Smallpox, Bioterrorism and WHO

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Introduction

This paper:

summarizes the historical background of the smallpox and bioterrorism debate;
traces relevant events, statements and publications since eradication in 1980;
gives examples of public health protection measures;
explains the current role of WHO in global preparedness.
WHO's Greatest Moment?
1980

“The end of smallpox – but for WHO it is only the end of the beginning… victory over smallpox has implications that go far beyond the individuals directly concerned… It reasserts our ability to change the world around us for the better.”

1988

“For centuries, variola virus stalked the world with impunity, causing unmeasured suffering, death and blindness. Today it is confined to glass vials kept under high security in six laboratories... smallpox is a disease which can be confined to history – the first disease ever eradicated by man.”

"While we fervently hope smallpox would never be used as a weapon, we have a responsibility to develop the drug and vaccine tools to deal with any future contingency – a research and development process that would necessarily require smallpox virus."

US President Bill Clinton
May 1999

During the World Health Assembly, the USA successfully argues against calls for the destruction of smallpox stocks held in the USA and Russia, recommending instead that stocks should be kept for therapeutic research purposes.
June 9, 1999

"If used as a biological weapon, smallpox represents a serious threat to civilian populations because of its case-fatality rate of 30% or more... Although smallpox has long been feared as the most devastating of all infectious diseases its potential for devastation today is far greater than at any previous time."

Henderson et al.  
*JAMA* 1999;281:2127-2137
June 13, 1999

The *New York Times* cites a US government intelligence analysis which concludes that North Korea, Iraq and Russia are probably keeping secret stocks of smallpox virus intended for military use. Did this analysis prompt Clinton's statement in April and the US position at the WHA in May?
June 22-23, 2001

Dark Winter

A US government smallpox terrorism exercise
“DARK WINTER” was an exercise designed to simulate possible US reaction to the deliberate introduction of smallpox in three states during the winter of 2002.

The exercise was sponsored by the McCormick Tribune Foundation and the Oklahoma City National Memorial Institute for the Prevention of Terrorism (MIPT).

“DARK WINTER” was developed and produced by:

- Center for Strategic and International Studies, Washington, DC
- Johns Hopkins Center for Civilian Biodefense Studies
- ANSER Institute for Homeland Security
Exercise Goals & Objectives

- Consider impact of a biological attack on US national security
- Examine State and Federal reaction to a crisis that is simultaneously local and national in scope
- Evaluate life and death decisions in a resource constrained environment
- Address information management needs and the role of the media
- Handle ethical, political, cultural, operational and legal challenge
Six Days Later - 22 December

- Episode 3 advances the scenario another 6 days (12 days into the crisis)
- The epidemic explodes as the beginning of a second generation of victims begins to emerge
  - Past 48 hours: 14,000 cases in 25 states reported to CDC
  - 1,000 dead, estimated 5,000 more deaths over 2 weeks
  - 200 dead from vaccination (out of millions vaccinated)
  - Overseas cases (10 countries) likely due to travel from U.S.
- Medical system is completely overwhelmed at this point
Lessons Learned

1) A BW attack on America with a contagious pathogen could potentially cripple the country.

✓ Non-contagious pathogens similarly crippling.

2) A “local” BW attack quickly becomes a national and global crisis.

3) Government responses will pose enormous challenges to civil liberties.

✓ The less prepared we are, the more threats there will be to civil liberties.
After September 11, 2001


2003: UK government sets up Health Protection Agency to help prevent terrorist attacks and limit their impact.

In this scenario, two travelers collapse at Vancouver airport with a suspicious rash. They confess they are members of a terrorist group who have infected themselves with smallpox and dispersed to 14 countries just as their infectivity is peaking.

Quarantine officers issue an international alert. Frantic communications ensue among the affected countries. Problems include cross-border coordination, language difficulties and equipment failures.

Afterwards, the exercise was described as a well coordinated, realistic and valuable test of international communications. "Participants believe that similar exercises should be scheduled regularly, possibly annually."
Exercise Global Mercury

The Exercise Structure

Exercise Higher Control Staff
- Deputy Exercise Director
- Sr Planner/Controller
- Sr Planner/Controller

Communications, Directions and Reports

Canada
- WHO
- United States
- United Kingdom
- Mexico
- Japan
- Italy

European Commission

The Players

Canada Controllers
- WHO Controllers
- US Controllers
- UK Controllers
- Mexico Controllers

Lower Control Staff

EU Controllers
- France Controllers
- Germany Controllers
- Italy Controllers
- Japan Controllers

Lower Control Staff
WHO's Greatest Fear?

2004: "The greatest fear is that in the absence of global capacity to contain an outbreak rapidly, smallpox might re-establish endemicity, undoing one of public health's greatest achievements."

WHO report, 
*Global smallpox vaccine reserve*, December 2004
"We are not saying there might not be fatalities, but we could prevent any widespread disaster."

Gordon MacDonald,
Head of Emergency Strategic Planning,
UK Health Protection Agency
The Times August 24, 2005
"We shouldn’t be complacent but it is important for the public to realise that while there would be deaths, as there would be in a conventional attack using explosives, there wouldn't be the kind of widespread catastrophe they might imagine."

Dr Nigel Lightfoot,
director of Emergency Response Capability,
UK Health Protection Agency.
2006: WHO Global Outbreak Network

Global Outbreak Alert and Response Network

Worldwide Distribution of GOARN Partner Institutions and Networks

No single institution or country has all of the capacities to respond to international public health emergencies caused by epidemics and by new and emerging infectious diseases.

This map shows the distribution of GOARN partner institutions and partner networks around the world. Where there are more than one network partner the number is indicated in the text boxes.
WHO Web Sites

The following WHO web sites are related to deliberate epidemics, and WHO's global outbreak and alert response networks:

Conclusions

- The risk of a terrorist smallpox attack is currently low but is being taken very seriously.
- Many countries are staging prevention and control exercises.
- Multimillion doses of vaccine are being held in readiness.
- WHO is urging countries to develop and strengthen preparedness plans.
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