

Bio terrorism

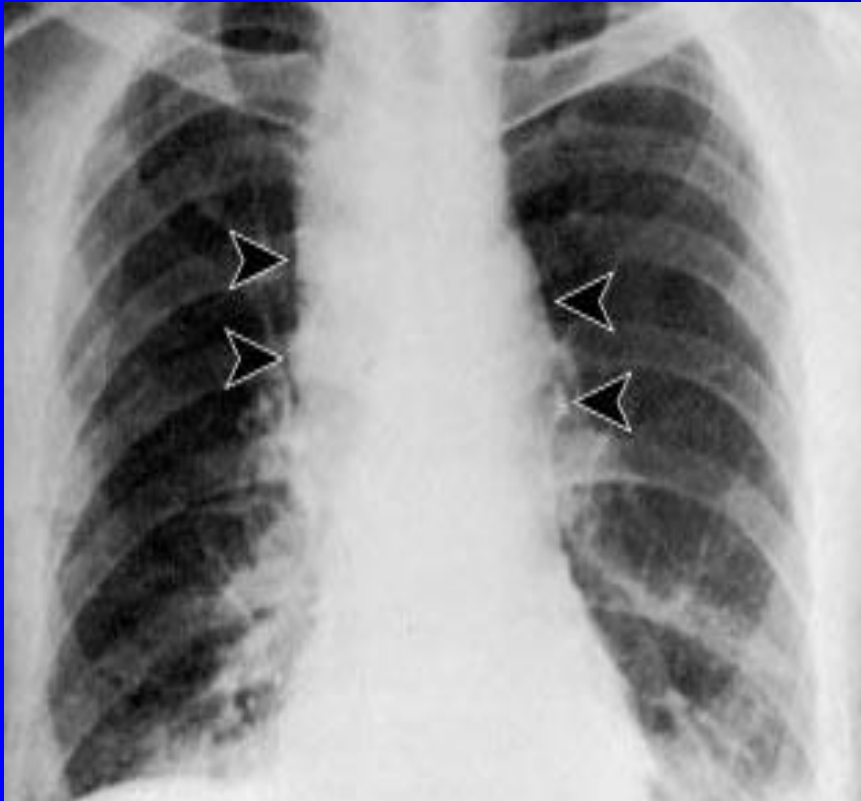
Dr John Sloss

County Durham and Darlington NHS
Trust

Clinical Scenario (1)

- City of 1.2 million
- Several military establishments
- 28y/o female
- 2 days fever, malaise, fatigue
- Improved 2-3 days
- Presented to hospital with severe respiratory distress, dyspnoea, stridor, shocked and cyanosed

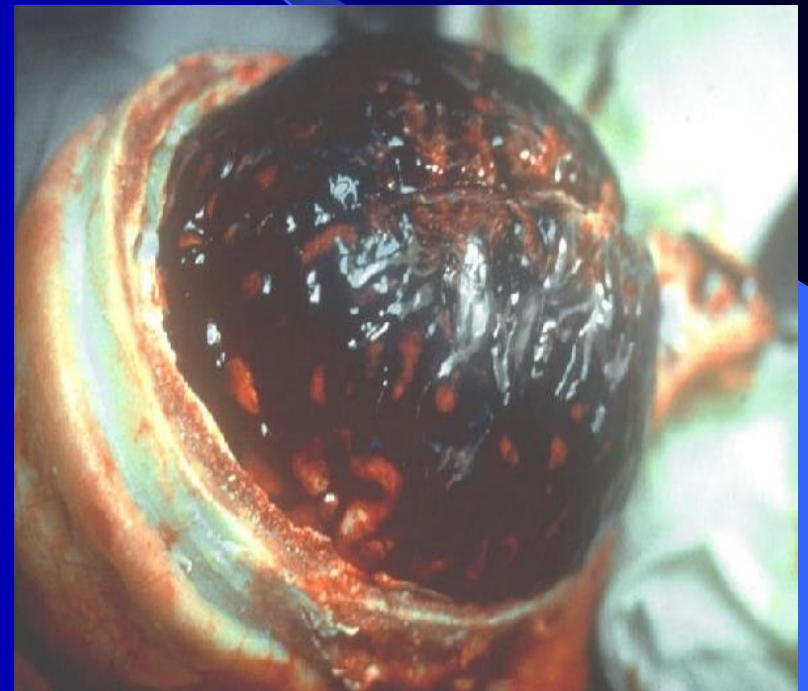
Clinical Scenario (2)



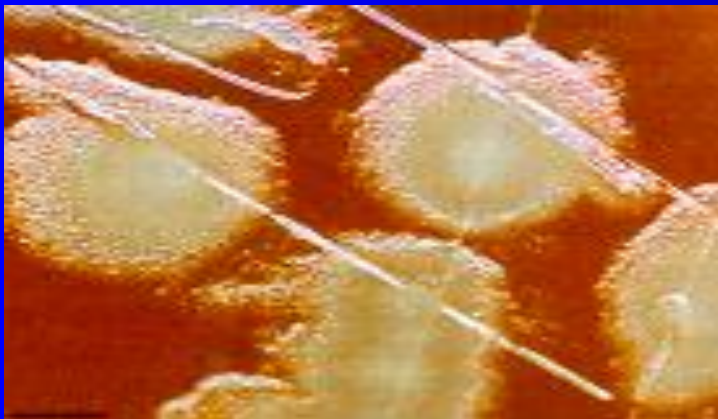
- **Lobulated mediastinal widening
parenchymal infiltration at left lung base**
- **Rapid deterioration and death**

Clinical Scenario (3)

- **At post mortem:**
- Haemorrhagic thoracic lymphadenitis
- Haemorrhagic meningitis



Microbiology (Blood Culture)



- Gram positive Rods seen shortly after death.
- Tacky granular bees eye colonies non haemolytic on blood agar.

How would we cope?

- Recognition
- Diagnosis
- Involvement of Central Government
- Communication
- Stockpiling of consumables
- Protection of Initial responders
- Decontamination

District General Hospital

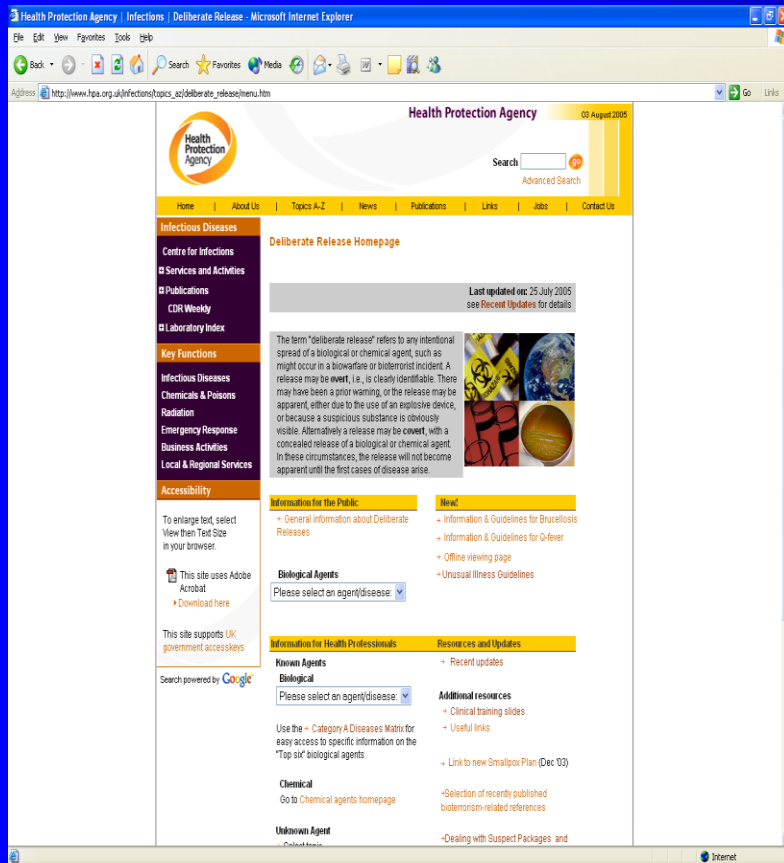
- Prior contingency planning (Management, Clinicians, Laboratory, and Infection Control Team)
- Briefing of ALL staff at an appropriate level
- Command and Control
- Realisation of limitations in diagnosis, treatment (ITU)

United Kingdom Assets

- HPA, CDSC, CPHL
- CAMR PCR, ELISA, Culture confirmation

Health and Safety Executive Decontamination

UK Sources of Information



Health Protection Agency 03 August 2005

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Deliberate Release Homepage

Last updated on: 25 July 2005
[see Recent Updates for details](#)

The term "deliberate release" refers to any intentional spread of a biological or chemical agent, such as might occur in a bio warfare or bioterrorist incident. A release may be **overt**, i.e., is clearly identifiable. There may have been a prior warning, or the release may be apparent, either due to the use of an explosive device, or because a suspicious substance is obviously visible. Alternatively a release may be **covert**, with a concealed release of a biological or chemical agent. In these circumstances, the release will not become apparent until the first cases of disease arise.

Information for the Public

- General information about Deliberate Releases
- Biological Agents
Please select an agent/disease:

News

- Information & Guidelines for Brucellosis
- Information & Guidelines for Q-fever
- Online viewing page
- Unusual Illness Guidelines

Information for Health Professionals

Known Agents

Biological

Please select an agent/disease:

Use the Category A Diseases Matrix for easy access to specific information on the "Top six" biological agents

Chemical

Go to Chemical agents homepage

Unknown Agent

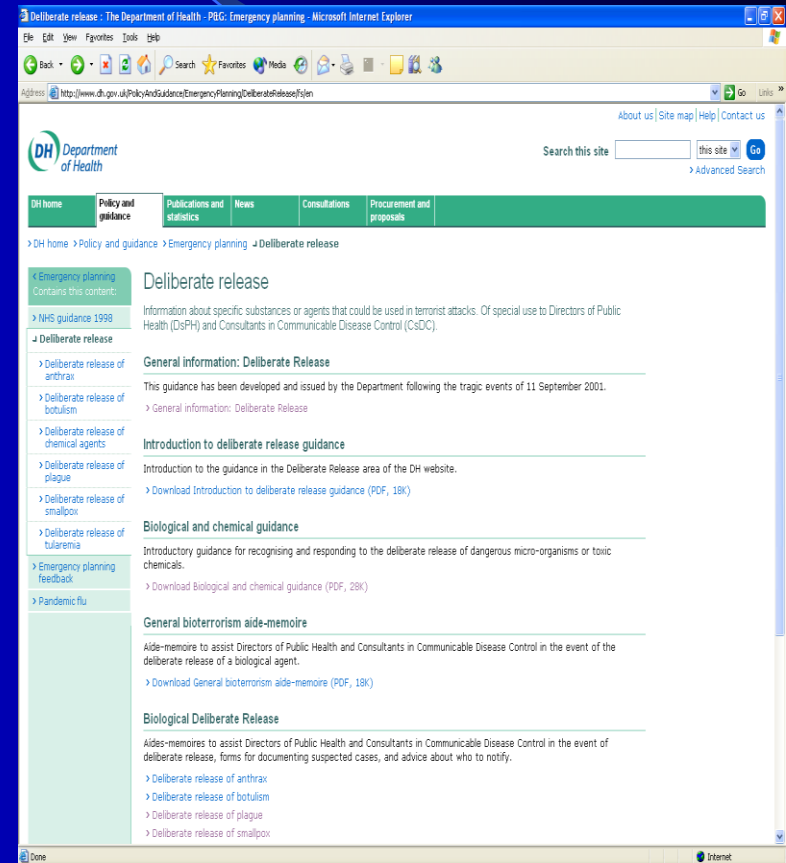
Dealing with Suspect Packages and

Resources and Updates

- Recent updates

Additional resources

- Clinical training slides
- Useful links
- Link to new Smallpox Plan (Dec 03)
- Selection of recently published bioterrorism-related references
- Dealing with Suspect Packages and



Deliberate release : The Department of Health - DHG: Emergency planning - Microsoft Internet Explorer

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Emergency planning
Contains this content:

- NHS guidance 1999
- Deliberate release
- Deliberate release of anthrax
- Deliberate release of botulism
- Deliberate release of chemical agents
- Deliberate release of plague
- Deliberate release of smallpox
- Deliberate release of tularemia
- Emergency planning feedack
- Pandemic flu

Deliberate release

Information about specific substances or agents that could be used in terrorist attacks. Of special use to Directors of Public Health (DsPH) and Consultants in Communicable Disease Control (CsDC).

General information: Deliberate Release

This guidance has been developed and issued by the Department following the tragic events of 11 September 2001.

[General information: Deliberate Release](#)

Introduction to deliberate release guidance

Introduction to the guidance in the Deliberate Release area of the DH website.

[Download Introduction to deliberate release guidance \(PDF, 18K\)](#)

Biological and chemical guidance

Introductory guidance for recognising and responding to the deliberate release of dangerous micro-organisms or toxic chemicals.

[Download Biological and chemical guidance \(PDF, 28K\)](#)

General bioterrorism aide-memoire

Aide-memoire to assist Directors of Public Health and Consultants in Communicable Disease Control in the event of the deliberate release of a biological agent.

[Download General bioterrorism aide-memoire \(PDF, 18K\)](#)

Biological Deliberate Release

Aides-memoires to assist Directors of Public Health and Consultants in Communicable Disease Control in the event of deliberate release, forms for documenting suspected cases, and advice about who to notify.

- Deliberate release of anthrax
- Deliberate release of botulism
- Deliberate release of plague
- Deliberate release of smallpox

Further sources

CDC Emergency Preparedness & Response Site - Microsoft Internet Explorer

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Address <http://www.bt.cdc.gov/>

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Department of Health and Human Services
Centers for Disease Control and Prevention

Emergency Preparedness & Response

[New Design for Emergency Preparedness & Response Website!](#)

Agents, Diseases, & Other Threats

- Bioterrorism Agents**
[Advisors](#) [FAQs](#) [What is bioterrorism?](#) [more](#)
- Chemical Emergencies**
[Chemical safety](#) [Safety manual](#) [more](#)
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Recent Outbreaks & Incidents
[West Nile virus](#) [Swine flu](#) [mad cow disease](#) [more](#)

Additional Topics & Resources

- [Lab Information](#)
- [Training & Education](#)
- [Preparation & Planning](#)
- [Surveillance](#)
- [Related Links](#)
- [Public Health Emergency Response Guide for State, Local, & Tribal Public Health Directors](#)
- [Cooperative Agreement Guidance](#)
- [Laboratory Response Network \(LRN\)](#)
- [Clinician Outreach & Communication Activity \(COCA\)](#)
- [Clinician Registry for Updates on Terrorism & Emergency Response](#)
- [Emergency Preparedness for Business](#)
- [Strategic National Stockpile](#)

News & Highlights

See also:
[What's New on This Site](#)
[Latest News Releases](#)

[Preparing for a Terrorist Bombing: A Common Sense Approach](#) **NEW July 19**

[Best Lure: Why What Citizens Need to Know](#) **NEW July 7**

[Cooperative Agreement Guidance for Public Health Emergency Preparedness](#) **NEW May 13**

[Webcast & Slides: "Surviving Field Stress for First Responders"](#)

[Preparedness Today: What You Need to Know](#)

[Presentations: CDC Public Health Preparedness Conference 2005](#)

[Radiation in the Movies: Fact or Fiction?](#)

[CDC Assets in Public Health Response for Terrorist Incidents](#)

[Smashup in the Movies: Fact or Fiction?](#)

Languages
[Español](#) (Spanish)

Contact CDC

800-CDC-INFO
888-232-6246 (TTY)
cdcinfo@cdc.gov

[Who to Contact in an Emergency](#)

Dictionary

Emerging Infectious Diseases Journal

EPIET home page (European Programme for Intervention Epidemiology Training)

EUROPA - Public Health - Threats to health...

EUROPA - Public Health - Threats to health...

European Centre for Disease Prevention...

Eurostar

Eurosurveillance - Home

Health Professions Council - Home Page

HFA Draft Deliberate Release

HFA Draft Deliberate Release

HFA Draft, site

HFA home

HFA Intranet

HFA procurement training

HFA procurement LINE

HFA Library

HFA Online Directory

MyAthens

National Rail network

National Rail network map

New Scientist

NHS Discounts

ProMED

Public Health Link

PubMed

The Royal College of Pathologists: Home

Sfam Book Reviews published in Microbiol...

Streptap.co.uk

The British Society for Antimicrobial Chem...

Page last modified July 29, 2005

<http://www.bt.cdc.gov/chemical/>

WHO | Bioterrorism - Microsoft Internet Explorer

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Address <http://www.who.int/topics/bioterrorism/en/>

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World Health Organization

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WHO > Health topics

Bioterrorism

This page provides links to descriptions of activities, reports, news and events, as well as contacts and cooperating partners in the various WHO programmes and offices working on this topic. Also shown are links to related web sites and topics.

RELATED SITES

- [Biological terrorism \(Region of the Americas - PAHO\)](#)

PUBLICATIONS

- [Terrorist threats to food - guidelines for establishing and strengthening prevention and response systems](#)

RELATED LINKS

- [Preparedness for deliberate epidemics](#)

DONATE

DISEASE OUTBREAKS

- [Avian influenza](#)
- [Viet Nam - update 27](#)
- [Full text](#)
- [Outbreak associated with Streptococcus suis](#)
- [China](#)
- [Full text](#)
- [Disease outbreak news](#)

EMERGENCIES

- [Sudan](#)
- [Health is key to peace](#)
- [Niger](#)
- [Crisis coverage](#)
- [Health action in crises](#)

GENERAL WHO INFORMATION

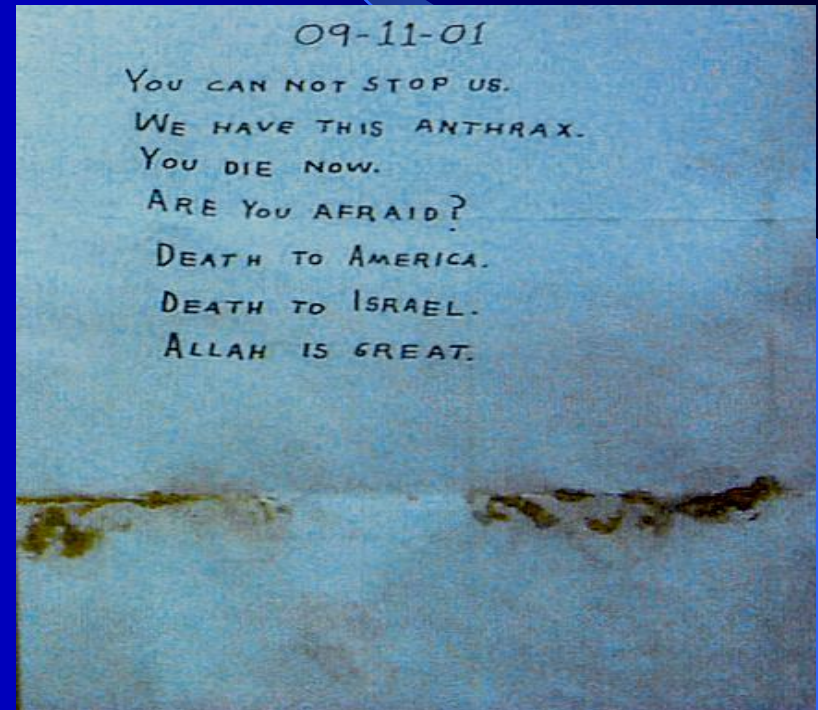
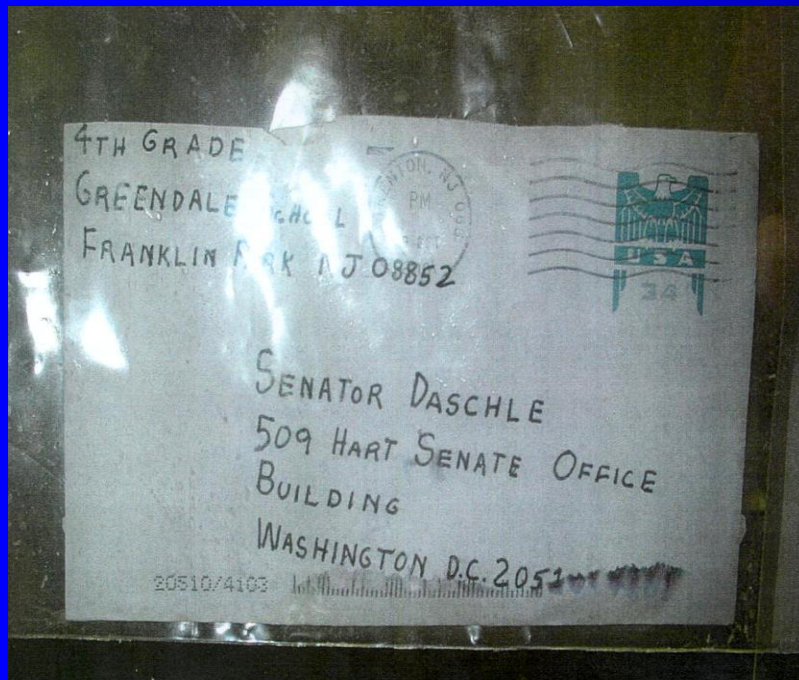
- [Media centre](#)
- [News, events, fact sheets, contacts, and multimedia](#)
- [Director-General's office](#)
- [Biography of the Director-General, major speeches, and biographies of Assistant](#)

Sverdlovsk Incident 1979



- 96 Human Cases
- 68 Deaths
- Plume affected humans up to 4km and animals up to 50km
- Incubation period up to 43 days
- < 1gm released

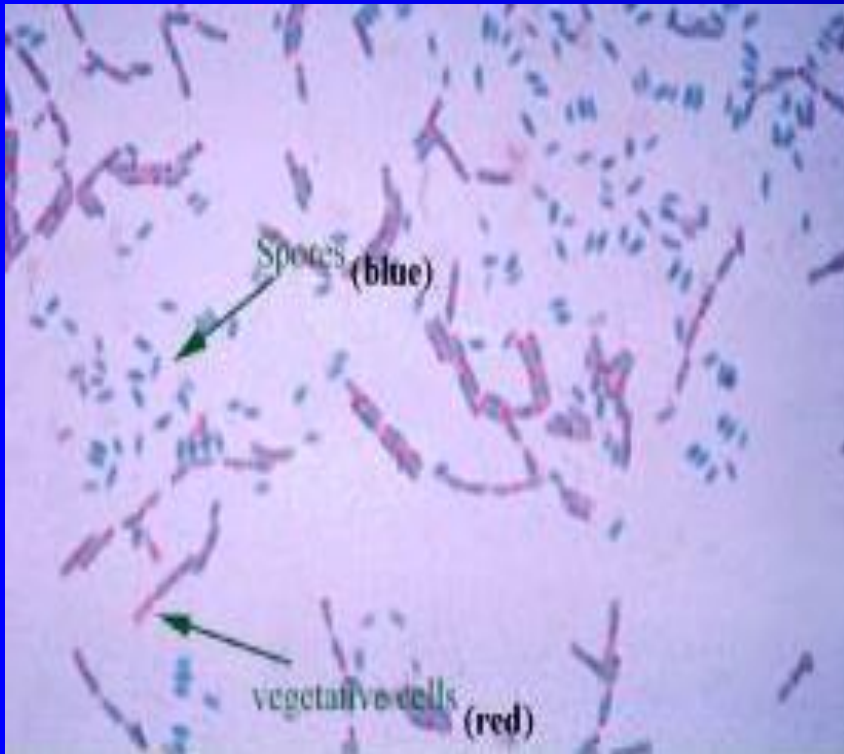
Washington 2001



The USA anthrax incident October 2001

- 5 Anthrax letters
- 18 cases
- 11 inhalational cases (5 deaths)
- Immediate prophylaxis with ciprofloxacin effective
- Extensive contamination of postal system
- 3 cases not connected with the mail

Anthrax as a Bio terrorism agent



- Disease of herbivores
- Gram positive rod
- Hardy spores
- Easy to grow
- Easily aerosolized
- Mortality 65% to 85%
- No person/person spread
- Persists in the environment

Post exposure prophylaxis of Anthrax

- Within 24 hours

Ciprofloxacin

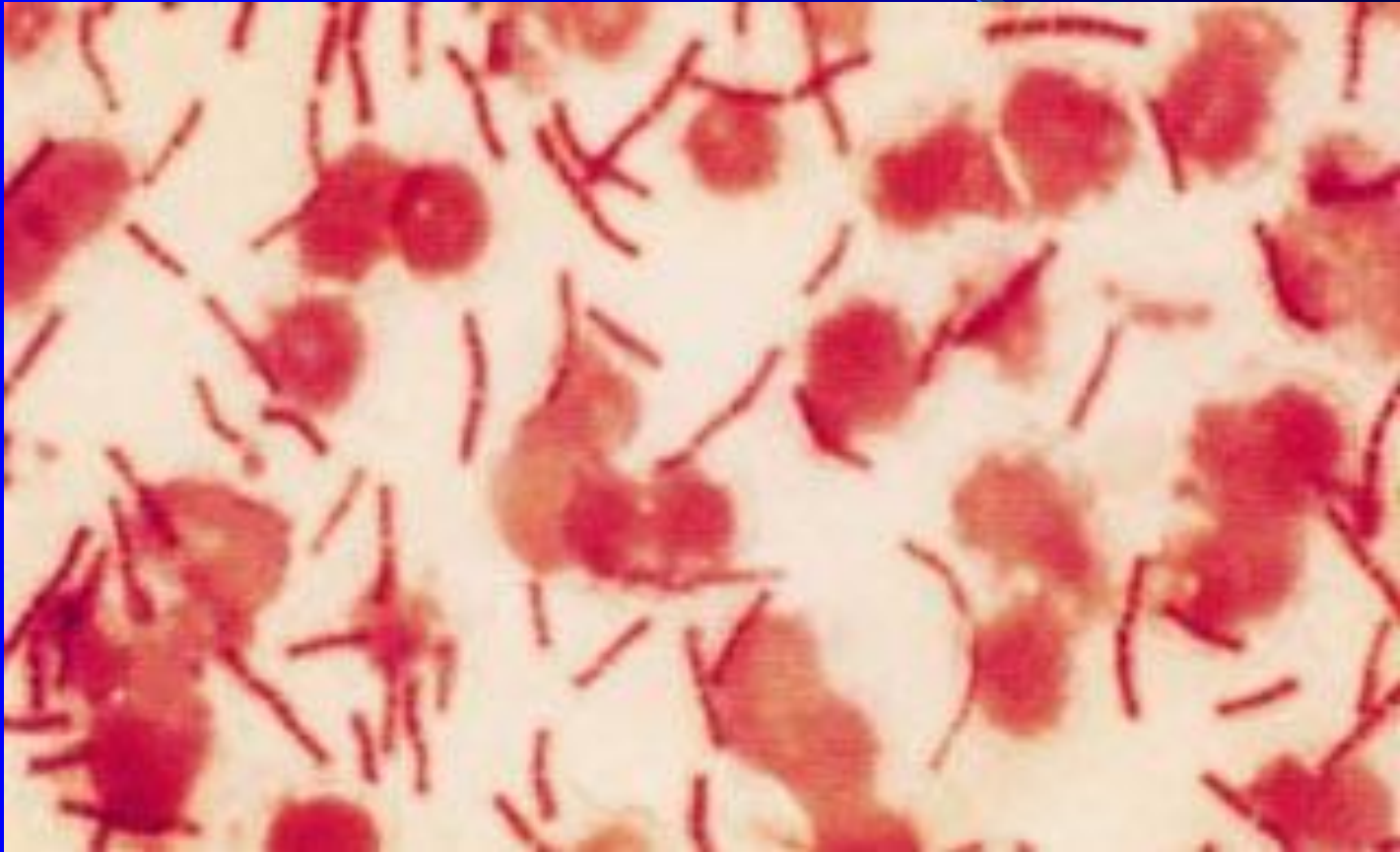
Doxycycline

Amoxycillin (If Pregnant)

60 days not vaccinated

30 days vaccinated

Inhalational Anthrax



Cutaneous Anthrax



Intestinal Anthrax

Cecal Lesion
from eating undercooked Carabao... (AFIP)



Management of Anthrax

- Antibiotics (60 days for inhalation)

Ciprofloxacin, Penicillin (if susceptible),
Doxycycline. Note resistant to
cephalosporins.

Supportive care

Only EARLY treatment improves prognosis

Universal Infection Control precautions

Smallpox

- Prodrome 1-3 days
Acute onset with fever
headache prostration
Erythematous rash day 2
- Maculopapular rash
day 4 to 6
- Vesicular centrifugal
rash day 8 to 14



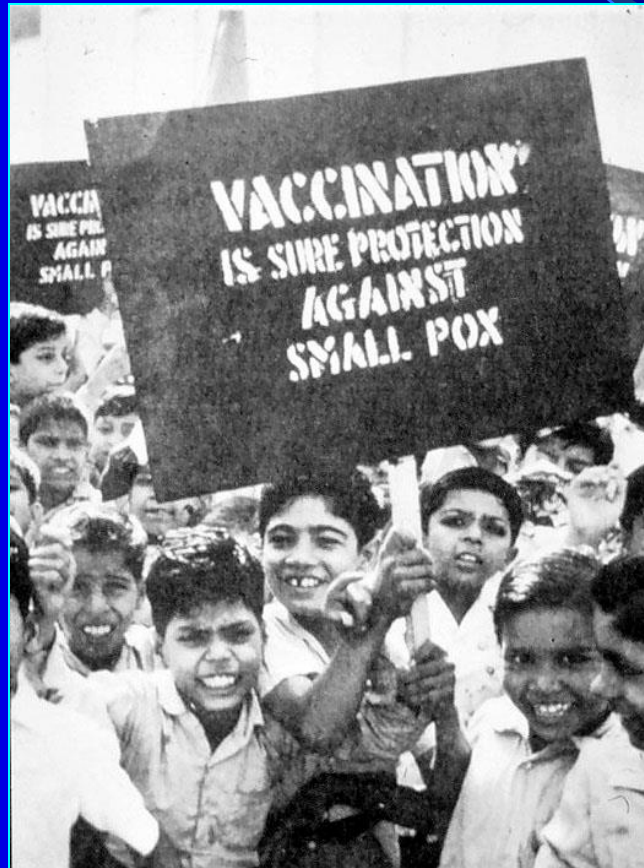
Smallpox as a bio terrorist agent

- Easy to grow
- Low infective dose
- Incubation period make transmission difficult to control
- Dramatic and demoralising effect
- Massive social disruption

Diagnosis of Smallpox

- Clinical Recognition
- Category 4 hazard but 3 following first case
- Blood Viral culture, PCR, Antigen detection
- Vesicle fluid EM, PCR, culture
- Scab as above

Smallpox Vaccination



Index Case



- Aged 2 years
- Fever, misery, centrifugal rash
- Multiple skin lesions at the same stage of evolution affecting palms and soles

Vaccinated contact



- Vaccinated day of contact
- Minimal illness
- Seven macules only

Her husband



- Not vaccinated
- Severe headache and fever for 2 days
- Generalized erythematous rash
- No time for vesicles to develop
- Died 12 hours later

Current resources

- Vaccines being stockpiled
- Specialist Teams
- Training
- Laboratory Support

Smallpox management

- Transfer to Infectious diseases unit using full respiratory and contact isolation
- Use immune staff to treat
- Vaccinate all contacts within 16 days (ring vaccination strategy)
- ?VZIG for high risk contacts

Potential agents category A

- Anthrax
- Plague
- Smallpox
- Tularaemia
- Viral haemorrhagic fever
- Botulinum toxin
- Easily disseminated or transmitted
- High mortality
- Public panic
- Require a degree of Public Health preparedness

Potential agents Group B

- Q fever
- Brucellosis
- Meloidosis
- VEE
- Enteric Pathogens
- Other toxins
- Moderately easy to produce and disseminate
- Have moderate morbidity and mortality
- Require enhanced diagnostic and surveillance capacity

Potential agents category C

- Nipah Virus
- Hantah Virus
- Tick borne
Haemorrhagic fever
- Tick borne
encephalitis
- Yellow fever
- MDRTB
- Emerging agents
- Easy to produce and
disseminate
- High morbidity and
mortality

The attractions of Bio terrorism



- Cheap
- Simple to produce
- Defence is difficult
- Devastating effect

Lethality

Number of fatal doses per 5 ml of agent

- Cyanide 50
- Nerve gas 5000
- Botulinum Toxin 1,000,000
- Anthrax 50,000,000

Worse case scenario



- 50kg of agent in an urban area of 5 million population
- Anthrax 250,000 cases(100,000 deaths)
- Plague 150,000 cases (36,000 deaths)
- Tularemia 250,000 cases (19,000 deaths)

Decontamination

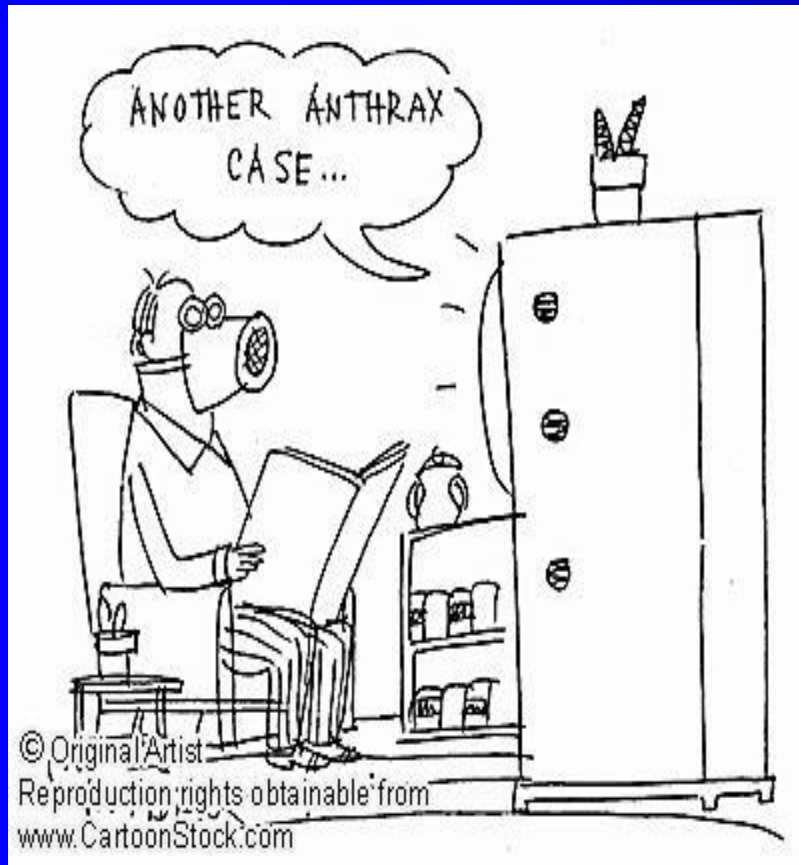


- Main priority
- Hospital will need ?
armed sentries
- Manpower
- Facilities
- Staff decontamination
- Eating/Drinking

How real is the threat

- Who knows?
- However mass production storage and dissemination is technically not easy
- Most likely use would be as a local disruptive act

Panic



- Information Plan
- Staff briefing
- Availability of expertise

How ready are you (we)?



- Awareness
- Surveillance
- Planning

Stockpiles

Training

Protective Equipment

Vaccination

Don,t Panic

Coping with victims
(Mass deaths)