



Strengthening Security through Partnership

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Global Chemical and Biological Security (GCBS)

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OVERVIEW

1. Chemical and biological risks (yesterday and today)
2. A case for risk management and partnership approach
3. Introducing the GCBS
4. GCBS capabilities and beyond





Cholera – Zimbabwe

Disease outbreak news: Update
5 October 2018

Since the last Disease Outbreak News was published on 20 September (with data of 15 September), an additional 4914 cases have been reported including 92 laboratory-confirmed cases.

The cholera outbreak in Harare was declared by the Ministry of Health and Child Care (MoHCC) of Zimbabwe on 6 September 2018 and notified to WHO on the same day. As of 3 October 2018, 8535 cumulative cases, including 163 laboratory-confirmed cases, and 50 deaths have been reported (case fatality rate: 0.6%). Of these 8535 cases, 98% (8341 cases) were reported from the densely populated capital Harare (Figure 1). The most affected suburbs in Harare are Glen View and Budiriro.

Of the 8340 cases for which age is known, the majority (56%) are aged between 5 and 35 years old. Males and females have been equally affected by the outbreak. From 4 September through 3 October, the majority of deaths were reported from health care institutions.

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Health & Science

Flu broke records for deaths, illnesses in 2017-2018, new CDC numbers show



Workers recovering at Salt Lake City burn center after explosion at Lockwood facility

SAM WILSON swilson@billingsgazette.com May 10, 2019

<https://www.aljazeera.com/news/2018/09/public-gatherings-banned-zimbabwe-capital-cholera-outrage-180912165541019.html>
<https://www.who.int/csr/don/05-october-2018-cholera-zimbabwe/en/>
<https://reliefweb.int/disaster/ep-2018-000150-zwe>



Global Chemical and
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SPECIAL SERIES

The Anthrax Investigation



Timeline: How The Anthrax Terror Unfolded

February 15, 2011 · 11:00 AM ET



National Security

Exclusive: Iraqi scientist says he helped ISIS make chemical weapons



Kurdish peshmerga fighters survey the damage after an ISIS suicide truck loaded with chlorine gas tanks exploded near Mosul in January 2015. (Kurdish Regional Government of Iraq)

By Joby Warrick

January 21

IRBIL, Iraq — In the weeks after his city fell to the Islamic State, Iraqi scientist

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Global Chemical and
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Nature of Chemical and Biological Risks

Risks = Safety risks + Security risks



Chemical Warfare in History

- 600 BC: Water supply for city of Kirrha tainted with poisonous hellebore plants by Athenian army.
- 1675 AD - Strasbourg Agreement: France and Germany agree to outlaw poisoned bullets.
- Modern times - World war I: CW development and use in warfare (*Chlorine, Phosgene and mustard gas*).
 - Second battle of Ypres on April 22, 1915
 - Due to grave consequences, it was banned in 1925 (Geneva Conference)
 - Violated by rogue nations and terrorists



Biowarfare in History

- 1500 – 1200 BC: Hittite texts – tularemia
- 4th century BC: Scythian archers tipped their arrows with human blood and feces to cause infected wounds
- Bubonic plague in middle ages wars
- Modern times – 1916: Germany (*anthrax*)
- 1925 Geneva protocol banned use of bio warfare



A case for risk management and partnership approach



Consequences of chemical and biological incidents

- Death
- Damage to environment and other species
- Disabilities and mutations
- Fear and panic
- Disruption of social and economic activities
- Security vulnerabilities - break in law and order
- Damage in reputation
- Litigations

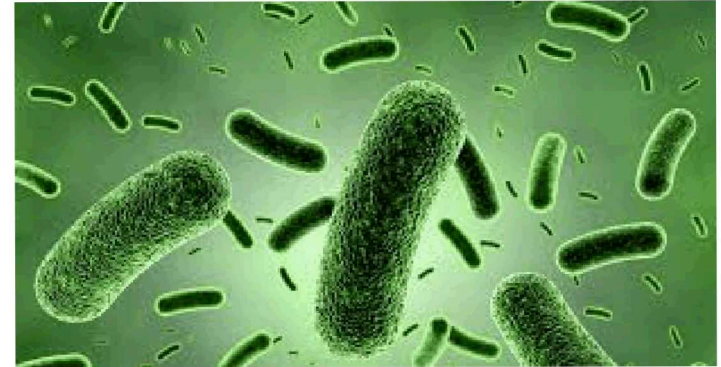


Impact of Chemical & biological incidents

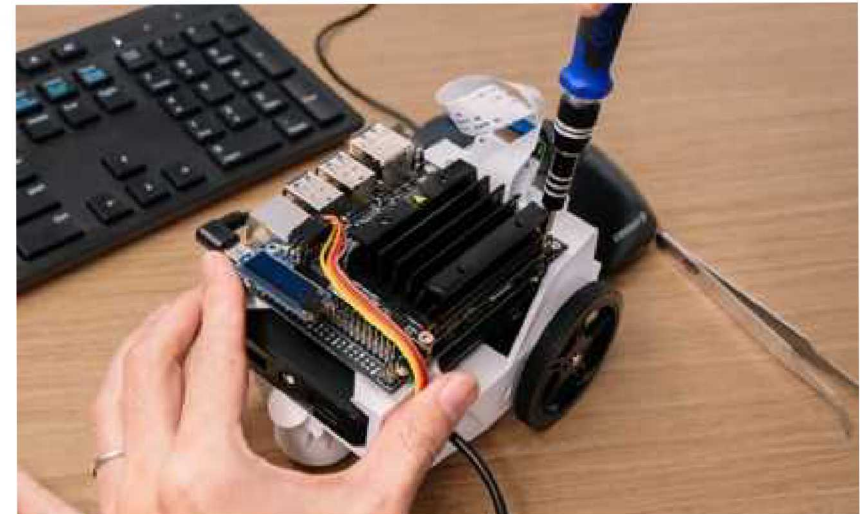
- Potentially indiscriminate – irrespective of cause (natural/accidental, or intentional)
- Potential for prolonged (chronic) impact
- The US stands to lose a lot in event of occurrence



Why the big picture matters



#Howto
DIY



<https://d1png.com/png/4120167>

<https://www.rand.org/blog/2015/08/the-cost-of-resistance-and-the-attack-of-the-microbes.html>

www.youtube.com/diy

<https://www.engadget.com/2019/03/18/nvidia-jetson-nano-ai-computer/>



Security through Global Partnership



17 PARTNERSHIPS FOR THE GOALS

Strong International cooperation is needed now more than ever to ensure

PARTNERSHIPS: WHY THEY MATTER

What's the goal here?
To revitalize the global partnership for sustain-

and the private sector— to achieve the sustainable development goals.

We need to develop and disseminate an entirely new paradigm and practice of collaboration that supersedes the traditional silos that have divided governments, philanthropies and private enterprises for decades and replace it with networks of partnerships working together to create a globally prosperous society.

Simon Mainwaring



We have a moral obligation to help others and a moral duty to make sure our actions are effective.

- President Bush to the 2005 UN General Assembly

SNL – Global Chemical & Biological Security (GCBS)



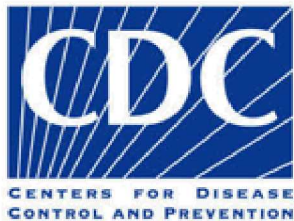
Global Chemical and Biological Security Group (GCBS)

- Established in early 2000's post 9/11 as part of the Center for Global Security (6800)
- **Mission:** *Mitigate chemical and biological threats through integrated systems-based approaches to enhance global security*
- Evolved from IBTR, +ICTR → IBCTR → GCBS
- Grew from 8 technical staff to a team of over 100
- ~40 technical staff supported by teams of logistics experts and interns



GCBS Partnerships

Domestic



Global



GCBS capabilities and beyond



GCBS core areas of capabilities



Human Capacity Development



Risk Management

Analysis



Health Security



I. Building Human capacity

Global Biorisk Management Curriculum (GBRMC)

..need for an effective and organized training curriculum that covers core biosafety and biosecurity aspects

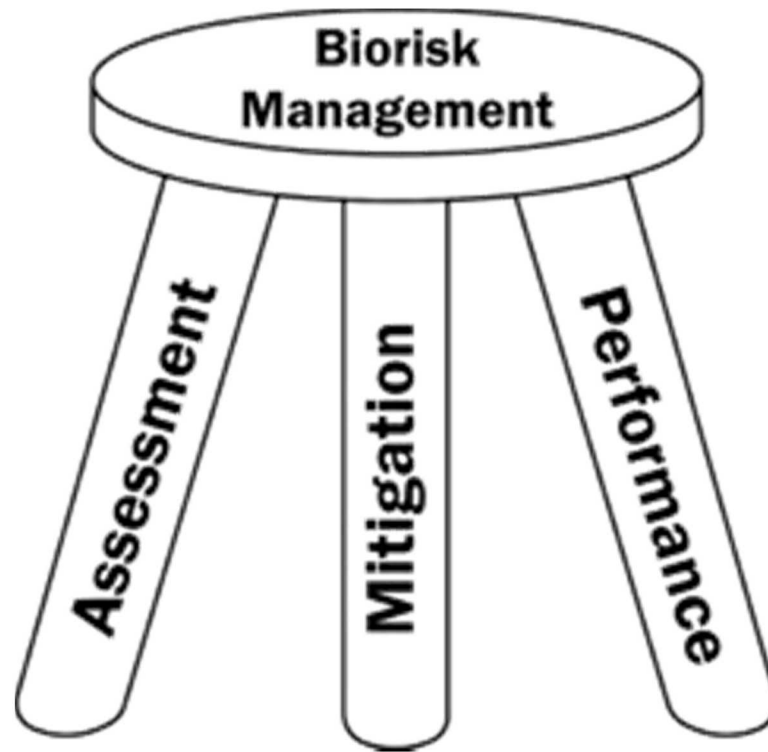
- Strategic
- Sustainable (*Beginners – Intermediate – Advanced – Trainers*)
- Used anywhere
- Well branded and Managed



Best practices – Competences – Systems approach – Brain friendly methodologies



Framework for Chemical and Biological Risk Management



Framework of a robust biosecurity engagement

Physical security

How do we protect our assets from physical intrusion?

Personnel reliability

How do we ensure that the people we work with are reliable and not compromised?



Material Control & Accountability

How do we ensure that the hazardous agents and equipment are closely monitored and not with unauthorized persons?

Information security

How do we protect sensitive details about the assets and the work being performed?

Transport security

How do we ensure that the movement of our assets and equipment are done securely?



2. Risk Management

Development of standards



International
Organization for
Standardization



Management Centre, Avenue Marnix 17, B-1000 Brussels

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Ref No: CWA 15793:2011 0007

Tools for Risk Assessment

Chemical Inventory System

Publications



Global Chemical and
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3. Analysis

Risk Assessment Analysis tool

- Tool for assessment and rapid mitigation decision making for workplace in event of infectious disease risk

Laboratory Infrastructure Network Analysis (LINA) tool

- Laboratory resource optimization tool
- Inform strategic laboratory infrastructure
- Identify transport networks
- Reduce sample transport time



4. Health Security

One Health approach to emergency preparedness and response

- VOHUN Biorisk Management curriculum
- West Africa Ebola Response



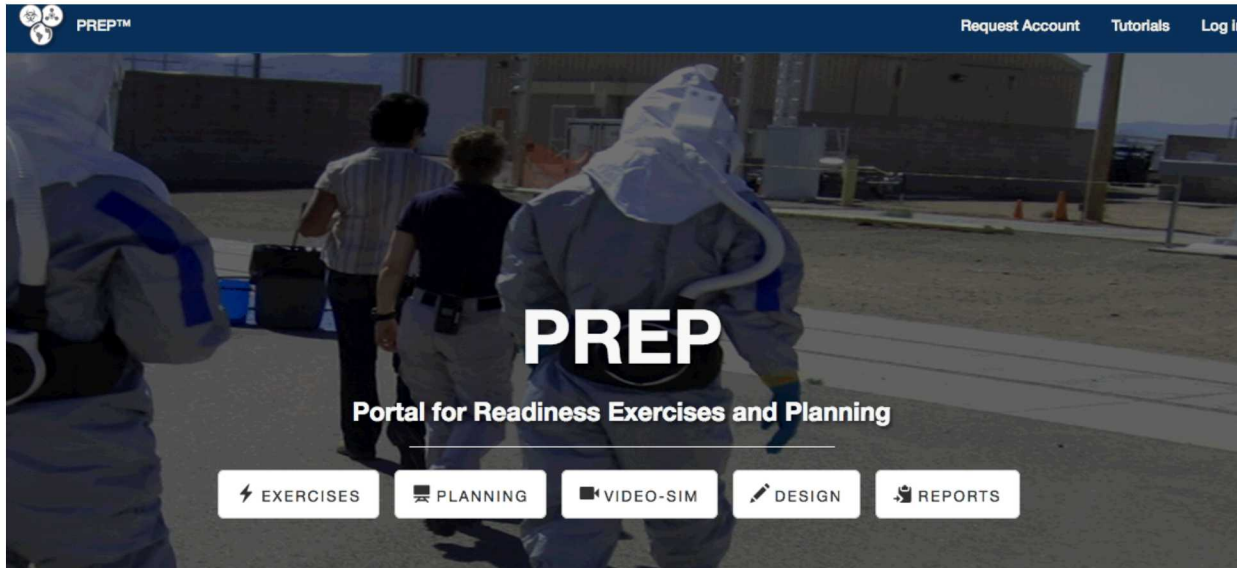
Improving disease detection & response capacity in Veterinary sector



Improving disease detection & response capacity in Veterinary sector



Multisector table top exercise



<https://prep.sandia.gov/>



Global Chemical and
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Global Footprint

World Footprint, 2014

World Footprint, 2014



GCBS flexibility

National – Institutional/Industry – Education - Frontline

Business across borders

Language barriers

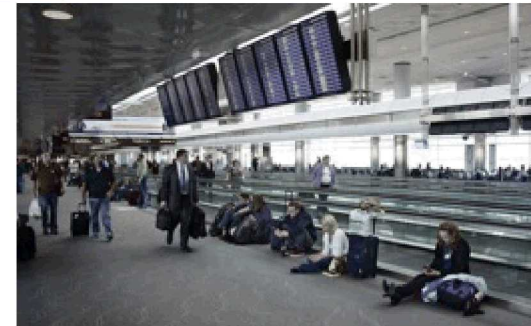


Cultural differences



Security challenges

Time zones



Surprise!!



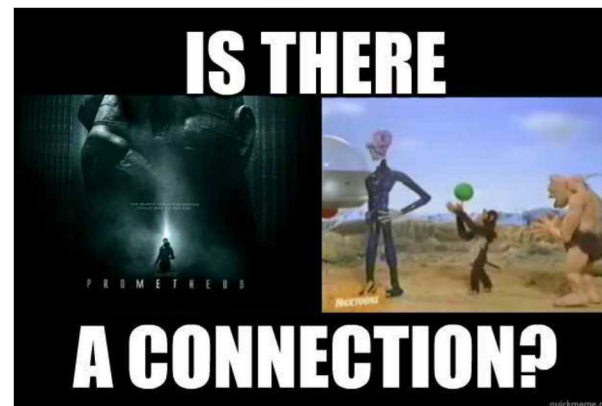
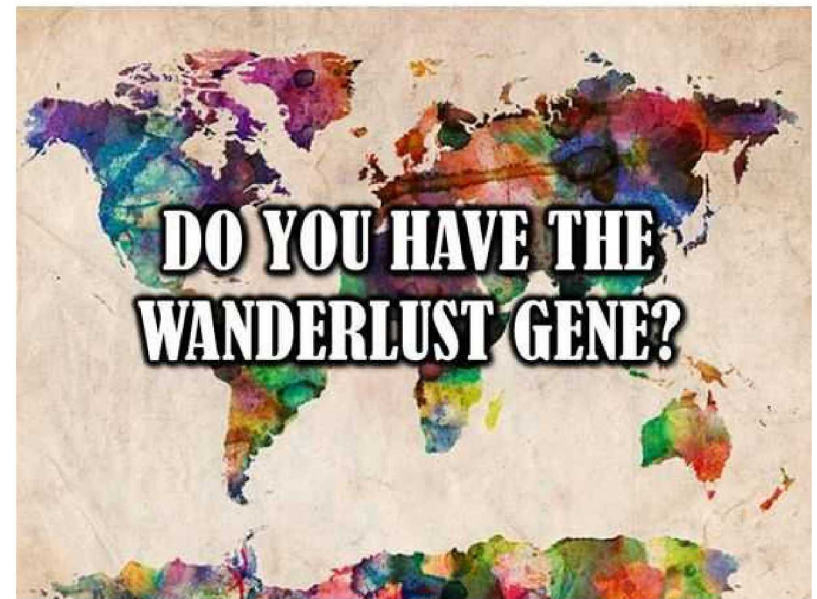
*Empowering partners, strengthening risk management
Building relationships
Strengthening trust
Enhancing National Security*



Key Messages

- Chemical and biological risks are real, local and global. They present safety and security challenges to the US and world
- Chemical and Biological risks include safety and security risks.
- Understanding the nature of these risks helps to effectively prevent, respond and recover from such incidents
- Securing the US requires strengthening capacity of other nations to prevent, respond and recover from Chemical and Biological Incidents
- GCBS works to mitigate chemical and biological threats through integrated systems-based approaches to enhance global security





Thank you for listening!

Questions?

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<https://ibctr.sandia.gov>

