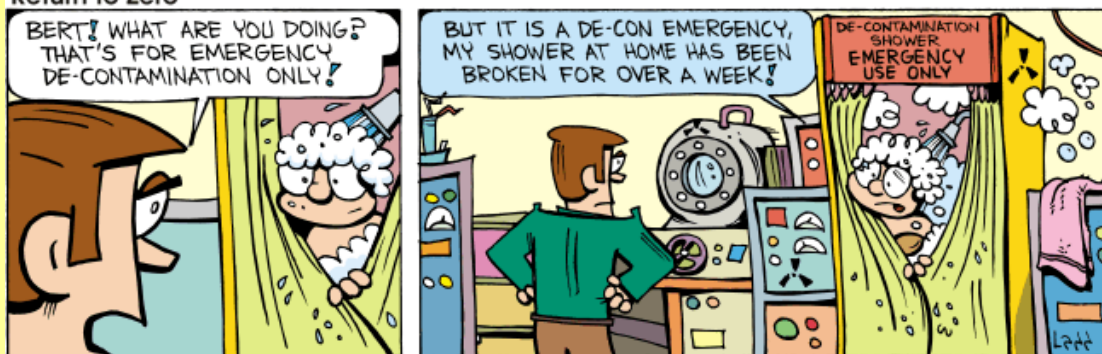
According to pennergy.com, the Cypher 6 and NEO UAV configurations acquire and relay data to the



operator in real-time. The data will come with GPS coordinates and stored on-board for post-flight download and viewing, or it can transmit data to a base station wirelessly for live monitoring. The data consists of a series of measurements of radioactive intensity tagged with GPS data for color coded display on a map. The data can be displayed as a full gamma spectrum, allowing the identification of radioactive isotopes.

“Sensors mounted on UAVs is the perfect marriage of two technologies that will be a game changer for a variety of different industries,” Jeri Donaldson, CEO and owner of FlyCam UAV, said. “In addition, the need for security is at an all-time high and our technology can remove the human element from a potentially dangerous situation. The practical and potential applications of the Cypher 6 and Neo with US Nuclear Corp.’s DroneRad sensor package are enormous and we have yet to see all of the use cases of the devices.”

### Return to Zero



EEWeb.com

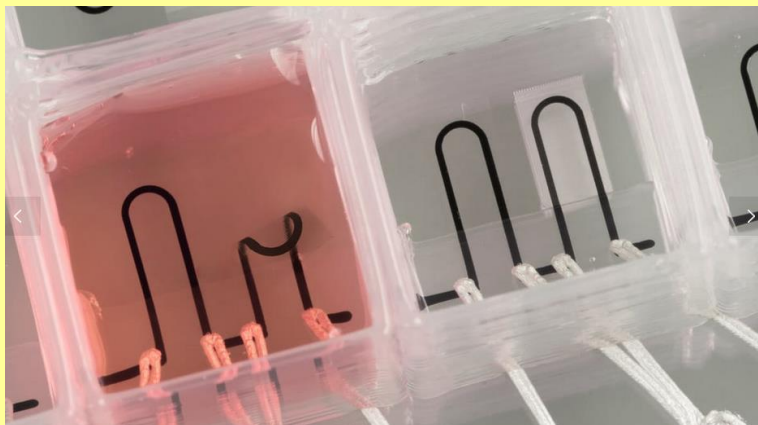


## First entirely 3D-printed organ-on-a-chip with integrated sensors

Source: <http://wyss.harvard.edu/first-entirely-3d-printed-organ-on-a-chip-with-integrated-sensors/>

Oct 24 – Researchers from the Wyss Institute for Biologically Inspired Engineering at Harvard University and the Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS) have made the first entirely 3D-printed organ-on-a-chip with integrated sensing. Built by a fully automated, digital manufacturing procedure, the 3D-printed heart-on-a-chip can be quickly fabricated with customizable size, shape and other physical properties, while allowing researchers to easily collect reliable data for extended times in culture. The study is published in *Nature Materials*.

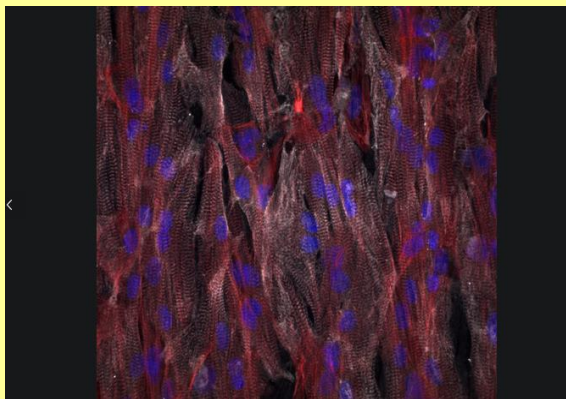
“This new programmable approach to building organs-on-chips not only allows us to easily change and customize the design of the system by integrating sensing but also drastically simplifies data acquisition,” said Johan Ulrik Lind, Ph.D., first author of the paper and postdoctoral fellow at SEAS and the Wyss Institute.



“Our microfabrication approach opens new avenues for in vitro tissue engineering, toxicology and drug screening research,” said Kit Parker, Ph.D., senior coauthor of the

study, who is a Wyss Core Faculty member and Tarr Family Professor of Bioengineering and Applied Physics at SEAS.

Organs-on-chips mimic the structure and function of native tissue and have emerged as a promising alternative to traditional animal testing. Wyss Institute research teams led by Parker and Wyss Founding Director and Core Faculty member Donald Ingber, M.D., Ph.D., have developed organ chips that mimic the microarchitecture and functions of heart, muscle, tongue, lung, intestine, kidney and bone marrow. However, the fabrication and data collection process for organs-on-chips is expensive and



laborious. Currently, these devices are built in clean rooms using a complex, multi-step lithographic process and collecting data requires microscopy or high-speed cameras.

“Our approach was to address these two challenges simultaneously via digital manufacturing,” said Travis Busbee, coauthor of the paper and graduate student at Wyss and SEAS. “By developing new printable inks for multi-material 3D printing, we were able to automate the fabrication process





while increasing the complexity of the devices.”

The researchers developed six different inks that integrated soft strain sensors within the microarchitecture of the tissue. In a single, continuous procedure, the team 3D printed those materials into a cardiac microphysiological device — a heart on a chip — with integrated sensors.

“We are pushing the boundaries of three-dimensional printing by developing and integrating multiple functional materials within printed devices,” said Jennifer Lewis, Sc.D., who is a Wyss Core Faculty member and the Hansjörg Wyss Professor of Biologically Inspired Engineering at SEAS, and senior coauthor of the study. “This study is a powerful demonstration of how our platform can be used to create fully functional, instrumented chips for drug screening and disease modeling.”

The chip contains multiple wells, each with separate tissues and integrated sensors, allowing researchers to study many engineered cardiac tissues at once. To demonstrate the efficacy of the device, the team performed drug studies and longer-term studies of gradual changes in the contractile stress of engineered cardiac tissues, which can occur over the course of several weeks.

“Researchers are often left working in the dark when it comes to gradual changes that occur during cardiac tissue development and maturation because there has been a lack of easy, non-invasive ways to measure the tissue functional performance,” said Lind. “These integrated sensors allow researchers to continuously collect data while tissues mature and improve their contractility. Similarly, they will enable studies of gradual effects of chronic exposure to toxins.”

“Translating microphysiological devices into truly valuable platforms for studying human health and disease requires that we address both data acquisition and manufacturing of our devices,” said Parker. “This work offers new potential solutions to both of these central challenges.”

*Journal Reference: Johan U. Lind, Travis A. Busbee, Alexander D. Valentine, Francesco S. Pasqualini, Hongyan Yuan, Moran Yadid, Sung-Jin Park, Arda Kotikian, Alexander P. Nesmith, Patrick H. Campbell, Joost J. Vlassak, Jennifer A. Lewis, Kevin K. Parker. Instrumented cardiac microphysiological devices via multimaterial three-dimensional printing. Nature Materials, 2016; DOI: [10.1038/nmat4782](https://doi.org/10.1038/nmat4782)*



## Success! Washington University Stops Using Cats for All Intubation Training

Source: <http://www.care2.com/causes/success-washington-university-stops-using-cats-for-all-intubation-training.html>

Oct 24 – Finally, for the first time, we can say this — no medical school in the United States uses cats to train students to intubate infants. Care2 readers, this victory belongs to you and to many others who



have [long opposed](#) this antiquated teaching technique.

Washington University in St. Louis announced in mid-October 2016 that, effective immediately, they will stop sedating cats and using them to instruct medical students how to insert breathing tubes down infants' throats. From now on, neonatal intubation training will be done [only using mannequins and simulators](#).

Washington University was the [last of 198](#) U.S. pediatrics programs to give up endotracheal

intubation training using live cats and ferrets. [According to the St. Louis Post-Dispatch](#), a press release issued by the school explained that “[i]mprovements in the simulators make this possible. Therefore, the university has made the decision to no longer rely on





anesthetized cats in training health care professionals to perform these life-saving intubation procedures.”

To see what this training involved, watch [\(at source's URL\)](#) this undercover video shot at Washington University by People for the Ethical Treatment of Animals (PETA) in 2013: If you prefer not to watch the video, this is [how PETA described it](#) at the time:

The video shows unskilled trainees struggling for several minutes to intubate two helpless cats named Elliott and Jessie, botching the attempts to shove tubes down their windpipes and mishandling metal instruments in ways that could break the cats' teeth. As several participants in the video note, the inadequately anesthetized cats even begin to wake up during the procedure.

A WUSTL veterinarian is seen discussing how each cat is subjected to as many as 15 intubations each session, even though studies show that intubating animals more than five times per session can cause pain and trauma. The veterinarian and course leader also admit that some cats' windpipes are injured during the exercise, which can cause potentially fatal bleeding, swelling, scarring, and collapsed lungs. Each of the cats held captive at WUSTL is subjected to this miserable procedure up to four times a year.

Cats and ferrets have been popular subjects for intubation training because their throat's upper airway is quite a bit like that of a newborn baby. Many doctors felt a simulator or mannequin [just couldn't replicate](#) the delicate internal tissue or the automatic reflexes of a live throat.

Shortly after this video surfaced in 2013, Washington University [agreed to stop](#) intubating live cats in its Pediatrics Advanced

Life Support course. In other school programs, though, the practice continued until this month.

“The best way to teach emergency airway intervention is on human-relevant training methods,” said Dr. John Pippin, director of academic affairs for the Physicians Committee for Responsible Medicine (PCRM), [in a news release](#). “I commend Washington University for switching to modern methods. With this decision, Wash U's pediatrics training has progressed into the 21st century.”

PCRM has been on the front lines for many years in the fight to convince medical schools to stop using live animals for medical student training. The organization started a [Care2 petition](#) that received more than 70,000 signatures.

In the last few years, pressure from PCRM and other animal activists has really turned the tide. This announcement is one more victory we've all waited a long time for. It took [much too long](#) to happen.

“We were truly perplexed that a leading program like that would use a discredited method of training,” Dr. Pippin [told the St. Louis Post-Dispatch](#).

**The remaining cats [will be adopted](#) by Washington University staff members. In fact, all along, these cats have gone home to live with staff members after three years as a training prop.**

Be glad no other cats will have to undergo this uncomfortable and potentially dangerous service as a tool for training. Washington University, we're so pleased you made this decision, because it's the right one. We just wish you'd made it years earlier.

## Botulism – UK (drug-related)

Source:<http://www.bbc.com/news/uk-scotland-north-east-orkney-shetland-37750155>

Oct 24 – A drug user is receiving treatment for suspected botulism in Aberdeen [Scotland]. NHS [National Health Service] Grampian's Health Protection Team is investigating the case, which involved a person injecting drugs. Spores of the botulism bacillus can sometimes contaminate heroin. If injected, it can grow and cause wound infections. The resulting in muscular paralysis. NHS Grampian said botulism cases were rare.

## Black tar heroin

Source:<http://www.drugaddictiontreatment.com/types-of-addiction/heroin-types-of-addiction/comparing-heroin-and-black-tar/>



**Black tar heroin is a type of illegal narcotic derived from morphine.** Commonly called black tar heroin, heroin content is not actually what distinguishes this particular drug from other kinds of opiates. While black tar does contain an amount of heroin that can range from 29 to 80 percent, the drug is actually identified by the amount of comparatively crude derivatives of morphine that result from incomplete acetylation. Without delving into the chemistry too exhaustively, black tar is an unrefined product that is made without the complex equipment and chemicals necessary to produce heroin with a high level of purity. Black tar is manufactured primarily in Mexico, and is also commonly referred to as black, brown, manteca, night, or dark. It is also produced in smaller quantities in other parts of Latin America.

**Black tar use has spread throughout North America and can also be found in parts of Europe.** Since the drug does not require the advanced equipment necessary to make pure heroin in white powder form, it is relatively cheap to manufacture and therefore cheap to purchase. It is less expensive to buy than white powder heroin, and it is much less expensive than commonly abused prescription opiates such as vicodin or oxycontin [oxycodone].

**Black tar is distinct in appearance from white powder heroin. It ranges in color from black to light brown, and it is sold either as a cola-like chunk, a coarse powder, or a sticky substance with the consistency of melted tar, hence the name.** Black tar can be injected in its tar-like form, snorted in its powder form, or smoked. The effects of black tar are similar to the effects of other kinds of opiates, and include feelings of euphoria, relaxation, loss of anxiety, and anesthesia. Side effects can include nausea, vomiting, diarrhea, constipation, and dry mouth.

**The most common method of using black tar is injection,** and this method poses risks apart from the dangers of the drug itself. For one, black tar users frequently suffer from venous sclerosis, a condition in which the veins shrink and harden. It may become impossible for users to inject intravenously if they develop venous sclerosis, forcing them to resort to subcutaneous injection. However, this method includes its own risks, such as cellulitis and necrotizing fasciitis. When black tar users inject repeatedly, they put themselves at risk for contracting wound botulism due to the impurities and adulterants present in the drug. The sticky consistency of the drug may also put users at greater risk of HIV if they are washing needles and reusing them.

**The cheapness of black tar has helped to make it comparatively popular among young users who are inexperienced with drug use.** Complications from drug use are more common when users are inexperienced. In addition, the impurities present in black tar, as well as the inconsistent ratio of heroin present in the drug, make overdose or death from complications due to the adulterants much more likely. Like all derivatives of morphine, black tar is extremely addictive. Dependency can occur after very few uses, and tolerance can also increase rapidly, causing users to experience irresistible cravings for increasingly large amounts of the drug.

## The Strategic National Stockpile Stores Medication and Equipment in Case of Emergency

Source: <http://www.emergencymgmt.com/health/The-Strategic-National-Stockpile-Stores-Medication-and-Equipment-in-Case-of-Emergency.html>

Oct 21 – How would emergency management and public health officials handle a catastrophe that taxed local supplies of vaccines or medical equipment? Since 1999, the federal government has had a way to help: the Strategic National Stockpile.

The stockpile consists of warehouses that contain medicines — both those that prevent the onset of an illness and those that can treat illnesses — and medical supplies and equipment. It is not meant to be the first line of defense, but rather to supplement resources when state and local supplies run short.

“The underlying premise of the Strategic National Stockpile is to respond to primarily chemical, biological, radiological and nuclear events,” said Greg Burel, director of the



Division of Strategic National Stockpile at the Centers for Disease Control and Prevention (CDC). “We also hold material that would be useful in an influenza event.”

**The exact number of warehouses, the contents and the locations are not made public, though the CDC’s website describes the contents as “antibiotics, chemical antidotes, antitoxins, life-support medications, IV administration, airway maintenance supplies and medical/surgical items.”**

“There are multiple locations across the country,” Burel said. The sites are selected after considering factors such as population density, the availability of major transportation hubs and risk factors like natural disasters. “We try to balance products in a way across these warehouses to get the most rapid distribution anywhere in the country we need to get to.”

There’s a reason for the secrecy.

“If you know what’s in it, you know what’s not in it, which could suggest some vulnerabilities,” said Rocco Casagrande, managing director of Gryphon Scientific in Takoma Park, Md. “It would describe exactly which attacks we don’t have preparations for.”

The way the stockpile’s contents are chosen illustrates the complexity of the decisions officials face when preparing for public health emergencies.

Irwin Redlener, director of the National Center for Disaster Preparedness at Columbia University, said choosing items for the stockpile is one of the key challenges. The other is what happens at the end of the process: the management of the so-called last mile, where supplies are distributed to those who need them.

### The Big Picture

The Strategic National Stockpile is just one part of the overall plan for getting supplemental emergency assistance to areas that need it. The process begins with the Public Health Emergency Medical Countermeasures Enterprise (PHEMCE), the government organization that makes decisions about what should be in the stockpile.

“What conditions will it respond to? What supplies and medical countermeasures need to be in the stockpiles?” Redlener said. PHEMCE makes this determination.

Although the original goal of the Strategic National Stockpile was to respond to chemical, biological, radiological and nuclear threats, Burel said, “we have expanded our mission to an all-hazards perspective, so we do hold some products that are useful, for example, in response to hurricanes and earthquakes.” The list of what goes into the Strategic National Stockpile is based on material threat assessments from the Department of Homeland Security, as well as medical information.

“The content changes over time based on scientific understanding of what is needed to combat the material threats,” Burel said. The threats themselves don’t change dramatically very often, he said, but “if some new threat appeared and became the highest priority, we

could have to make rapid changes in our holdings to address that.”

The Strategic National Stockpile is responsible for the middle part of the process: maintaining the inventory and making sure it can get where it’s needed. But the stockpile’s responsibility for the materials ends once it is delivered to the local authorities, who distribute them to the people who need them. “The [Strategic National Stockpile] portion is important, but it depends on what happens before and after,” Redlener said.

### Critical Inventory

**The current valuation of the stockpile’s inventory, which includes enough medicine for the populations of several large cities, is about \$7.5 billion, and the average annual appropriation for it is about \$500 million.**

Experts deciding what should go into the stockpile have to consider many factors, including current threats, the availability of products, how easily the products can be distributed and the medical vulnerability of the population, according to the CDC. They also look at how useful specific items will be in a range of situations.

For example, some antibiotics may be useful to combat a broad range of threats — though not always with a big impact —





whereas an antitoxin may be more effective but useful in just one type of emergency. In addition, “there might be certain agents that act so fast that it doesn’t make sense to stockpile countermeasures for them because you can’t get them there,” said Casagrande.

Some of the products may also serve multiple purposes: Oral antibiotics, for example, may be put in the stockpile in preparation for a particular type of biological weapon attack. “It may be that they would be useful for a large-scale emerging infectious disease or some man-made event that we didn’t plan for,” Burel said. “We are constantly looking for ways to make sure we can get the most use out of everything we own.”

The program works with commercial vendors to provide some of the material, sometimes in response to emerging threats.

For example, during the Ebola outbreak, the Strategic National Stockpile used the commercial supply chain to provide protective gear to health-care workers, according to a report prepared for a PHEMCE workshop in January.

“With Ebola, we did acquire on the fly a small stock of personal protective equipment,” said Burel. After officials determined which hospitals would play which role in treating Ebola patients, “we worked with hospitals directly to determine what their status was to be able to support patients.”

One key aspect of the stockpile program is quality assurance. This means rotating the stock to replace anything that has expired, for example, and performing quarterly quality assurance checks. In addition, changes are made due to new drugs that have been developed to combat certain diseases.

### A Complex Process

The materials in the stockpile will only be effective in an emergency if they actually get to the people who need them in time.

Casagrande said the key is the “three D’s”: delivery, or getting the material from the stockpile to the local area; distribution, which means getting it to the specific place where it will be used; and dispensing, or administering it to the patient. “All three are important,” he said. This process starts once local and state resources are exhausted. The governor of the

affected state requests material from the stockpile from the CDC or the U.S. Department of Health and Human Services, starting a rapid decision-making process to determine what type of help can be provided. At the end of the chain, local communities receive the materials from the state and provide them to those who need them in the community.

“We work with state and local officials to determine where to deliver it and how to do that,” Burel said. For most situations, plans are already in place for the local agencies to distribute the products once they receive them. The level of preparation among states and local governments varies. “We have some states and localities where the coordination is very advanced,” Burel said. “There are some that probably need a little more work in that area.”

Once the material arrives at the affected area, state and local officials take control of it. However, the stockpile does provide technical advisers who can assist the local jurisdictions in getting the material to where it’s needed.

“Once we hand off the material, we don’t just walk away,” Burel said. “But it becomes the responsibility of state and local officials to put material into distribution plans they already have in place.”

The stockpile has several ways of getting material to those who need it. For immediate response, it has 12-hour Push Packages, which the CDC describes as “caches of pharmaceuticals, antidotes and medical supplies designed to provide rapid delivery of a broad spectrum of assets for an ill-defined threat in the early hours of an event.” They can be loaded onto trucks or cargo planes to be delivered within 12 hours of the decision to use them.

The CDC also uses vendor-managed inventory, which can get to an affected location within 24 to 36 hours.

The stockpile staff also provides assistance to public health and emergency management departments to handle emerging threats. “We’ve been able to work through our capability to manage medical supply chain logistics and try to help make sure that interventions are conducted in the most rational way,” Burel said.



### Looking to the Future

As the Strategic National Stockpile moves into the future, there are questions about what might change.

"We don't really have an agency that has the job of overseeing, end to end, the determination of threats, selection of countermeasures, the stockpile and the last mile. I do believe there could be an agency with end-to-end responsibility," said Redlener. The management structure of the entire process is "one of the open questions for a new administration."

"We're constantly looking for ways to do better, to make things move faster," Burel said. For example, they are starting to do exercises with external partner groups such as the Health

Industry Distributors Association. "Whether it's a natural or man-made disaster, a weather event or an earthquake or a disease — what is the best way we can all work together make decisions?"

**For now and in the future, communication among agencies is key.**

**"It's very important for the public health community and the emergency management community to talk in advance about how they can support each other,"**

Burel said. "Even these natural disasters all have significant public health implications. If you're in emergency management, you can't think of emergency management in a vacuum. You have to think about how it's going to impact public health."

## Stealing MERS samples was act of bioterrorism

By Dr. Hakim Djaballah, former CEO of Institut Pasteur Korea

Source: [https://www.koreatimes.co.kr/www/news/nation/2016/10/116\\_216860.html](https://www.koreatimes.co.kr/www/news/nation/2016/10/116_216860.html)

Oct 26 – 2014 was not a good year for Institut Pasteur Paris (IPP) President, Christian Brechot, some 2,300 tubes containing the deadly SARS (severe acute respiratory syndrome) virus mysteriously disappeared from a high level biosecurity lab level 3 (BSL3). Brechot was quoted back then as saying "Human error is the most probable reason, but we do not exclude anything" followed by "We knew from the beginning that the samples were not infectious, as the independent experts confirmed" and he concluded by saying "We took a decision to inform the public. We want to be perfectly transparent" The



French National Agency for the Safety of Medicine and Health Products (ANSM) was notified and they immediately investigated the case with no results as to whereabouts of the SARS samples.

Christian Brechot, left, Institut Pasteur Paris (IPP) president, and Uhtaek Oh, chairman of IPK board / Korea Times file

But, a year later, his transparent beliefs seem to have choked. This time there was no perfect transparency whatsoever, the French authorities, the public and the ANSM agency alike were not informed. Brechot ordered the destruction of the MERS (Middle East respiratory syndrome) samples left by the Korean virologist Miss Ji-Young Min, citing in his favor, an IPP protocol and fulfilling the "not seen, not taken" prophecy as concluded in a recent article by the French newspaper "Le Canard Enchaîné," the perfect cover-up he thought. This behavioral change is due perhaps to two factors. The first, to do with the reappointment issues surrounding Brechot's age and other controversies as he has been fighting to change the laws allowing him a second term of four years, sounding more like a dictator wanting to grab to power in an open French democracy; and the second, to do with the total absence of independent expert testimonies after the fact, since the samples were never validated in Korea as "inactive", and they were conveniently destroyed making any independent expert evaluation impossible. Brechot was contacted via email by The Korea Times but unfortunately he refused to engage in the conversation.



What would Dr. Louis Pasteur think of these recent events surrounding his institute? Its president Brechot committed a serious act of interfering directly or indirectly in the cover-up of a bioterrorist act committed by Miss Min in Oct., 2015, and potentially exposing globally many innocent lives to an unnecessary risk from the deadly MERS virus. As an advocate for global public health and a leader, Brechot failed to perform the simple act of decency by alerting the French authorities when the incident happened, obtaining emergency permission to assess the risk of the MERS samples brought by Miss Min, assess the risk of the samples at his BSL3, and only then, he can order their destruction if deemed to be non-contagious and truly inactivated. Instead, Brechot sat tight, kept quiet, and interfered with my activities when I was head of Institut Pasteur Korea (IPK) in the hope that if I left office, then Brechot would have won the total cover-up of the incident. The story is out through the article by The Korea Times on Oct. 5, 2016.

The timelines constructed by The Korea Times and to the best of my knowledge reveal that Brechot failed to report this incident on many occasions unless he was truly covering it all up. Brechot had many opportunities to alert the authorities in France and Korea. Brechot attended several board of directors meetings of IPK between Oct., 2015 and Oct., 2016, where some board members are Korean government officers. Brechot has never officially reached out to me regarding the incident, but he has verbally intimidated me to drop his investigation.

Brechot first denied the incident ever happened then few days ago he reassures the French government and public that the MERS samples were inactivated therefore present no risk. This is totally false. The MERS samples, he refers to as harmless, were indeed stolen from the IPK BSL3 and I called them "ghost samples"; through our investigation, we could not find nor confirm any record of their origin or experiments leading us to believe that indeed they were properly inactivated; The risk from these samples will remain unknown forever, since Christian, conveniently ordered their destruction. In view of all the attempts at covering-up by IPP, IPK's chairman of the board and Bruzzzone, I strongly believe that it is in the best interest of global public health and IPP, that Brechot should do the right thing and step down, allowing for a new fresh leadership to rebuild the damage and mistrust he caused; as for Miss Min, board chairman Uhtaek Oh and Bruzzzone, they must be investigated for their role in the incident/cover-up and given appropriate sentencing in Korea. Miss Min must be put on a "no fly list" for sure and not allowed on any Korean Air flights.

On the outcome of my Jan., 2016 investigation, it was a hardship to get to the bottom of things and to the truth, but I was not allowed to complete everything. Since finding out about the MERS transfer to Paris, the lies that followed from Miss Min were incredible, she is just a remarkable manipulative and compulsive liar, to the extent that she accused me of ordering her to take the samples to Paris. Miss Min sent me an email on Jan. 5, 2016 saying "MERS samples never been taken from IP Korea to IP Paris. Please refer to our BSL3 facility entry log and virus inventory." Even Marc Jouan, VP of IPP international affairs, visited me at my home in Itaewon while I was recovering from surgery, to deliver a very clear message from Brechot that I must drop all investigations into Miss Min transfer of the MERS to Paris, and I should not consider opening the investigation into the sexual harassment accusations against Marc Windisch, a German national and a sexual predator who allegedly led a Korean female researcher to suicide. My fears of a breach were confirmed when my head of safety reported back that he could not find any evidence in the records for the MERS experiments, Miss Min performed, on Sept. 25, 2015 as seen on the CCTV footage. It is the worst breach of a BSL3 in Korea and in my opinion, an act of terrorism by Miss Min. This is not the behavior of a normal person rather of a psychopath, as she has even put her own son and parents in harm's way.

It is also equally as important for the Korean public to know that Miss Min failed her yearly work performance evaluation with a very poor score and no tangible results. She is paid a yearly salary of 160 million won since 2011 and her son education is also paid for by IPK at an annual cost of 23 million won. She is a Korean national and IPK pays for her child education, a support reserved only for expatriates. Miss Min has not produced anything of value for Korea except very bad publicity and an act of bioterrorism.

I am happy the story is finally out but not very satisfied with the outcome as yet, after spearheading the MERS investigation, against the wishes of Paris, IPK chairman of the





board Uhtaek Oh, and leading to the formal dismissal of Miss Min. Miss Min and Marc Windisch were subsequently reinstated by Bruzzone, my successor on interim status, as if nothing had ever happened on Mar. 21, 2016; Bruzzone himself told a group of investigators at IPK who oppose the return of these two individuals on Mar 7, 2016 that they were "his friends", and he saw no reason as to why they were not allowed back. Feeling the pressure that his stay in Korea could be cut short if the MERS incident went public, Bruzzone put together a statement on Sept. 21, 2016 shifting the blame to Miss Park (not her real name), a researcher under the care of Miss Min and his esteemed colleagues at Asan Medical Center (AMC); and concluded by saying that "there was no evidence that MERS coronavirus-infected cells -- even after fixation -- were taken out of the institute after samples were transferred to AMC."

In fact, Bruzzone has made every effort not to mention Miss Min in his entire email and statement. He concluded by saying that all related documents and emails might be consulted upon request. Obviously, Bruzzone has not been provided all the evidence or he is lying out of his teeth. Miss Min already informed me of the work carried out at AMC with her collaborator in her email of Jan. 5, 2016. This is a very clear example of dishonesty, cover-up, and a big lie from Bruzzone. In view of this, how can we trust Bruzzone to lead IPK and be compassionate about the Korean people?

Regarding Brechot, Uhtaek Oh, and Jouan, God forbid the stolen samples burst open at Incheon exposing thousands to the deadly MERS and cause another outbreak -- who is to blame? Who is responsible for this terrorist act? The Korean government or Institut Pasteur? I say this with a serious cautionary note because of the origin of this particular MERS. It was collected from a MERS-infected patient room. Miss Min's collaborator went into the patient room, after the room was disinfected by hospital staff if I recall correctly, and collected both air and surface swabs. The swabs were then brought to IPK. Miss Min results published in the scientific magazine *Clinical Infectious Diseases*, if indeed true and not falsified in any way, seems to suggest that MERS can grow again and it is airborne even after harsh cleansing; therefore making it a very dangerous and ultimately an ideal bio-weapon to harm others. Knowing all that, Miss Min still opted to steal MERS samples, hide them in her parent's home, and take them to Paris. We remind ourselves that one single patient infected with MERS caused a national disaster in Korea with many infected and dead citizens, and a huge economical loss to the country. Brechot made sure that we will never know if these samples were contagious or not.

Regarding intimidation and harassment I sustained over many months, I have no regrets whatsoever, as I will never compromise my integrity and morals for anyone. If the clock goes back to Oct., 2015, I will execute exactly the same way. I came to Korea to help but I was presented with obstacles at every step of the way from both the French and Korean sides. However, what bothered me the most was how low some individuals can go to intimidate and cause harm to me and my family. Brechot, Jouan and Uhtaek Oh have coached Miss Min and Marc Windisch (the sexual predator) to file serious complaints against me at the Yongsan Police Station for insult, indecent act by force, and intimidation; which, after careful investigation by the Yongsan Police officers who interviewed me and visited my office space at IPK, the Seoul prosecutor's office could not find any strong evidence supporting their accusations and declared me clear of suspicion. Even Yung-Bog Chae, the former chairman of the IPK board, called me in order to help, and to deliver a message from Miss Min telling me that she is prepared to withdraw her complaints if I refrain from speaking about MERS, drop the lawsuit, pay her a sum of money to cover her legal expenses, and that her lawyer will draft a contract for me to sign. This is a new form of blackmail by proxy!

## **Bacteria-infected mosquitoes to combat Zika spread in South America**

Source: <http://www.homelandsecuritynewswire.com/dr20161027-bacteriainfected-mosquitoes-to-combat-zika-spread-in-south-america>

Oct 27 – A cross-section of *Anopheles* mosquito DNA that has been injected with *Wolbachia* will be used in an effort to combat

the spread of the Zika virus. Researchers can now transfer the bacteria into *Aedes* mosquitoes,



which reduces their capacity to transmit viruses to humans.

The mosquitoes infected with naturally occurring Wolbachia bacteria will be released in large urban areas in Colombia and Brazil. The new field trials will assess the effectiveness of the method for reducing new cases of Zika and other mosquito-borne diseases.

The Wellcome Trust says that funding to the [Eliminate Dengue Program](#) (EDP) from Wellcome, the Gates Foundation, USAID, and the U.K. Department for International Development will be used to scale-up decades of research into this innovative infection control method.

Researchers from EDP have already conducted small-scale deployments of Wolbachia-carrying mosquitos in Australia, Vietnam, Indonesia, Colombia, and Brazil. The trials showed that where there are a lot of Wolbachia-carrying mosquitos in the area, there is no local transmission of the viruses. The new funding will allow large-scale trials to take place in sprawling urban areas, including Rio de Janeiro.

Wolbachia is a naturally occurring bacterium that is present in 60 percent of insect species worldwide. It significantly reduces the capacity of mosquitoes to transmit viruses to humans. Wolbachia is not, however, naturally present in *Aedes aegypti* mosquitoes, the primary vector for Zika, dengue, and chikungunya viruses. EDP researchers [have pioneered](#) a way to transfer the bacteria into *Aedes* mosquitoes.

When mosquitoes with Wolbachia are released into an area, they breed with local mosquitoes and pass the bacteria to their offspring. Within a few months, the majority of mosquitoes carry Wolbachia and the effect is self-sustaining, without the need for further releases.

Dr. Mike Turner, Acting Director of Science and Head of Infection and Immunobiology at Wellcome, said: "This research is essential as it will help measure the health impact of the Wolbachia method in large urban areas, where these kinds of outbreaks can have such a devastating impact."

"Wolbachia could be a revolutionary form of protection against mosquito-borne disease. It's affordable, sustainable, and appears to provide protection against Zika, dengue, and a host of other viruses. We're eager to study its impact and how it can help countries," said Dr. Trevor Mundel, president of the global health division of the Bill and Melinda Gates Foundation.

"Zika and other diseases spread by [the *Aedes aegypti* mosquito] are really not controllable with current technologies," said CDC director Dr. Thomas Frieden. "We will see this become endemic in the hemisphere."

WHO data show that more than fifty countries have experienced an outbreak of Zika virus infections since 2015, and there have been nearly 2,200 cases of microcephaly – babies with brain damage – associated with Zika, twenty-eight of which have been reported in the United States. The vast majority of cases – 2,033 – were reported in Brazil.

## Biological and Toxin Weapons Convention

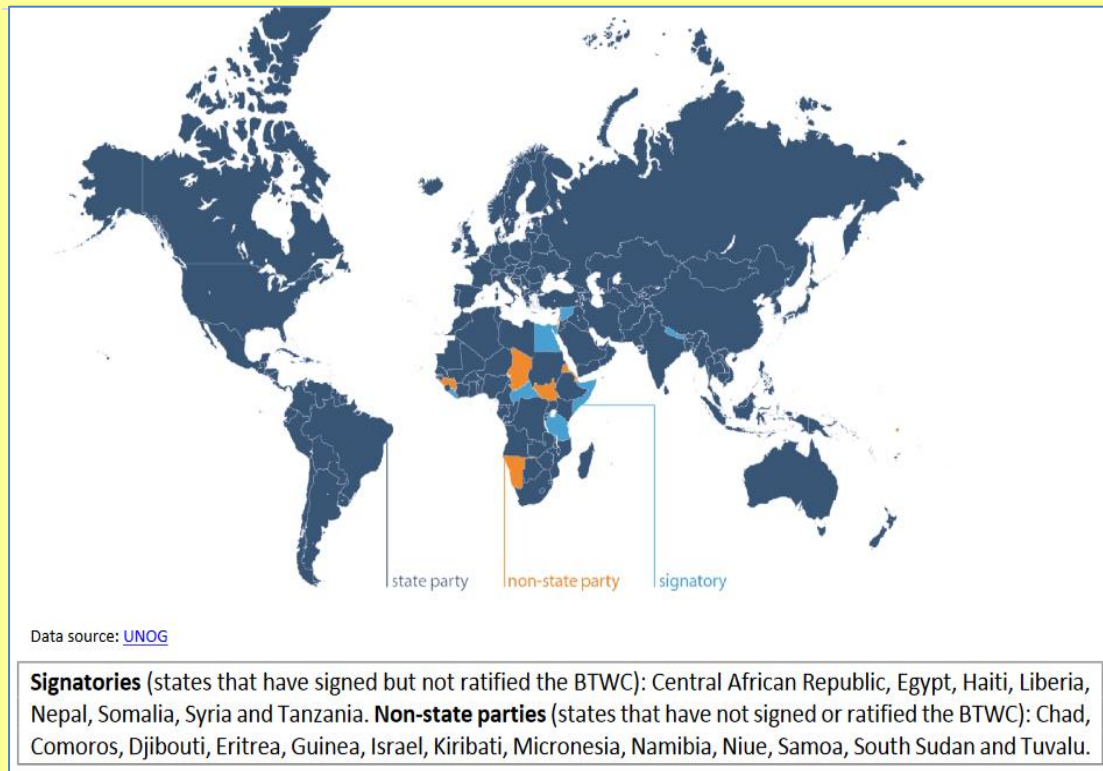
28-10-2016

Source: [http://www.europarl.europa.eu/RegData/etudes/ATAG/2016/593497/EPRS\\_ATAG\(2016\)593497\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/ATAG/2016/593497/EPRS_ATAG(2016)593497_EN.pdf)

The Eighth Review Conference of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, better known as the Biological and Toxin Weapons Convention (BTWC), takes place in Geneva from 7 to 25 November 2016.

Together with the Nuclear Non-Proliferation Treaty (NPT) and the Chemical Weapons Convention (CWC), the BTWC provides the foundation of the disarmament and non-proliferation framework in the area of weapons of mass destruction (WMD). The Convention opened for signature on 10 April 1972 and has been ratified by 175 states parties, including all EU Member States. Lack of a verification mechanism weakens the Convention, but at present, terrorist use of biological weapons may actually pose the greater threat to public security.





## Rapid response team of UK specialists formed to tackle Ebola around the world and prevent outbreaks of other deadly diseases

Source: <http://www.dailymail.co.uk/health/article-3892512/Specialist-team-standby-tackle-disease-outbreaks-globe.html>



Nov 01 – **A specialist team of health experts has been set up to respond to global disease outbreaks within 48 hours.** The fully operational specialist team of medics, scientists and academics from the UK are on standby for any emergency. They will respond to urgent requests from countries around the

world to try and help tackle outbreaks of deadly diseases, the Department of Health announced.

Recent cases of Ebola had highlighted the need for countries to establish teams to try and stem





epidemics before they spread, experts say.

**The Government is supporting the plan with £20 million over the next five years.**

Public health minister Nicola Blackwood said: 'Ebola shook the world and brave experts from the UK led the global response in Sierra Leone. 'The ability to deploy emergency support to investigate and respond to disease outbreaks within 48 hours will save lives, prevent further outbreaks and cement the UK's position as a leader in global health security.'

The specialist team will also research how outbreaks can be managed and will train public health reservists so any response to a crisis can be scaled up. It will also work in developing countries, training people on the ground, including in how to prevent the spread of infections such as Ebola.

Ebola is a viral hemorrhagic fever that can be contracted by humans and other primates. The outbreak began in West Africa two years ago.

**The epidemic killed 11,315 people across Liberia, Guinea, Sierra Leone, Nigeria, the US and Mali.**

Duncan Selbie, chief executive of Public Health England, which will run the project with the London School of Hygiene and Tropical Medicine, said: 'Speed is key in tackling infectious disease.

'With this new capability we can now deploy specialists anywhere in the world within 48 hours, saving and protecting lives where an outbreak starts and helping to keep the UK safe at home.'

England's chief medical officer, Professor Dame Sally Davies, said: 'Diseases can spread rapidly and do not respect borders.

**'The most effective way to protect the UK is to stop diseases spreading at the source and prevent disease from travelling to different parts of the world.'**

**'Time is crucial in containing an outbreak and this new expert team will support countries in preventing local outbreaks becoming global epidemics.'**

## Outbreaks, Epidemics And Pandemics

Source 1: <http://www.iflscience.com/health-and-medicine/what-s-difference-between-outbreak-and-epidemic/>

Source 2: <https://www.verywell.com/difference-between-epidemic-and-pandemic-2615168>

An **outbreak** is the sudden occurrence of a disease in a community, which has never experienced the disease before or when cases of that disease occur in numbers greater than expected in a defined area. The current Ebola scenario in West Africa started as an outbreak, which initially affected three countries.

So what exactly is an **epidemic**? It is an occurrence of a group of illnesses of similar nature and derived from a common source, in excess of what would be normally expected in a community or region. A classic example of an epidemic would be Severe Acute Respiratory Syndrome (SARS). The epidemic killed about 774 people out of 8,098 that were infected. It started as an outbreak in Asia and then spread to two dozen countries and took the form of an epidemic. **The same is true for Ebola, which is now being termed an epidemic.**

A **pandemic** on the other hand refers to a worldwide epidemic, which could have started off as outbreak, escalated to the level of an epidemic and eventually spread to a number of countries across continents. **The 2009 flu pandemic is a good example.** Between the period of April 2009 and August 2010, there were approximately 18,449 deaths in over 214 countries. The flu virus (H1N1) probably originated in Mexico and within two months, sustained human-to-human transmission in several countries on different continents was reported, prompting the WHO to announce the highest alert level (phase 6, pandemic) on June 12, 2009.

## Phases of a Pandemic

The World Health Organization keeps track of all viruses through a set of phases:

- **Phase 1:** During phase 1, viruses circulate within animals only. No human infection has yet resulted from the animal virus.



- **Phase 2:** In phase 2, an animal virus has caused an infection in a human being. At this point there is a basic level of pandemic threat because the virus strain has mutated to make that transfer to a human. Humans are now susceptible to the virus.
- **Phase 3:** In phase 3, the virus continues to spread. Groups of human beings have contracted the virus in one community. There is potential for spread of the virus if others outside that community come into contact with those humans who are infected. At this point, the illness may be considered to be an epidemic in that community, but it is not yet pandemic.
- **Phase 4:** In phase 4, the virus spreads even more. Human-to-human and animal-to-human virus transmission is causing outbreaks in many communities and more people are getting sick in those communities. More communities report outbreaks and the possibility of a pandemic is becoming more likely, although the development of a pandemic is not yet a guarantee.
- **Phase 5:** In phase 5, human-to-human transmission is taking place in at least two countries in one WHO region. WHO has a network of 120 National Influenza Centers in 90 different countries. At phase 5, a majority of countries have not yet been affected, but a pandemic is considered imminent. Phase 5 signifies that governments and health officials must be ready to implement their pandemic mitigation plans.
- **Phase 6:** The last stage is stage 6. At stage 6, a global pandemic is underway. Illness is widespread and governments and health officials are actively working to curtail the spread of the disease, and to help their populations deal with it using preventive and stop-gap measures.
- **Post-pandemic:** Post-pandemic is the period after the pandemic has occurred. After the increase in activity, the disease-spreading activity will begin to wane. Prevention of a second wave is key at this point.

The time frame of these phases varies greatly, as it could range from months to years.

## Resurgence of Ebola Virus Disease in Guinea Linked to a Survivor With Virus Persistence in Seminal Fluid for More Than 500 Days

*Clin Infect Dis.* (2016) 63 (10): 1353-1356

Source: <http://m.cid.oxfordjournals.org/content/63/10/1353.full>

We report on an Ebola virus disease (EVD) survivor who showed Ebola virus in seminal fluid 531 days after onset of disease. The persisting virus was sexually transmitted in February 2016, about 470 days after onset of symptoms, and caused a new cluster of EVD in Guinea and Liberia.

## Factors influencing the timing of infectious disease outbreaks

Source: <http://www.homelandsecuritynewswire.com/dr20161102-factors-influencing-the-timing-of-infectious-disease-outbreaks>

Nov 02 – **The delay between the time when a disease outbreak becomes possible and when it actually happens depends chiefly on how frequently infection is introduced to the population and how quickly the number of cases caused by a single individual increases**, according to new research from the University of Georgia.

The findings, just published in the *Royal Society journal Interface*, lay the theoretical groundwork for a disease forecasting system that could give public health officials time to

prepare for-or possibly even prevent-certain outbreaks in the future.

Infectious diseases pose a serious threat to public health around the world, as recent outbreaks of emerging diseases such as Zika and re-emerging ones such as measles attest. An early warning system for infectious diseases could not only save lives but also allow public health resources to be used more efficiently and effectively. UGA says that developing such a



system is the goal of **Project AERO**, a research collaborative led by John M. Drake, a professor in the UGA Odum School of Ecology, director of the Center for the Ecology of Infectious Diseases, and the study's senior author. The paper is one of the project's first outcomes.

Project AERO applies the theory of "critical slowing down" to infectious diseases. Critical slowing down is the idea that as complex systems approach a tipping point—a threshold beyond which the system is vulnerable to collapse—they exhibit recognizable patterns that can alert observers that the tipping point is imminent.

In the case of an infectious disease system, the patterns appear in public health case reports and the tipping point is the point at which each infected individual tends to pass the infection on to more than one other person. Once that happens, the population is at risk of an outbreak.

But in most cases major outbreaks don't occur as soon as they are theoretically possible, according to Christopher J. Dibble, a postdoctoral associate at the Odum School who led the study.

"We know that there's some amount of delay between the theoretical point and the first major outbreak, and this effort was aimed in part at finding some likely values for that waiting time and in part to discern what drives it," Dibble said.

With his colleagues, Dibble developed a mathematical model representing a population made up of people susceptible to a disease, people currently infected by the disease and people recovered from the disease and therefore immune. They incorporated parameters such as host birth and death rate, disease transmission rate, rate of recovery, population size and the rate of infection from external sources.

The researchers then ran thousands of model simulations based on different disease systems.

**They found that two factors had the most influence on the length of time between tipping point and outbreak. The first was the speed with which the pathogen's basic reproductive ratio increases as the tipping point nears.**

"The faster you approach that transition, the less waiting time you'll have," Dibble said. "That's one of the main additions to the existing theoretical work that this paper addresses."

**The other key factor is the rate at which infection is introduced from outside the population: The more frequently infection is introduced, the shorter the delay before an outbreak.**

The findings are important for several reasons, according to Dibble. One is that they will allow public health experts to gain insights into the drivers of outbreaks and epidemics.

"Once we understand this waiting time, we can learn from past epidemics," Dibble said. "Using some of the modeling approaches that we've taken here we can extrapolate backward. If we had an epidemic in March, for instance, it's really tempting to assume that something must have happened in February or January to cause this population to change in a way that allowed it to experience this outbreak. But the problem is that the important change might have happened well before that. If we don't account for the delay between an actual outbreak and the point at which it was theoretically possible, we may be looking in the wrong place for the driver."

Equally important is being able to provide an estimate of the likely delay between tipping point and major outbreak for a given disease system and population.

**"The goal of Project Aero is not so much to tell us how to curb an outbreak once it's started as to gain more lead time on knowing that an epidemic's coming,"** said postdoctoral researcher Eamon B. O'Dea, one of the paper's co-authors. "Depending on the disease, officials might use the time to try to increase resources for treatment, initiate a pulse vaccination campaign, or do whatever they think will most reduce the risk," he said.

Dibble said that the team hopes eventually to develop an early warning system that can predict both when an outbreak becomes possible and how long the delay until the first major outbreak is likely to be.

"It will never be as clean, unfortunately, as saying 'six months is how long you have to wait,'" Dibble said. "But we hope to be able to offer a range of





possible values: It could happen on day one or it could happen a year or two later. I'd love to

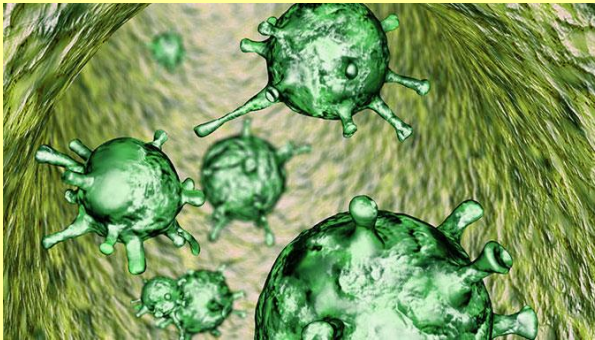
see that in practice. We have a lot more work to do to get it there, but this is a big first step."

— Read more in Christopher J. Dibble et al., "Waiting time to infectious disease emergence," *Journal of the Royal Society Interface* (19 October 2016).

## New Virus Officially Named **Influenza D**

Source: <https://globalbiodefense.com/2016/09/02/new-virus-officially-named-influenza-d/>

Sep 02 – The International Committee of Taxonomy of Viruses recently approved naming a new virus, influenza D, as proposed by the South Dakota State University (SDSU) researchers who discovered it. The committee officially announced **a new genus, Orthomyxoviridae**, with a single species, Influenza D virus, because of its distinctness from other influenza types—A, B and C.



Though SDSU alumnus Ben Hause isolated the virus from a diseased pig in 2011, he later found that cattle were the primary reservoir for influenza D. Hause identified and characterized the new virus as part of his doctoral research under virologist Feng Li's tutelage.

**This is the first influenza virus identified in cattle**, Li explained. "This contribution was made in South Dakota and our theory has

been confirmed independently by other research groups."

Li and Radhey Kaushik, professor and assistant head of the biology and microbiology department, in 2014 secured a National Institutes of Health grant for nearly \$400,000 to study the biology, genetics and evolution of the new virus.

"From a science viewpoint, it's very exciting to work with a brand-new virus," said Li, who has joint appointments in the biology and microbiology and veterinary and biomedical sciences departments.

Ultimately, the goal is to determine whether influenza D, which has 50 percent similarity to human influenza C, can cause problems in humans. However, Kaushik noted "the virus has not been shown to be pathogenic in humans. No one should be afraid of this."

**The research group showed that influenza D is spread only through direct contact** and proved a guinea pig can be used as an animal model to study the virus. Influenza D antibodies have been identified in blood samples from sheep and goats, but the virus does not affect poultry.

Studies are underway to compare the virulence among the bovine and swine influenza D strains and human influenza C using the guinea pig model.

"If the virus can undergo reassortment in combination with a closely related human influenza virus, it may be able to form a new strain that could pose more of a threat to humans," Kaushik explained.

Li noted, "We have much to learn about this new virus."

## Soviet Anthrax Pathogen Genome Generated From Autopsy Specimens

Source: <https://globalbiodefense.com/2016/09/08/soviet-anthrax-pathogen-genome-generated-autopsy-specimens/>

Sep 08 – A new study by the Translational Genomics Research Institute (TGen) and Northern Arizona University (NAU) **used deep DNA sequencing methods to generate the anthrax genome sequence from the victims of the 1979 anthrax outbreak in Sverdlovsk, Russia**, when it was part of the USSR.



The Soviet Union produced anthrax spores on an industrial scale but repeatedly denied the existence of their biological weapons program. **This study, to be published in the September issue of the journal *mBio*, represents a precise and detailed examination of the anthrax strain used in their weapons development, and includes an anthrax genetic database that puts the weapons strain into a global context.**

"I have been studying this anthrax outbreak and these specimens for more than 20 years. Finally, using genomic technology, we could comprehensively characterize this pathogen genome," said Dr. Paul Keim, Director of TGen's Pathogen Genomics Division, a Regents Professor of Biology and the Cowden Endowed Chair of Microbiology at NAU, and the study's lead author.

"This is the signature agent of the world's largest biological weapons program and now we have it in our genetic databases. Anywhere this strain shows up again, we will be able to identify it and track it back to its source. This is now an essential part of our forensic arsenal," said Dr. Keim, who also is Director of NAU's Microbial Genetics & Genomics Center (MGGen).

The anthrax bacterium produces small capsules, or spores, that can lie dormant for decades. After settling inside the human lung, for example, it can cause a severe disease that, if not treated with antibiotics, kills 90 percent of those it infects.

**While this bacterium has little variation from strain to strain, whole genome sequencing has identified DNA fingerprints that enable molecular epidemiology, tracing it to its source.** When anthrax outbreaks occur, their whole genome profile are now routinely compared to the genetic database to identify possible sources and exclude others. This type of analysis was used by the FBI to track the spores in the 2001 anthrax letter attacks, which infected 22 people and killed five.

The Soviet Union had signed the Biological Weapons Convention that prohibited the use of biological agents, including anthrax, as weapons. The United States' biological weapons program was eliminated in a decree by President Richard Nixon in 1969, but the Soviet program was maintained and expanded in a covert fashion for decades.

In 1992, an investigative team from the United States led by noted Harvard biologist Dr. Matt Meselson characterized the 1979 Sverdlovsk outbreak by interviewing local physicians, visiting cemeteries and examining autopsy specimens. This investigation, along with accounts by Ken Alibek, a former Soviet scientist, revealed that the Sverdlovsk anthrax outbreak was due to an industrial accident.

**A faulty filter at a Soviet spore production facility allowed anthrax spores, in a silent plume, to drift with the wind over the city and into the nearby countryside. Nearly 70 Sverdlovsk inhabitants died as far as three miles downwind from the facility, but more anthrax-susceptible farm animals died over 25 miles away. It remains the world's deadliest human outbreak of inhalation anthrax.**

**The bacterial genomes were generated from autopsy tissue specimens of two Sverdlovsk anthrax victims.** These tissues were moved to the United States with permission of Sverdlovsk pathologists to continue the investigation into the disease outbreak. From these, it was established that the anthrax pathogen was detected within their tissues and the victims died from inhaling the spores.

The Sverdlovsk anthrax genome was compared to the global genome database maintained by NAU to identify its close relatives and to look for evidence of genetic engineering. The Flagstaff research team found that this strain was closely related to other Asian isolates with very few differences to naturally occurring anthrax. There were no signs of genetic engineering.

Dr. Keim notes that the Soviets had to be very meticulous to avoid mutant variants from dominating their production stock. Invariably when wild anthrax strains are grown extensively in the laboratory, they adapt to those conditions and lose the killing power.

**"The Sverdlovsk strain's genome looked very much like those of wild strains we see across Asia,"** Dr. Keim said.

Dr. Meselson, who was not part of the current paper, notes: "If this strain had been grown repeatedly in the laboratory, it would have mutated to a form that had less virulence and less capacity to cause anthrax. The Soviet scientists must have been very meticulous in their maintenance of the natural form."



Dr. Meselson, who is the Thomas Dudley Cabot Professor of the Natural Sciences at Harvard, is known for his 1961 discovery of messenger RNA.



## New Pathogen Discovered In Africa Causes Anthrax-Like Disease

Source: <http://www.iflscience.com/health-and-medicine/new-pathogen-discovered-in-africa-causes-anthraxlike-disease/>

Nov 2016 – Caused by a bacteria, anthrax is a life-threatening deadly disease. While rare, people can contract the disease if they come into contact with infected animals, people or contaminated animal products. **But anthrax is only one species in a group of bacteria, and now researchers have identified a brand new pathogen** causing an anthrax-like disease in Central Africa that infects both domestic and wild animals, including our closest evolutionary relatives.

The bacteria responsible for anthrax is known as *Bacillus anthracis*, and is closely related to another less threatening and more widespread species known as *Bacillus cereus*. Commonly found in the ground and soil around the world, most of the time *B. cereus* is harmless, but it now seems that one particular strain in Africa has developed a more sinister ability.

**After sampling goats in a remote Congolese village**, researchers from the Robert Koch Institute in Berlin isolated a bacteria found in an animal that was dying. Not long after, they also sampled the remains of a chimpanzee, gorilla, and forest **elephant** (photo) found dead in the forests of Cameroon, Central African Republic, and Côte d'Ivoire.

From these, they identified a novel strain of the ***B. cereus*** bacteria, but one that has seemingly evolved a similar lifestyle to *B. anthracis* independently. The researchers have called the new strain "*B. cereus* biovar anthracis", as it seemingly displays a mixture of features from both bacteria. They reported the findings in the journal [PLOS Neglected Tropical Diseases](#).

**The main factor that makes *B. anthracis* so virulent and deadly when contracted is the genes encoded on two small plasmids within the bacteria, known as pXO1 and pXO2.** The researchers found that the new *B. cereus* biovar anthracis strain also has these

two plasmids, presumably also conferring the virulence displayed, but that it has seemingly acquired them on its own. Yet while there are many subgroups within *B. anthracis* indicating multiple ancestors, there is only one within *B. cereus* biovar anthracis, suggesting a singular ancestry.

**The researchers suspect that the newly identified pathogen may be more widespread, potentially throughout the African continent, though it is potentially restricted to the more humid and warm regions of the tropics.** This, postulate the authors, could be down to the strain's ability to produce spores under very specific climatic conditions, although obviously at the time of writing this is mainly speculation as more research needs to be undertaken as to the exact biology of the pathogen.

They warn, however, that due to the presence



of the disease in both chimpanzees and gorillas, as well as in livestock, coupled with its apparent deadly nature, that more surveillance should be carried out in the region in order to assess its impact not only on threatened wildlife species, but also the local people living in the region.





## Mutant Ebola May Have Caused Explosive Outbreak

Source: <http://www.npr.org/sections/goatsandsoda/2016/11/03/500428232/mutant-ebola-may-have-caused-explosive-outbreak>

Nov 03 – **One mutation. A simple tweak in the Ebola gene — a C got turned into a T. That's all it took to make Ebola more infectious during the West Africa epidemic,** scientists report Thursday.

Two studies, [published](#) in the journal *Cell*, found that a single mutation arose early in the epidemic. It allows Ebola to infect human cells more easily than the original version of the virus — way more easily.

"The largest difference we saw was about a fourfold increase in the number of cells infected," says Jeremy Luban, a virologist at the University of Massachusetts Medical School, who led one of the studies. "When you're talking about a virus that could kill you, this is a pretty scary number."

When Ebola appeared in West Africa late in 2013, it spread faster and further than any previous Ebola outbreak. One reason was because it hit densely populated cities. And countries in West Africa didn't have the tools to stop the epidemic.

But early on, computational biologists at Harvard University also noticed the virus was changing. Its genes were mutating. That's not surprising, Luban says, on its own. It's what viruses do, especially when they first start spreading in people. **But the mutations raised a big concern: "Is this virus somehow becoming more transmissible, more dangerous or more deadly?"** Luban says.

The computational biologists were stumped. They could see the mutations, but they didn't know what they did.

**So Luban — and another team led by Jonathan Ball at the University of Nottingham in the U.K. — started experimenting with the mutations in the lab. Quickly one mutant jumped out as peculiar. So Luban set up a video conference call with the Harvard biologists.**

"I remember, we asked them, 'So what's significant about this particular mutation?' And they all started jumping up and down," Luban says.

The Harvard team got excited because they had been watching this mutation. It cropped up

in the outbreak when there were only a hundred or so cases in the Guinea. And then it spread like gangbusters. It went to Sierra Leone, Liberia. It showed up in Nigeria, Mali. And then it came here to the U.S., Luban says. "It's the form of the virus that made its way to an emergency room in Texas," he says, when Thomas Eric Duncan brought Ebola to Dallas from Liberia.

**Although the mutant appears to be more infectious than the original version of Ebola, Luban and his colleagues don't know if it makes the virus more deadly.**

Luban has some evidence that it's linked to an increase in mortality rate. "But that increase is very, very slight. So that alone doesn't prove anything," says Vincent Racaniello, a virologist at Columbia University, who wasn't involved with the studies.

Also, all the experiments have been in cells with a model of the Ebola virus. Racaniello says. So the findings need to be confirmed in animals, with a real virus.

For these reasons, Racaniello doesn't find the findings frightening. "No, not at all," he says. "What's frightening is the outbreak, which affected tens of thousands of people and killed many thousands of people. I think that's very scary." Besides, he says, we stopped this mutant. The outbreak is over. There hasn't been a case of Ebola in months. "That [mutant] virus, as far as we know, it's not circulating anymore. It's not causing infections anymore in people in West Africa," Racaniello says. In fact, that mutant hasn't just stopped infecting people, it's probably actually been completely eradicated.

**"As far as we know that virus is gone," he says. Why? Because here's something I forgot to mention about the mutant virus: The same mutation that helps the virus infect human cells more easily also prevents it from infecting animal cells. So the mutant virus probably can't hide in bats — or other animals — and threaten to trigger another outbreak.**



In other words, once the epidemic in West

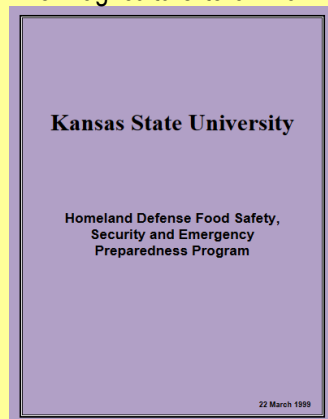
Africa was over, so was this mutant.

## Food for thought: Including agriculture in biosecurity and biodefense

Source: <http://www.homelandsecuritynewswire.com/dr20161104-food-for-thought-including-agriculture-in-biosecurity-and-biodefense>

Nov 04 – It started with a purple book. It continues with a purple connection to the [Bipartisan Policy Center](#).

From agriculture to animal health, [Kansas State University](#) has been on the forefront of the national discussion in bio/agrodefense since it published the [Homeland Defense Food Safety, Security and Emergency Preparedness Program](#) — also known as “The Big Purple Book” — in 1999.



Recently, the university co-hosted an event at the Bipartisan Policy Center, a Washington, D.C.-based nonprofit organization which combines ideas from both parties to address the key challenges facing the nation. The panel discussion highlighted the threat of bio/agroterrorism and the importance of including agriculture in biosecurity and biodefense.

K-State notes that Gen. Richard Myers, interim president of Kansas State University, participated in the 13 October Bipartisan Policy Center panel with Tom Daschle, former Senate majority leader and co-founder of the Bipartisan Policy Center, and Mike Rogers, a former congressman from Michigan. The talk was titled [“Bio Agro-Defense Policy: America’s Food Supply, Health, and Economy at Risk.”](#)

The panel discussed the [2015 Blue Ribbon Panel on Biodefense report](#), which noted the United States is still highly vulnerable to biological agents, including biological weapons and natural disease threats to agriculture.

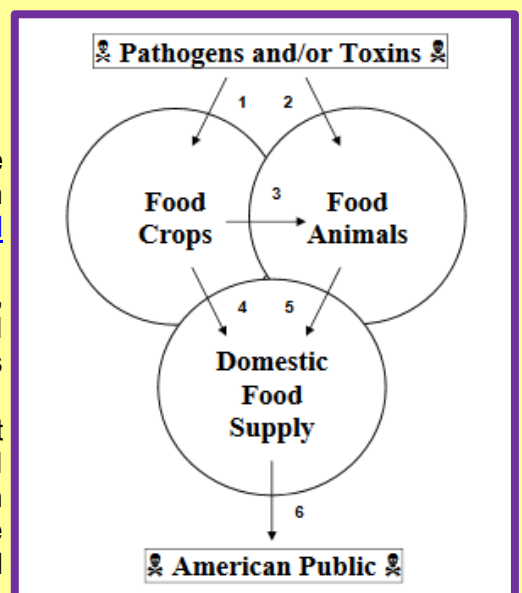
“I think these are issues that deserve the highest attention and the most critical prioritization as we look at public policy in the context of national security,” said Daschle, as he described his firsthand experience with bioterrorism during the 2001 anthrax attacks. “I don’t think anyone disputes the importance of the issue, but what I don’t think has happened is that we have given it the kind of attention that it so justly deserves.”

Rogers, former chairman of the House Permanent Select Committee on Intelligence, described how terrorists have become much more sophisticated and he highlighted the discovery of a laptop in Syria with a documented strategy for using biological warfare.

**“It will happen,” Rogers said. “It is a matter now of are we prepared to deal with it, and have we set ourselves up for being successful in either beating it, disrupting it or reacting to it. And I think today, probably not.”**

**Myers said that when U.S. troops went into an Afghanistan cave in 2002, they found an al-Qaeda list of planned bioweapons pathogens, including six human pathogens, six livestock and poultry pathogens, and four plant pathogens.**

Crops are the under-addressed aspect of bioweapons, Myers said. A major outbreak of food animal or food crop diseases would do more than create an economic impact; it also would create fear among people and lead to distrust of the government — exactly what terrorists want.



**“Food crop diseases are almost the perfect weapon because they involve relatively soft targets,”** Myers said. “There is no danger to the perpetrator because they’re not going to be injured by what they are doing. It will take some time to discover it, especially with our current surveillance methods, which are inadequate. Plus, it will be very difficult to have attribution.”

K-States says that the university’s biosafety level-3 Biosecurity Research Institute at Pat Roberts Hall supports comprehensive “field-to-fork” infectious disease research programs that address threats to plant, animal, and human health. The Biosecurity Research Institute is jump-starting research planned for the National Bio and Agro-defense Facility, including work on Japanese encephalitis, Rift Valley fever, classical swine fever, and African swine fever.

Tammy Beckham, dean of the College of Veterinary Medicine, participated in a second panel at the Bipartisan Policy Center. She has spent a majority of her career in protecting food systems and discussed how to better use resources to combat bioterrorism.

“In the United States, we have a very robust agricultural production system and we are thankful for that,” Beckham said. **“The very things that make it robust also make it susceptible to disease introduction.”**

Beckham noted critical gaps in the United States, such as inadequate countermeasures, undeveloped diagnostic tests and a lack of a comprehensive biodefense program. She said it is important to incentivize people and organizations to improve biosecurity and address One Health — which involves connections between human, animal and environmental health.

► See this [video](#) of the event.

## Chicago would quickly succumb to a zombie invasion: Study

Source: <http://www.homelandsecuritynewswire.com/dr20161107-chicago-would-quickly-succumb-to-a-zombie-invasion-study>



Nov 07 – **In the unlikely event of the zombie apocalypse, it would take less than two months for the undead to take control of the city,** says a new study by researchers at Argonne National Laboratory. Using a computational model developed to study the spread of less fictional diseases such as MRSA and Ebola, Argonne scientists found that it would take only sixty days for two million Chicagoans to be zombified.

CI says that the light-hearted project by Argonne researcher Chick Macal and his team tested their agent-based modeling simulations on a Halloween-themed slice of epidemiology, following the spread of a **zombie virus** and testing out “interventions” that could save humanity.





While the worst-case scenario found little resistance against the walking dead, strategies such as training populations to kill zombies or communications from City officials that tell people how to avoid them provided some more optimistic outcomes.

"This offers great promise for countering the zombie apocalypse in Chicago," said Macal, director Center for Complex Adaptive Agent Systems Simulation Decision and Information Sciences Division at Argonne and a Senior Fellow at the Computation Institute.

The playful experiment draws attention to the power of the group's city model, dubbed ChiSIM, for strategizing during more realistic public health crises. ChiSIM utilizes a computational method called agent-based modeling, which can simulate the complex behavior of millions of individual "agents" representing, in this case, Chicago's three million citizens. The model also represents more than two million locations in the city, and simulates the movement of Chicagoans

through that virtual map, encountering each other and — occasionally — transmitting disease.

The results can help officials and policymakers address ongoing crises and prepare for potential ones. For example, the research team conducts simulations of the flu or ebola (and soon, the Zika virus) in case these diseases reach Chicago or surrounding counties. A [previous study on MRSA transmission](#) identified distinct hubs for the disease in the Chicago area, such as the Cook County Jail, where health officials can then focus interventions to prevent broader spread of the drug-resistant bacterial infection.

While a zombie invasion is distinctly fictional by comparison to these real-life public health challenges, Macal told the *Chicago Tribune* that the playful project provided very serious insights for the performance of ChiSIM and the types of strategies that could be used to stop actual diseases.

► Watch a video of the study's results [here](#).

## Bioweapons and Scientific Advances

CSS ETH Zurich

Source: <http://www.css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-security-studies/pdfs/CSSAnalyse198-EN.pdf>

CSS Analyses in Security Policy

No. 198, November 2016, Editor: Matthias Bieri



# Bioweapons and Scientific Advances

The states parties to the Bioweapons Convention will meet for the Eighth Review Conference in Geneva from 7 to 25 November 2016. They face the challenge of upholding the treaty's relevance in the face of radical technical and scientific advances in the life sciences.

*Dr Claudia Otto is a Senior Researcher at the Center for Security Studies (CSS) at ETH Zurich. Her research focuses on the analysis of current trends in basic research at the interface of Chemistry and Life Sciences with dual-use potential.*

*Dr Oliver Thrünert is Head of Think Tank at the CSS. He is the author of numerous publications including *Entrenched Positions on Nuclear Non-Proliferation* (2015).*



## Post Office, Shopping Mall Evacuated in Germany's Bergheim Over Anthrax Scare

Source: <https://sputniknews.com/europe/201611041047068316-germany-anthrax-evacuation/>

Nov 04 – A post office and a shopping mall have been evacuated in the **German city of Bergheim**, some 20 kilometers (12 miles) away from Cologne, over potential anthrax contamination, local media reported Friday. One of the employees opened a letter at the post office and found unknown white powder inside prompting her to call a fire brigade immediately afterwards, the Express newspaper reported. Chemistry experts of Cologne and Essen firefighters are examining the suspicious letter on site. The area has been sealed off.

## Anthrax Detector, 3-D Endoscope Among Highlights of Latest NIST Tech Transfer Report

Source: <https://www.domesticpreparedness.com/updates/anthrax-detector-3-d-endoscope-among-highlights-of-latest-nist-tech-transfer-report/>

Nov 06 – The National Institute of Standards and Technology (NIST) has released the [Federal Laboratory Technology Transfer, Fiscal Year 2014, Summary Report to the President and Congress](#). Including both quantitative and qualitative measures of effectiveness, the report provides the most current comprehensive view of federal technology transfer efforts across 11 agencies.

As detailed in the report, federal laboratories entered into more than 9,180 formal collaborative research agreements and 27,182 other collaborative research and development-related relationships in FY 2014. Federal researchers made 5,103 new invention disclosures, filed 2,609 patent applications, received 1,931 patents, and generated more than \$194.2 million in income from 5,985 active income-bearing licenses.

### Examples of technologies successfully transferred in FY 2014 include:

- the world's first 3-D endoscope providing surgeons with a visually more comprehensive understanding of the tight working space within the human skull;
- chip-scale atomic magnetometers that can be used to detect concealed weapons, locate underwater pipes and cables and medically image the heart and brain;
- a modular positron emission tomography (PET) detector to use in clinical oncology for staging various cancers, assessing treatment strategies and monitoring the effects of therapies;
- **a *Bacillus anthracis* diagnostic device** that provides enhanced sensitivity with no requirement for batteries or electric power to operate and can be used in parts of the world where anthrax is prevalent, but refrigeration and lab facilities are lacking; and
- new food defense modeling and simulation capabilities that provide industry and the federal government with new tools to support the [Food Safety Modernization Act](#).

"Technology transfer" is a legal mechanism by which federally funded research results are transferred to the private sector so that they may be further developed into consumer products and services. Technology transfer statutes also allow academic and industry researchers to use federal laboratory facilities and enable research partnerships between federal laboratories and nonfederal institutions and businesses.

On Oct. 28, 2011, President Obama cited the importance of invention and technological innovation as drivers of economic growth in a [memorandum](#) and directed federal laboratories to accelerate technology transfer operations over the next five years. In addition, the memorandum directed the Secretary of Commerce to improve and expand, where appropriate, the collection of metrics regarding the effectiveness of federal technology transfer activities. This initiative is a key element of the President's Management Agenda, which also includes the [Lab-to-Market](#) initiative, a strategy to accelerate and improve the transfer of new technologies from the laboratory to the commercial marketplace.



In response to these initiatives, agencies have established new performance goals, metrics and evaluation methods to enhance the efficiency and impact of their technology transfer activities. These activities include ongoing efforts to partner with U.S. industry; academic institutions; nonprofit foundations; and state, local and tribal governments. This report serves as a measure of progress toward meeting the ambitious goals of the President while maintaining excellence in performing mission-focused research.



### **Bacillus Anthracis Diagnostics (Sandia National Laboratory)**

Bacillus anthracis, the bacteria that causes anthrax, is commonly found in soils all over the world and can cause serious, and often fatal, illness in both humans and animals. The bacteria can survive in harsh conditions for decades. Current detection technology of the bacteria requires that samples be propagated in a laboratory that uses specialized tools and require a consistent power supply, which is not always available in the developing world. Another disadvantage of the current technology is cost. The average diagnostic test for anthrax is about \$30, which is out of the reach of many farmers, who

face the consequences of not testing their animals including spread of infection and loss of their livestock.

Sandia's new technology **BaDx** (Bacillus anthracis Diagnostic) was inspired by the laboratories' International Biological Threat Reduction Program. The new device, which is more like a pocket-sized laboratory, could **cost around \$5-7** and does not require specialized tools to use. BaDx provides enhanced sensitivity with **no requirement for batteries or electric power to operate**. The device is hardy against wide **temperature** variations making it especially useful in parts of the



world where anthrax is prevalent, but refrigeration and lab facilities are lacking.

Sandia's BaDx technology was developed with funding from Sandia's Laboratory Directed Research and Development Program and licensed in 2014 to a New Mexico small business that specializes in the design and manufacture of technologies and services for nuclear security and international safeguards. Sandia researchers hope to expand the BaDx technology and use the basic device design to develop tests for other types of disease-carrying bacteria such as salmonella and group A streptococcus, which causes strep throat. Future devices could be created to detect infectious diseases in humans and stem the spread of infectious diseases during epidemics.

### **Texas A&M Launches New Zika-Fighting App**

Source: <https://www.domesticpreparedness.com/updates/texas-a-m-launches-new-zika-fighting-app/>

Nov 07 – As the Zika virus spreads locally in the continental United States, communities across the country have started thinking about mosquito control measures. The Aedes mosquito that transmits the virus can breed in containers of standing water as small as a bottle cap, and the eggs can survive even without water for months. Still, the egg and larval stage is the best time to control the insect because the adult mosquito tends to be very resistant to traditional pesticides.

Jennifer A. Horney, PhD, MPH, CPH, associate professor in the Texas A&M School of Public Health, and Daniel W. Goldberg, PhD, assistant professor of geography in the Texas A&M College of Geosciences and of computer science and engineering in the college of engineering, have **created a type of mobile health technology to fight the mosquitos at their source: standing water**.







"With our new app, community members—citizen scientists so to speak—can do surveys and note the prevalence and locations of potential mosquito breeding grounds," Horney said. "This data will then all be mapped online, and health departments can use that information to prioritize areas for mosquito control measures."

People can record the number of different types of containers—old tires, buckets, bird baths, clogged gutters—that could harbor Zika-carrying mosquito eggs, along with the address of the property. The app then automatically adds the location to a website for local health officials to review.

"We work with a number of people involved in community engagement, including many students, the Green Ambassadors in Houston, for example, who we're going to train how to use the app," Horney said. "The health departments get some free data, without having to use their own very limited staff resources, and it's a great learning experience for the students as well." The students will learn about sampling, data collection, data analysis and more.

"Effectively combating the spread of Zika will require contributions from many stakeholder groups," Goldberg said. "With the release of this app, members of the community will be empowered to help monitor and control the risk of Zika in their own neighborhoods."

► The app is available to download for [iOS](#) and [Android](#) devices.

## Ebola adapted to better infect humans during 2013-2016 epidemic

Source: <http://www.medicalnewstoday.com/releases/313893.php>

Nov 04 – **Researchers have identified mutations in Ebola virus that emerged during the 2013-2016 Ebola virus epidemic in West Africa that increased the ability of the virus to infect human cells**, two independent teams of researchers are reporting in *Cell*.

"Ebola virus is thought to circulate in an unknown animal reservoir and to only rarely cross over into people. When the virus does cross over, the effect has been devastating to those people who are infected. Until recently, the human disease outbreaks have been short lived, and the virus has had little opportunity to adapt genetically to the human host," says Jeremy Luban, a co-author of one of the papers and Professor at the University of Massachusetts Medical School.

**By the end of the Ebola virus disease epidemic in 2016, more than 28,000 people had been infected with the virus, and more than 11,000 people died from Ebola virus disease.** To investigate whether the virus

might have changed genetically in response to infection of such large numbers of people, the research teams used publicly available Ebola virus genomic sequences to track virus mutations. The teams found that mutations of the gene that encodes the Ebola virus glycoprotein increased the virus' ability to infect cells of humans and other primates. By increasing infectivity in human cells, it is possible that these mutations increased Ebola virus spread during the outbreak.

"If you introduce a virus into a new host, like humans, it may need to adapt to better infect and spread in that host," says Jonathan Ball, a virologist at the University of Nottingham and co-author of the other paper. One particular mutation, studied by both groups, emerged early in the outbreak just as case numbers vastly increased and soon became the dominant virus type circulating in the outbreak.

**The Ebola virus mutations did not increase the ability of Ebola**



**virus to infect cells from other mammalian species, including fruit bats**, the presumed natural host of Ebola virus. "We found that, as Ebola virus was spreading from human to human, it apparently didn't have to worry about maintaining its infectivity in bats," Ball says.

The research teams are continuing their work to learn more about how these specific

mutations made the Ebola virus more infectious for human cells. "It's important to understand how these viruses evolve during outbreaks," says Luban. "By doing so, we will be better prepared should these viruses spill over to humans in the future."

**Articles:** *Ebola Virus Glycoprotein with Increased Infectivity Dominated the 2013-2016 Epidemic*, Diehl, William, Kyusik, Kim, McCauley, Sean, Donnard, Elisa, Kucukural, Alper, McDonel, Patrick, Garber, Manuel, Luban, Jeremy, et al., Cell, doi: 10.1016/j.cell.2016.10.014, published 3 November 2016.

*Human Adaptation of Ebola Virus during the West African Outbreak*, Urbanowicz, Richard, McClure, Patrick, Ball, Jonathan, et al., Cell, doi: 10.1016/j.cell.2016.10.013, published 3 November 2016.

## Zika virus infection damages testes in mice

Source: <http://www.medicalnewstoday.com/releases/313898.php>

Nov 04 – **Male mice infected with a mouse-adapted strain of Zika virus can experience tissue injury associated with decreased testis size and reduced levels of two sex hormones and of sperm cells in the seminal fluid**, a *Nature* paper reports. Longitudinal studies of sperm function and viability in humans infected with Zika virus are needed before the potential extent and consequences of the virus for human males can be established.

In addition to transmission by mosquitoes, **Zika virus (ZIKV) can be detected in the seminal fluid of affected males for extended periods of time and transmitted sexually**. It has previously been shown that infecting male adult mice with ZIKV results in infection of the testes.

Michael Diamond and colleagues conducted a longitudinal study to assess the effects of ZIKV infection on the reproductive tract of male mice. The virus was detected within the testis and epididymis (a coiled tube that stores and carries sperm) of male mice within seven days of infection; after 14 days, the virus was present at high levels throughout the reproductive system of most mice.

**There was a noticeable decrease in testis size and weight among ZIKV-infected animals compared to controls, as well as damage to the semen-producing seminiferous tubules of the testis and tissue injury to the epididymis. The authors also detected reduced levels of testosterone and inhibin B - two hormones important for the production of sperm, which are produced in the tubules of the testis - in infected mice. Preliminary fertility studies revealed reduced rates of pregnancy and viable fetuses from females mated with ZIKV-infected compared to uninfected male mice.**

The authors [stress](#) that as these experiments were performed exclusively in mice, further work is needed to determine the extent to which, if any, these results can be translated to humans.

**Article:** *Zika virus infection damages the testes in mice*, Jennifer Govero, Prabakaran Esakky, Suzanne M. Scheaffer, Estefania Fernandez, Andrea Drury, Derek J. Platt, Matthew J. Gorman, Justin M. Richner, Elizabeth A. Caine, Vanessa Salazar, Kelle H. Moley & Michael S. Diamond, *Nature*, doi:10.1038/nature20556, published 31 October 2016.

## Antibody found to protect fetus against Zika

Source: <http://www.medicalnewstoday.com/articles/313935.php>

Nov 07 – Earlier this year, it was confirmed that Zika virus infection during pregnancy can have devastating implications for the developing

fetus, causing babies to be born with a smaller-than-normal head - a condition known as



microcephaly. Now, researchers say they have identified a human antibody that could stop the infection in its tracks.

Zika is a virus most commonly spread by the bite of an infected *Aedes* mosquito.

While many people infected with Zika do not become ill, some individuals may experience fever, rash, joint pain, muscle pain, headache, and conjunctivitis.

Symptoms often last no longer than 1 week, and they are often not severe enough to warrant a hospital visit. **For pregnant women, however, Zika infection can have severe consequences.**

In February of this year, the World Health Organization (WHO) concluded that Zika virus infection during pregnancy is a cause of microcephaly and should be considered a Public Health Emergency of International Concern.

The conclusion came after a significant increase in reports of microcephaly following Zika virus outbreaks in French Polynesia in 2014 and Brazil in 2015.

At present, there is no vaccine against Zika; the only way for expectant mothers to protect themselves against the virus is to avoid mosquito bites.

**Now, researchers from Washington University School of Medicine in St. Louis and Vanderbilt University School of Medicine in Nashville, TN, say they have uncovered a naturally occurring antibody called ZIKV-177 that could protect the developing fetus from Zika virus, bring us closer to a Zika vaccine.**

Their findings were recently published in the journal *Nature*.

For the [study](#), co-senior author Dr. Michael Diamond, the Herbert S. Gasser professor of medicine at Washington, and colleagues took blood samples from adults who had been infected with Zika virus.

#### Fast facts about microcephaly

- Microcephaly is a birth defect where a baby's head is much smaller than other babies of the same sex and age
- In the United States, microcephaly is estimated to affect [2-12 babies](#) per 10,000 live births
- Rubella, toxoplasmosis, and [cytomegalovirus](#) are some infections during pregnancy known to cause microcephaly

**The researchers isolated 29 anti-Zika antibodies from the blood samples and tested each one on different strains of Zika in a laboratory. They identified one antibody - ZIKV-177 - that effectively neutralized five Zika strains.**

Next, Dr. Diamond and team set out to investigate whether ZIKV-177 might be effective against Zika virus in animal models.

The researchers administered the antibody to pregnant mice, either 1 day before or 1 day after they were infected with Zika virus.

**In both cases, researchers found that ZIKV-177 reduced levels of Zika virus in pregnant mice and their fetuses, compared with pregnant mice that were not given the antibody.**

"We did not see any damage to the fetal blood vessels, thinning of the placenta or any growth restriction in the fetuses of the antibody-treated mice," notes study co-author Indira Mysorekar, Ph.D., an associate professor of obstetrics and gynecology and pathology and immunology at Washington.

"The anti-Zika antibodies are able to keep the fetus safe from harm by blocking the virus from crossing the placenta," she adds.

#### Results show promise for Zika vaccine

Additionally, when the researchers gave ZIKV-177 to male mice infected with a lethal strain of Zika, they found it reduced levels of the virus, even when administered 5 days after initial infection.

"We stacked the deck against ourselves by using a highly pathogenic strain of Zika, and even in that case, the antibody protected the mice," notes Dr. Diamond.

The researchers say their findings indicate that antibodies alone can offer effective protection against Zika among adults and fetuses.

What is more, the results suggest that a vaccine that evokes protective antibodies - such as ZIKV-177 - has the potential to prevent Zika infection in expectant mothers and their fetuses, as well as treat fetuses that have already been infected.

"These naturally occurring human antibodies isolated from humans represent the first medical intervention that prevents Zika infection and damage to fetuses.





We're excited because the data suggests we may have antibody treatments in hand that could be developed for use in pregnant women."

Study co-author James Crowe Jr., Vanderbilt Vaccine Center

While further studies are required to determine whether their results can be translated to humans, the researchers are hopeful that their findings can lead to effective prevention and treatment strategies for Zika.

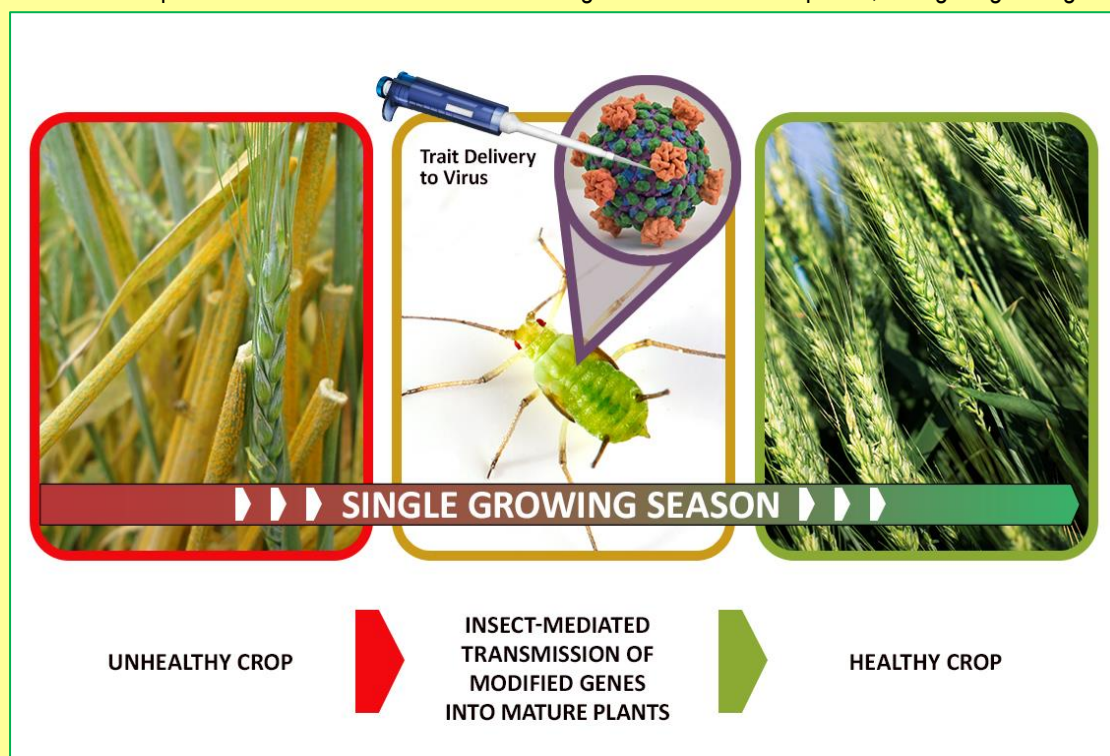
As well as preparing ZIKV-177 for testing in humans, the team plans to investigate whether antibodies might be effective for eliminating persistent Zika infection.

"We know that Zika can persist in certain parts of the body, such as the eyes and the testes, where it can cause long-term damage, at least in mice," says Dr. Diamond. "We showed that the antibody can prevent disease, and now we want to know whether it can clear persistent infection from those parts of the body."

## Could genetic modification via insects protect crops against agricultural bioterrorism?

Source: <https://www.geneticliteracyproject.org/2016/11/09/could-genetic-modification-via-insects-protect-crops-against-agricultural-bioterrorism/>

Nov 09 – The Defense Advanced Research Projects Agency (DARPA) Biological Technologies Office (BTO) has announced a Proposers Day for the new Insect Allies program. The **Insect Allies program** will seek to "provide an alternative to traditional agricultural threat response, using targeted gene



therapy to protect mature plants within a single growing season." Insect Allies is a unique effort by DARPA to address emerging threats in the agricultural environment, such as agricultural bioterrorism domestically and abroad, as well as food security and production through synthetic biology. New programs, like Insect Allies, represent a recognition by the Department of Defense (DOD) that innovative technologies are needed to combat non-traditional defense challenges.

By exploiting the natural system of insect vectors and the plant viruses they transmit, Insect Allies seeks to increase the resilience of crop plants through the development of "vector-mediated mature plant modification technologies."



## Global Health Security Agenda Advances

### Executive order signed by President Obama

Source: <http://edmdigest.com/news/global-health-security-agenda-advances/>

Nov 09 – **Bioterrorism. Infectious diseases. Pandemics. The next biological threat could begin in any location, for any reason, and result from any source. What's worse, a dangerous disease from a rural location with a low populous can now be transported rapidly to more urban locations, including highly populated cities—in as little as 36 hours—due to globalization.**

National preparedness is the key to preventing, detecting, and responding to these threats, but without assistance, some nations are simply unable to establish the appropriate measures needed.

Disease surveillance, the ability to get accurate and expeditious laboratory results, and information sharing systems or networks are critical factors for rapid detection and containment of a biological threat. The absence of these measures in countries with weak national health systems leaves the world vulnerable to the next outbreak.

Since many nations do not have the capacity to deal with these dangerous pathogens, the **Global Health Security Agenda** (GHS) was designed to promote global health security by assisting nations to increase their capabilities. Specific goals of the GHS are to help all nations achieve measures that help them prevent, detect, and respond to natural, accidental, or human-caused biological threats. Efforts of the program seek to increase capacity through:

- Improved laboratories
- Strengthened disease surveillance
- Improved biosecurity and biosafety
- Improved emergency management
- Workforce development expansion

### More than 50 countries involved

**The program now includes 55 countries, along with NGOs, stakeholders from the private sector, international organizations, and a leaders' initiative for next generation leaders.**

The development of the Joint External Evaluation (JEE) is a program developed by the GHSA and meant to help a nation identify its greatest weaknesses within its public health systems. Once identified, the program seeks to help the country develop a national plan to address the gaps and implement stronger measures according to the measures outlined above.

In an effort to help protect the United States from any biological threats, an [executive order](#) was signed by President Obama on Friday, November 4, 2016 that helps support the advancement of the GHS in accordance with **Presidential Policy Directive 2 (PPD-2)**. [PPD-2](#), in accordance with Objective One from the [National Strategy for Countering Biological Threats](#), states that the countering of biological threats to the nation occurs through the support and promotion of global health security.

## Qatar committed to UN convention on biological and toxin weapons

Source: <https://www.gdnonline.com/Details/133544>

Nov 2016 – The State of Qatar has affirmed fulfill obligations as a state party to the Convention on "Prohibition of the Development, Production and Stockpiling of Biological and Toxin Weapons and on their destruction", as one of the first signatories of the Convention.

This came in Qatar's speech delivered by Major General Staff Nasser Mohammed Al-Ali, Chairman of the Qatari National Committee for the



Prohibition of Weapons (NCPW), at the 8th Review Conference of the States Parties to the Biological Weapons Convention on "Prohibition of the development, production and stockpiling of biological weapons, these weapons" being held in Geneva from 7 to 25 November.

**Al-Ali noted the State of Qatar does not possess or produce any arming biological program, as it did not have any research activity to develop, store or possess any biological or toxin factors.**

**He pointed out that the State of Qatar issued an instrument of ratification of the Convention on the development, production and stockpiling of biological weapons ban on 1 March 1975, and was ratified by the Amiri decree No. (32) of 2001.**

Qatar was keen to join the rest of the disarmament treaties that enhance international peace and security.

He added that the State of Qatar had established the National Committee for the Prohibition of Weapons (NCPW), under the Cabinet Resolution No. (26) of 2004, a permanent body entrusted with the implementation of international conventions on disarmament, including weapons of mass destruction, as well as the Biological Weapons Convention.



## Nepal ratifies Biological Weapons Convention

Source: <http://www.myrepublica.com/news/8908>

Nov 10 – **Nepal has become the 177th state party of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction after formally depositing the Instrument of Ratification by Nepal in Washington D.C on November 4,** said a press release issued by the Ministry of Foreign Affairs here on Thursday.

The governments of the United Kingdom, United States of America and the Russian Federation are the depositories of the Convention.

Nepal had signed the Biological Weapons Convention (BWC) on 10 April 1972.

It may be noted that Minister for Foreign Affairs Dr. Prakash Sharan Mahat had formally tabled the proposal for ratification of the Biological Weapons Convention before the Legislature Parliament of Nepal on 18 October this year. Earlier, the Council of Ministers had decided on 1 January to proceed with ratification of the BWC in accordance with national laws.

Subsequently, the Legislature-Parliament had considered the proposal and ratified the Convention on 23 October, added the Ministry.

A Nepali delegation led by Ambassador and Permanent Representative of Nepal to the United Nations Office at Geneva, Deepak Dhital, is participating, for the first time as the state party, in the Eighth Review Conference of the Biological Weapons Convention (BWC) taking place in Geneva from 7 to 25 November 2016.

The ratification of the Biological Weapons Convention (BWC) represents the expression of Nepal's strong belief in general and completes disarmament of all weapons of mass destruction including biological, chemical, nuclear and radiological weapons in a time-bound manner.



## Engineers Design a New Weapon Against Bacteria

Source: <https://www.domesticpreparedness.com/updates/engineers-design-a-new-weapon-against-bacteria/>

Nov 12 – Over the past few decades, many bacteria have become resistant to existing antibiotics, and few new drugs have emerged. A recent study from a U.K. commission on antimicrobial resistance estimated that by 2050, **antibiotic-resistant bacterial infections will kill 10 million people per year, if no new drugs are developed.**

To help rebuild the arsenal against infectious diseases, many scientists are turning toward naturally occurring proteins known as antimicrobial peptides, which can kill not only bacteria but other microbes such as viruses and fungi. A team of researchers at MIT, the





University of Brasilia, and the University of British Columbia has now **engineered an antimicrobial peptide that can destroy many types of bacteria, including some that are resistant to most antibiotics.**

“One of our main goals is to provide solutions to try to combat antibiotic resistance,” says MIT postdoc Cesar de la Fuente. “This peptide is exciting in the sense that it provides a new alternative for treating these infections, which are predicted to kill more people annually than any other cause of death in our society, including cancer.”

De la Fuente is the corresponding author of the new study, and one of its lead authors along with Osmar Silva, a postdoc at the University of Brasilia, and Evan Haney, a postdoc at the University of British Columbia. Timothy Lu, an MIT associate professor of electrical engineering and computer science, and of biological engineering, is also an author of the paper, which appears in the Nov. 2 issue of *Scientific Reports*.

### Improving on nature

**Antimicrobial peptides, produced by all living organisms as part of their immune defenses, kill microbes in several different ways. First, they poke holes in the invaders’ cell membranes. Once inside, they can disrupt several cellular targets, including DNA, RNA, and proteins. These peptides also have another critical ability that sets them apart from traditional antibiotics: They can recruit the host’s immune system, summoning cells called leukocytes that secrete chemicals that help kill the invading microbes.**

Scientists have been working for several years to try to adapt these peptides as alternatives to antibiotics, as bacteria become resistant to existing drugs. **Naturally occurring peptides can be composed of 20 different amino acids, so there is a great deal of possible variation in their sequences.**



“You can tailor their sequences in such a way that you can tune them for specific functions,” de la Fuente says. “We have the computational power to try to generate therapeutics that can make it to the clinic and have an impact on society.”

In this study, the researchers began with a naturally occurring antimicrobial peptide called **clavanin-A**, which was originally isolated from a marine animal known as a **tunicate** (photo left). The original form of the peptide kills many types of bacteria, but the researchers decided to try to engineer it to make it even more effective.

**Antimicrobial peptides have a positively charged region that allows them to poke through bacterial cell membranes, and a hydrophobic stretch that enables interaction with and translocation into membranes. The researchers**

**decided to add a sequence of five amino acids that would make the peptides even more hydrophobic, in hopes that it would improve their killing ability.**

This new peptide, which they called **clavanin-MO**, was very potent against many bacterial strains. In tests in mice, the researchers found that it could kill strains of *Escherichia coli* and *Staphylococcus aureus* that are resistant to most antibiotics.

“By using the thereby designed molecule, infected animals could be rescued from infections that were untreatable (and thus lethal) with standard antibiotic therapies. Whether or not this specific compound makes it to the hospital in the short run, the strategy of merging a killer activity with immunomodulant properties opens new avenues



for dealing with the phenomenal AMR [antimicrobial resistance] problem,” says Victor de Lorenzo, a research group leader at the National Center of Biotechnology in Madrid, who was not involved in the study.

### Suppressing sepsis

**Another key advantage of these peptides is that while they recruit immune cells to combat the infection, they also suppress the overactive inflammatory response that can cause sepsis, a life threatening condition.**

“In this single molecule, you have a synthetic peptide that can kill microbes — both susceptible and drug-resistant — and at the same time can act as an anti-inflammatory mediator and enhance protective immunity,” de la Fuente says.

**The researchers also found that these peptides can destroy certain biofilms, which are thin layers of bacterial cells that form on surfaces.** That raises the possibility of using them to treat infections caused by biofilms, such as the *Pseudomonas aeruginosa* infections that often affect the lungs of cystic fibrosis patients. Or, they could be embedded into surfaces such as tabletops to make them resistant to microbial growth.

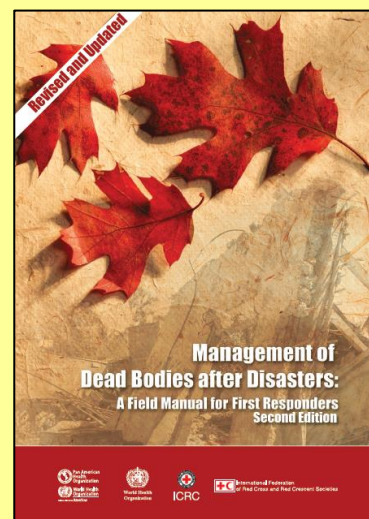
**Other possible applications for these peptides include antimicrobial coatings for catheters, or ointments that could be used to treat skin infections caused by *Staphylococcus aureus* or other bacteria.**

If these peptides are developed for therapeutic use, the researchers anticipate that they could be used either in stand-alone therapy or together with traditional antibiotics, which would make it more difficult for bacteria to evolve drug resistance. The researchers are now investigating what makes the engineered peptides more effective than the naturally occurring ones, with hopes of making them even better.

## Management of Dead Bodies After Disasters: A Field Manual for First Responders

Source: <http://iris.paho.org/xmlui/bitstream/handle/123456789/31295/9789275319246-eng.pdf?sequence=1&isAllowed=y&ua=1>

Nov 14 –“Management of dead bodies after disasters: A field manual for first responders” provides practical, easy-to-follow guidelines to ensure proper and dignified management of dead bodies after disasters. This **second edition** reflects scientific and technical developments in the field of mass fatality management, and lessons learned from the use of the manual.



## 2017–2022 Health Care Preparedness and Response Capabilities

November 10, 2016

The U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR) developed the 2017-2022 *Health Care Preparedness and Response Capabilities* guidance to describe what the healthcare delivery system, including healthcare coalitions, hospitals, and emergency medical services, have to do to effectively prepare for and respond to emergencies that affect the public's health.

[View Full Report](#)



## Anthrax Infections and Anthrax Vaccine

May 16, 2016

The U.S. Department of Defense recently published an updated information paper for service members and military medical personnel regarding the types and symptoms of anthrax infections, as well as vaccine dosing and caution information.

[View Full Report](#)

## Employee possibly exposed to Ebola virus at Winnipeg lab

Source: <http://www.cbc.ca/news/health/ebola-lab-incident-1.3841733>

An employee at the national animal health lab in Winnipeg was potentially exposed to the Ebola virus yesterday, federal officials say.

**The employee was wearing a protective suit and noticed a split in the seam,** Dr. John Copps, director of the Canadian Food Inspection Agency (CFIA) told reporters Tuesday.

The employee of the National Centre for Foreign Animal Disease (NCFAD) was evaluated by an



infectious disease specialist and has **put himself in isolation for 21 days** — the maximum time from Ebola infection to the onset of symptoms, according to the World Health Organization.

The risk to the public is considered low because the individual is not showing any symptoms and is not considered infectious, officials said Tuesday.

**The employee was working with pigs that had been experimentally exposed to Ebola when he noticed a split in his suit.** The incident happened during standard decontamination procedures before exiting the lab.

**The individual was offered the Canadian-developed experimental Ebola vaccine.**

Dr. Theresa Tam, deputy chief public health officer at the Public Health Agency of Canada, said the organization is respecting the employee's privacy regarding whether or not he accepted the vaccine.

"The Ebola vaccine offered to the employee was developed by scientists at the National Microbiology Laboratory and donated for the Ebola response in West Africa in 2014," a





spokeswoman said in an email. "The vaccine is currently approved for use in clinical trials and under specific circumstances."

Also to respect the privacy of the employee, the agency would not reveal where he is in isolation.

**The anesthetized pig was one of six infected with the Ebola virus as part of the lab's research into whether treating with interferon affects the course of the disease,** Copps said.

The suits are supposed to be checked at least once a week and this was a relatively new suit that was checked rigorously, he said.

"Our employees are well aware of the risks and how to control them," Copps said.

Health officials won't speculate about how the suit became torn.

The Canadian Science Centre for Human and Animal Health works on the prevention, detection, control and reporting of foreign animal diseases and emerging diseases. Its research also includes work on avian influenza and foot-and-mouth disease.

**The facility is one of only a handful of North American labs capable of handling pathogens that require the highest level of containment.**

**In March, WHO declared that the Ebola outbreak in West Africa was no longer a global health risk.** The disease is spread by direct contact with bodily fluids. More than 11,000 people have died from the disease since December 2013, mostly in Guinea, Liberia and Sierra Leone.



## Electronic bandages that monitor biosignals for medical applications and provide therapeutic stimulation

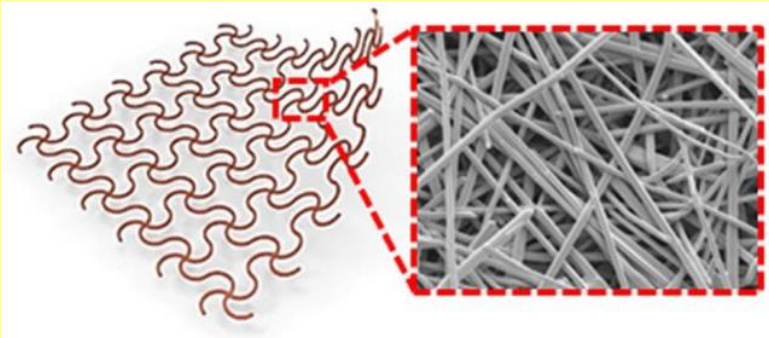
Source: <http://www.innovationtoronto.com/2016/11/electronic-bandages-that-monitor-biosignals-for-medical-applications-and-provide-therapeutic-stimulation/>

Nov 19 – A skin-like biomedical technology that uses a mesh of conducting nanowires and a thin layer of elastic polymer might bring new electronic bandages that monitor biosignals for medical applications and provide therapeutic stimulation through the skin.

The biomedical device mimics the human skin's elastic properties and sensory capabilities.



"It can intimately adhere to the skin and simultaneously provide medically useful biofeedback such as electrophysiological signals," said Chi Hwan Lee, an assistant professor of biomedical engineering and mechanical engineering at Purdue University. "Uniquely, this work combines high-quality nanomaterials into a skin-like device, thereby enhancing the mechanical properties."



The conducting nanowires are around 50 nanometers in diameter and more than 150 microns long, and are embedded inside a thin layer of elastomer, or elastic polymer, about 1.5 microns thick. (Purdue University image/Min Ku Kim)

The device could be likened to an electronic bandage and might be used to treat medical conditions using thermotherapeutics, where heat is applied to promote vascular flow for enhanced healing, said Lee, who worked with a team that includes Purdue graduate student Min Ku Kim.



Traditional approaches to developing such a technology have used thin films made of ductile metals such as gold, silver and copper.

A skin-like biomedical technology that uses a mesh of conducting nanowires and a thin layer of elastic polymer might bring new "electronic bandages." (Purdue University image/Min Ku Kim)

"The problem is that these thin films are susceptible to fractures

by over-stretching and cracking," Lee said. "Instead of thin films we use nanowire mesh film, which makes the device more resistive to stretching and cracking than otherwise possible. In addition, the nanowire mesh film has very high surface area compared to conventional thin films, with more than 1,000 times greater surface roughness. So once you attach it to the skin the adhesion is much higher, reducing the potential of inadvertent delamination."

Findings are detailed in a research publication appearing online in October in *Advanced Materials*. The paper is also available online at <http://onlinelibrary.wiley.com/doi/10.1002/adma.201603878/full> and was authored by Kim; postdoctoral researcher Seungyong Han at the University of Illinois, Urbana-Champaign; Purdue graduate student Dae Seung Wie; Oklahoma State University assistant professor Shuodao Wang and postdoctoral researcher Bo Wang; and Lee.

The conducting nanowires are around 50 nanometers in diameter and more than 150 microns long and are embedded inside a thin layer of elastomer, or elastic polymer, about 1.5 microns thick. To demonstrate its utility in medical diagnostics, the device was used to





record electrophysiological signals from the heart and muscles. A YouTube video about the research is available at <https://youtu.be/tYRebHNI6p4>.

"Recording the electrophysiological signals from the skin can provide wearers and clinicians with quantitative measures of the heart's activity or the muscle's activity," Lee said.

Much of the research was performed in the Birck Nanotechnology Center in Purdue's Discovery Park.

"The nanowires mesh film was initially formed on a conventional silicon wafer with existing micro- and nano-fabrication technologies. Our unique technique, called a crack-driven transfer printing technique, allows us to controllably peel off the device layer from the silicon wafer, and then apply onto the skin," Lee said.

The Oklahoma State researchers contributed theoretical simulations related to the underlying mechanics of the devices, and Seungyong Han synthesized and provided the conducting nanowires.

Future research will be dedicated to developing a transdermal drug-delivery bandage that would transport medications through the skin in an electronically controlled fashion. Such a system might include built-in sensors to detect the level of injury and autonomously deliver the appropriate dose of drugs.

### **The Latest on: Electronic bandages**

[Biomedical 'skin-like bandage' is stretchy, durable and long lasting - Purdue Newsroom](#)

November 16, 2016 - Kim skin A skin-like biomedical technology that uses a mesh of conducting nanowires and a thin layer of elastic polymer might bring new "electronic bandages." (Purdue University image/Min Ku Kim) Download image. "The problem is that these thin films ...

[Scientists find technique to improve carbon superlattices for quantum electronic devices - Phys.Org](#)

October 19, 2016 - A schematic atomic diagram of a quantum well made from amorphous carbon layers. The blue atoms represent amorphous carbon with a high percentage of diamond-like carbon. The maroon atoms represent amorphous carbon which is graphite-like. The ...

[Pre-treatment of bandages may improve the antibacterial properties of nanoparticles - Phys.Org](#)

October 18, 2016 - Pre-treating the fabric surface of the bandages used to treat burns with enzymes and polyethylene glycol or cellulase may promote the adhesion of antibacterial nanoparticles and improve their bacteria-repelling ability. These are the findings of a ...

[Researchers develop DNA-based single-electron electronic devices - Phys.Org](#)

October 13, 2016 - The DNA itself has no part in the electrical function, but acts as a scaffold for forming a linear, pearl-necklace-like nanostructure consisting of three gold nanoparticles. Credit: the University of Jyväskylä. Nature has inspired generations of people ...

[Team suggests nanoscale electronic motion sensor as DNA sequencer - Phys.Org](#)

September 28, 2016 - NIST's proposed design for a DNA sequencer based on an electronic motion sensor. A nanoscale ribbon of molybdenum disulfide is suspended over a metal electrode and immersed in water. Single-stranded DNA, containing a chain of bases (bits of ...more.

[Shape of 'molecular graphene' determines electronic properties - Phys.Org](#)

August 31, 2016 - Polyaromatic hydrocarbons (PAHs) form an important class of molecules, which can be regarded as small graphene species and which play a prominent role in the development of organic electronics. Scientists at Radboud University, the University of ...

['Green' electronic materials produced with synthetic biology - Phys.Org](#)

July 14, 2016 - Synthetic biowire are making an electrical connection between two electrodes. Researchers led by microbiologist Derek Lovely at UMass Amherst say the wires, which rival the thinnest wires known to man, are produced from renewable, ...more. Scientists at ...





[Engineered 'sand' may help cool electronic devices - Phys.Org](#)

July 12, 2016 - A thermal probe tests heat conductance in a sample of silicon dioxide nanoparticles. The material could potentially conduct heat at an efficiency higher than that of conventional materials. Credit: Rob Felt, Georgia Tech. Baratunde Cola would like to ...

[New nanomaterial offers promise in bendable, wearable electronic devices - Phys.Org](#)

June 13, 2016 - An ultrathin film that is both transparent and highly conductive to electric current has been produced by a cheap and simple method devised by an international team of nanomaterials researchers from the University of Illinois at Chicago and Korea ...

[Self-healing, flexible electronic material restores functions after many breaks - Phys.Org](#)

May 16, 2016 - Researchers have developed a flexible electronic material that self-heals to restore many functions, even after multiple breaks. Here, the material is shown being cut in half. The healed material is still able to be stretched and hold weight. Credit ...

## Improving biosafety, biosecurity in West Africa

Source: <http://www.homelandsecuritynewswire.com/dr20161122-improving-biosafety-biosecurity-in-west-africa>

Nov 22 – **The Defense Threat Reduction Agency and United States Strategic Command Center for Combating Weapons of Mass Destruction (DTRA/SCC-WMD) have selected CH2M to lead efforts in West Africa to broaden its Cooperative Biological Engagement Program (CBEP) on the African continent and reduce the threat of infectious diseases.** The CBEP, developed by the Department of Defense to address global health security issues, was used in 2014 to support international efforts to combat the Ebola virus outbreak and other threats to global health security.

Under the new \$35 million contract which extends to 2019, the CH2M team will work to increase and improve national and local biosafety, biosecurity, and biosurveillance capabilities in Liberia, Sierra Leone, Guinea, and Senegal. The CH2M team will deliver design, engineering, construction, and infrastructure services; as well as provide scientific expertise and training for staff at new and existing laboratory facilities in the region. Further to assist DTRA/SCC-WMD with its overall program objectives for West Africa, the CH2M team will also provide guidance in establishing national legislation on biosafety and biosecurity, and support the development of laboratory policies and procedures that meet international standards.

**Ch2m says that the CH2M team, focusing on promoting overall security related to**

**global health and improving health and safety program performance, will:**

- ☑ Design and construct new national and regional reference laboratories and infrastructure in Liberia
- ☑ Design and renovate the Central Public Health Reference laboratory and infrastructure in Lakka, Sierra Leone
- ☑ Develop a campus master plan and renovate laboratory facilities and infrastructure in Senegal
- ☑ Develop methodologies and infrastructure to improve safety culture and practices, and the safeguarding of pathogens that raise security concerns at laboratory facilities across the region
- ☑ Provide comprehensive ongoing laboratory staff training and laboratory consumables procurement
- ☑ Provide mentorship and laboratory staffing for surge capability at laboratories throughout the region

According to Ray Tyler, CH2M Program Manager, "CH2M and DTRA/SCC-WMD will work with national and local authorities from the four West African Nations, collaborators from the U.S and other countries, non-governmental organizations, and local businesses to ensure sustainable operations for the new facilities and infrastructure."

"It's rewarding to be a part of improving biosafety and



biosecurity for millions of people in partner nations,” stated Matthew Sutton, CH2M President, Environment and Nuclear business. “The solutions our people deliver will modernize prevention and response to the threat of infectious diseases and improve health outcomes for communities across the region.”

CH2M notes that it has been assisting DTRA/SCC-WMD through its Biological Threat Reduction Integrating Contract since 2010.

DTRA/SCC-WMD has engaged CH2M to help Armenia, Georgia, Kazakhstan, Tanzania, Uganda, Senegal, Iraq, Afghanistan, Vietnam, Cambodia, and Lao People Democratic Republic comply with international biosafety standards, improve disease detection and reporting, and pathogen security through laboratory and hospital emergency operations center design, engineering, construction and infrastructure services, and biological sciences expertise.

