

# **Bioterrorism & Related Threats**

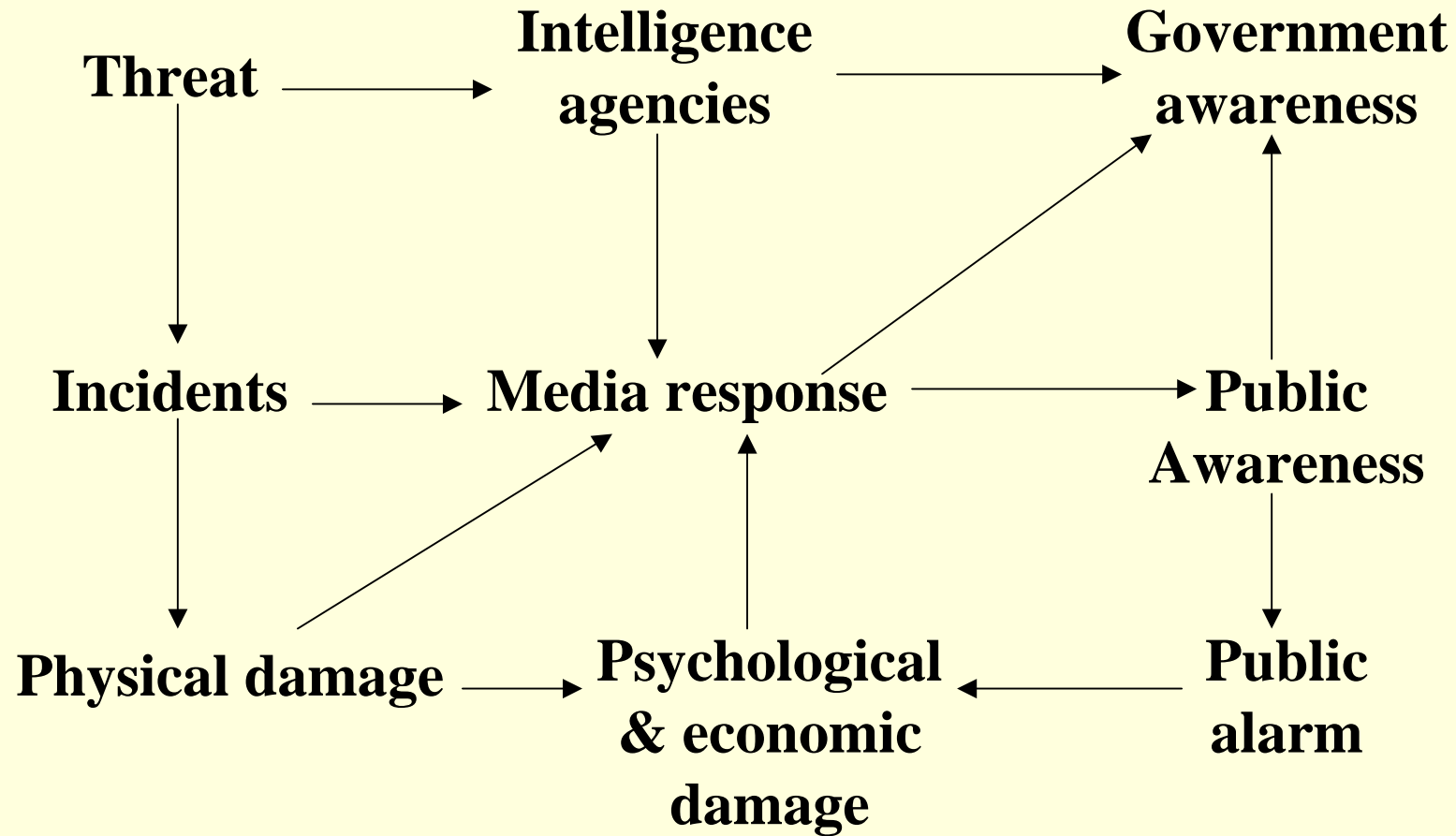
## **A Commonwealth Perspective**

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# FROM THREAT TO IMPACT IN THE MODERN WORLD



# Roles for Health Agencies

- **Threat identification**
  - What events? What agents? What pathways?
- **Planning & Prevention**
  - Training, robust systems, quarantine, vaccination
- **Early detection**
  - Surveillance
- **Incident response**
  - Communication with other agencies
  - Public communication
  - Containment of any outbreak
- **Consequence management**
  - Management of casualties

# **Bioterrorism Overseas - What has happened ?**

- **1972 - Biological and Toxic Weapons Convention**
- **USSR, Iraq etc develop biological weapons**
- **1984 - Rajnashee cult attack in Oregon**
- **1990-5 Aum Shinrikyo - unsuccessful germ attacks**
- **1995 Aum Shinrikyo nerve-gas in Tokyo subway**
- **2001 Anthrax attacks in US following September 11**
- **Concerns about smallpox in hands of terrorists or rogue states**
- **Additional concerns about the potential for genetic engineering to create virulent organisms (eg IL-4 gene spliced into mouse pox virus)**

# **Impacts of Bioterrorism**

## **IMPACTS FROM THREATS & FALSE ALARMS**

- Anxiety & stress in vulnerable individuals**
- Loss of confidence with each other**
  - Divisions within society**
  - Loss of confidence in government**
- Costs of preparedness & responses**
  - Health - eg side-effects of vaccination**
  - Economic costs-direct & indirect**

## **IMPACTS FROM ANY REAL ATTACK**

- Epidemic illness**
- Public panic**

# Origins of Terrorism

- **Extreme & intolerant beliefs**
  - Lack of trust and respect between religions/cultures
  - Social, economic & post-colonial disaffection
  - The ends justify any means - even suicide bombing
- **State diplomacy not seen as the solution**
  - States will usually disagree with extreme views
- **Weak or militant States prone to terrorism**
  - Unable to detect and prevent terrorism
  - May give tacit approval to international terrorism

# FROM EARLIER TIMES

- **With the rise of nation states, disputes were settled by warfare, diplomacy and by threats of mutual destruction**
  - World Wars, Korea, Vietnam, Cold War
- **Diplomacy has few answers for terrorists**
  - compromise & mutual self-interest not recognised
  - long-term objectives of the parties do not converge
- **Post Cold War optimism - now lost**
- **Our lucky country has had to wake-up**

**What are the  
potential threats ?**

# **Types of Threat**

**OVERT**

**COVERT**

**Atomic weapons**

**Conventional Weapons**

**Chemical**

**Biological**

**Radiological**

**Communication**

# CBR Health Threats

## Chemical

eg nerve gases, mustard gas

## Biological (Bioterrorism)

eg Smallpox, anthrax, biological toxins

## Radiological

eg nuclear sources and weapons

# Threats for Hospitals

- **Mass casualty event in community**
- **Terrorist threat to hospital itself**
  - Bomb
  - Tampering with food, medicine, systems etc
  - Bioterrorism event
- **Natural threat**
  - SARS
  - Pandemic influenza

# Identifying threats to a Hospital

- **What comes in**
  - **People** - patients, staff, visitors
  - **Essentials** - Air, food, water
  - **Medical supplies** - drugs, blood & plasma, gases
  - **Tangibles** - Vehicles, equipment, mail
  - **Non-tangibles** - Power, information, communication
- **What can happen**
  - **Bomb, chemicals, tampering with inputs or infrastructure, bioterrorist event with biological agents**

# **International Planning Responses**

- **Report from the American Hospital Association (2000)**
  - Hospital Preparedness for Mass Casualties
    - [www.hospitalconnect.com/ahapolicyforum/resources/disaster.html](http://www.hospitalconnect.com/ahapolicyforum/resources/disaster.html)
- **Hospital Preparedness - Most Urban Hospitals have Emergency Plans but Lack Certain Capacities for Bioterrorism Response**
  - US General Accounting Office - August 2003
  - [www.gao.gov/cgi-bin/getrpt?GAO-03-924](http://www.gao.gov/cgi-bin/getrpt?GAO-03-924)

# Other potential areas of health risk

- **Agriculture** - *animal diseases can cause economic impact and public concern - diseases such as nipah can also spread to people*
- **Northern borders** - *introductions via animals/birds hard to detect*
- **Food supplies**- *contamination of food*
- **Water supplies** - *contamination hard to detect*
- **Medication & blood supplies**
- **Postal services** - *contaminated mail*
- **Airborne spread** - *sprays, air-conditioning systems, crop dusters - spreading airborne pathogens or toxins*
- **Hackers** - *disrupting health system communication - false rumors*
- **Health infrastructure**

# Chemical Risk

(Office of Chemical Safety)

**Risk Index = probability x consequence**

Probability depends on:

- Availability of agent
- Capability of terrorists
- Past terrorist action
- Ease of dissemination
- Latency
- Persistence
- Existing security

Consequence depends on:

- Toxicity of agent
- Amount of agent
- Contagiousness
- Impact on infrastructure
- Availability of treatment
- Ease of detection
- Ease of decontamination

**Requires an artful blend of quantitative & qualitative information.**

# Radiological Risks (ARPANSA)

- **Threats include:**
  - nuclear powered ships
  - fallout from nuclear powered satellites
  - deliberate release
- **Treatment/antidotes include: iodide, Prussian blue, zinc, calcium and chelating agents.**

# Health Threats from Bioterrorism (CDC List)

## CATEGORY A

- **Anthrax**
- **Botulinum toxin**
- **Plague**
- **Smallpox**
- **Tularaemia**
- **Ebola etc**
- **Threat assessments based on**
  - **Public health impact (disease or death)**
  - **Dissemination potential & transmissibility**
  - **Public perception**
  - **Infrastructure needed to achieve preparedness**

# Biological Risks (DoHA)

- **Smallpox and anthrax plans**
- **Pandemic influenza plan**
- **Emerging infections 'new norm'**
  - Ongoing impact
  - Greater fear

# CASE STUDY

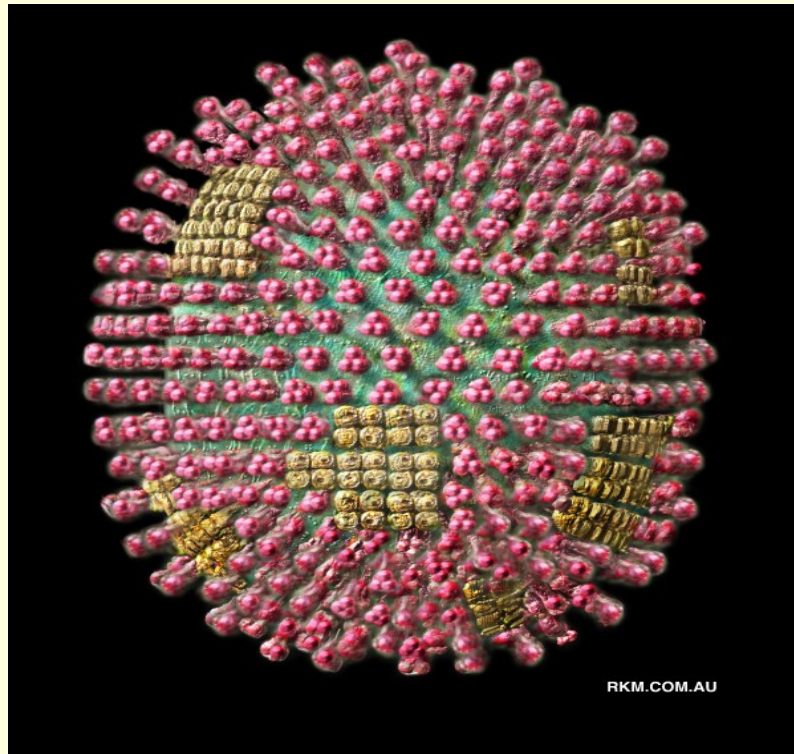
## White Powders in Australia

- **Followed real anthrax events & hoaxes in USA**
  - *Public and media concern*
  - *Grave concern from Australia Post*
  - *Strained the surge capacity from emergency and laboratory services*
  - *Important public communication role for CMO & CHOs*
- **None of the powders contained anthrax**
- **Showed the capacity of the system to respond**
- **Also exposed gaps**
  - *Laboratory resources - over-stretched*
  - *Antibiotic stockpile - ad-hoc but rapid response*
  - *Emergency services not well trained for biological incidents*
  - *Need for improved national coordination of early detection, surveillance & response*

# CASE STUDY - Smallpox

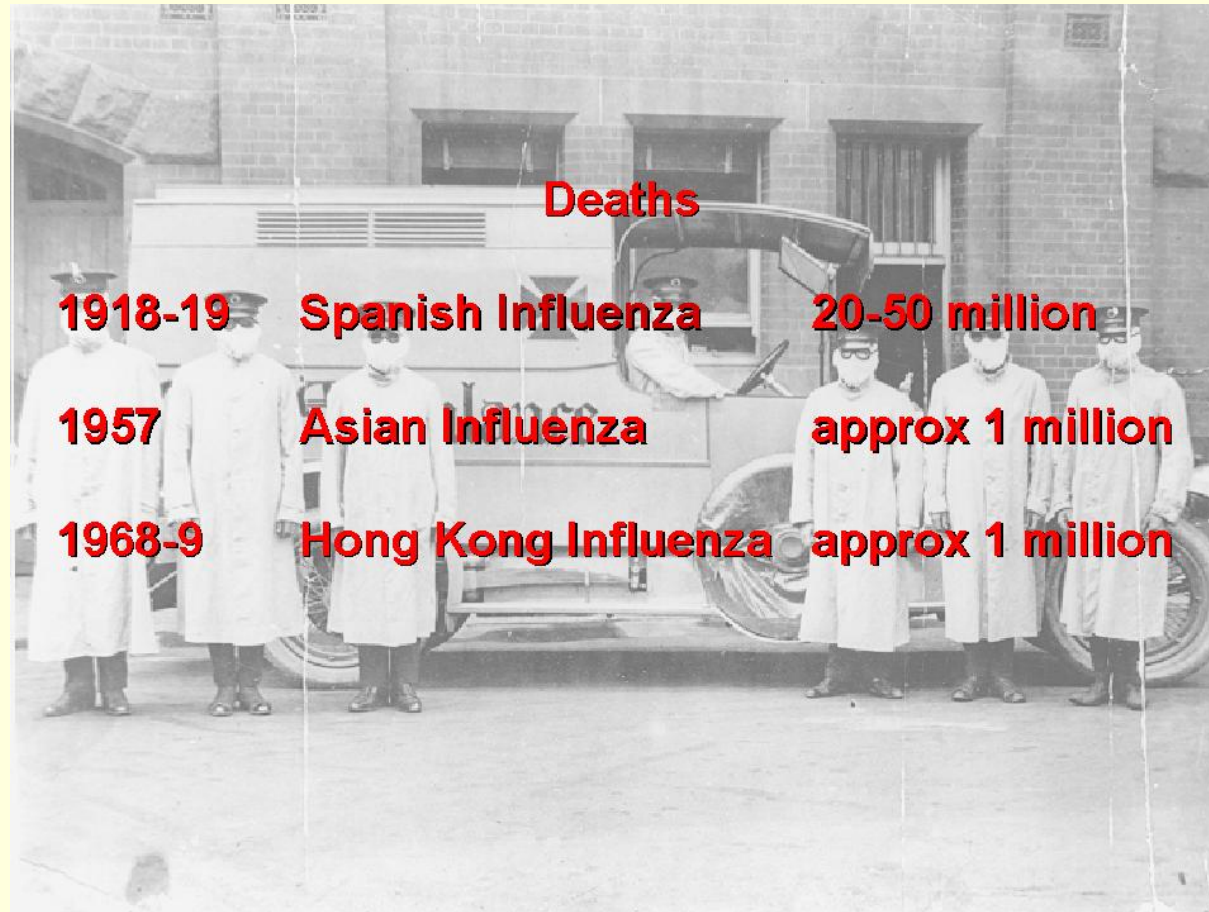
- **Category A disease on CDC list**
  - *Up to 30% mortality unless protected by vaccine or VIG*
  - *Eradicated world-wide in 1970s - virus in USA & Russia*
  - *Vaccination stopped by 1980s - vaccine destroyed*
  - *Concern about virus in hands of terrorists or rogue states*
- **USA, Canada, France have existing vaccine and have ordered sufficient new stocks to protect most of their populations**
- **Australia has ordered enough vaccine for a plausible outbreak**
- **Because of the risk of severe vaccine side-effects, no country has yet decided to deploy vaccine, except for health teams**
- **Australia and other countries are**
  - *acquiring medications to treat vaccine side-effects and smallpox itself*
  - *planning for the early detection and responses to any outbreak*

# Influenza virus



People have no pre-existing  
immunity to a new pandemic virus

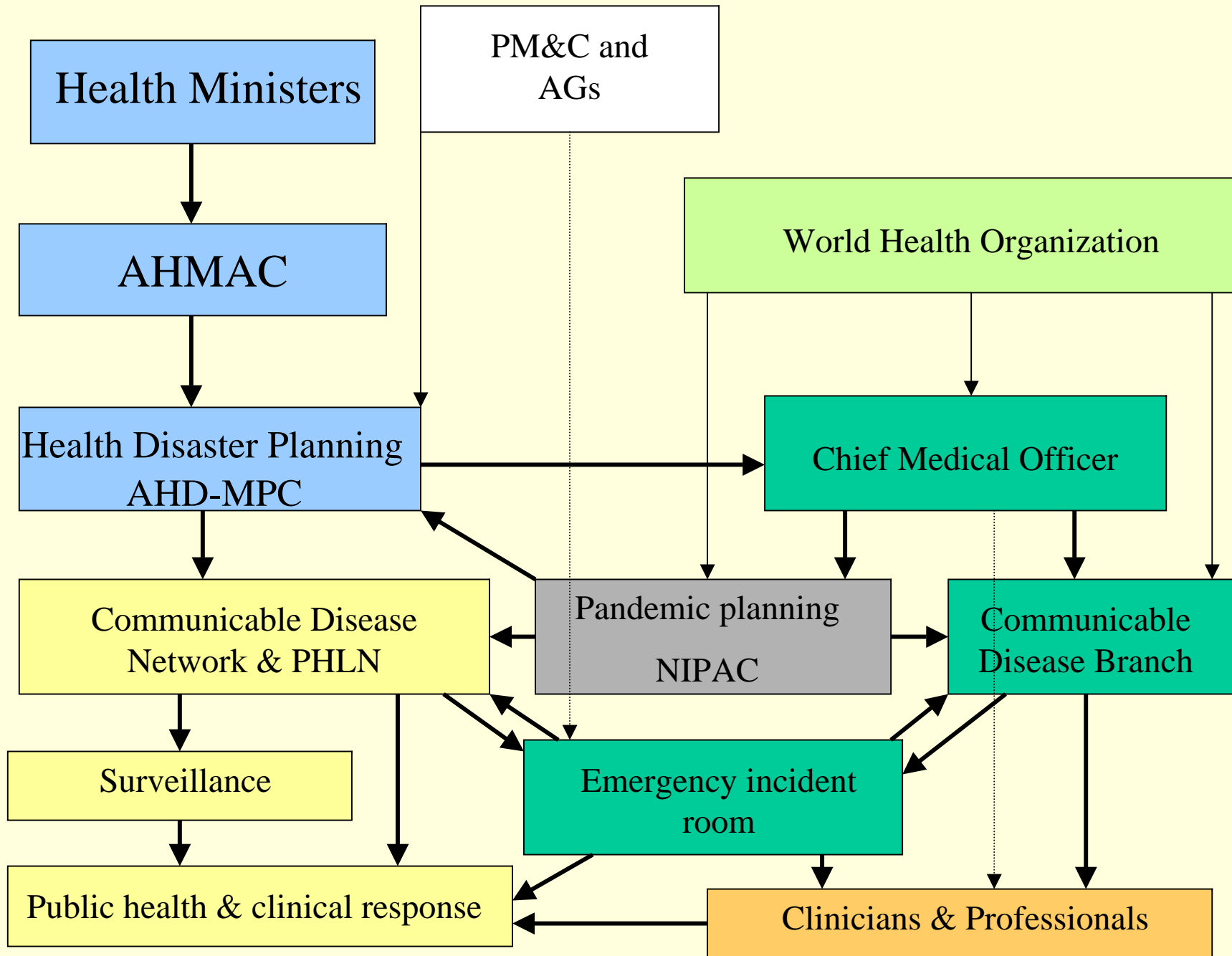




**2004?**

**H5 N1 From Asian Bird Flu**

**H7 N?3 From Canadian Bird Flu**



# **Laboratory Response Network for Bioterrorism - Coordinated by CDC**



# Successive Warnings

- **Northern Ireland**
- **Munich Olympics & Red Brigade**
- **Rajnashee cult in Oregon**
- **Lockerbie (PANAM) bombing**
- **Israel, West bank and Gaza**
- **Oklahoma bomber**
- **Aum Shimrikyo cult in Japan**
- **September 11**
- **Anthrax attacks in USA**
- **Bali**
- **UN Building in Baghdad**

# Madrid bombing 7.40am explosion



# Madrid bombing

- **1771 injured**
  - field hospital treated 250, GPs treated 204, 1300 transported for treatment
  - 256 admitted to 16 hospitals
  - severe trauma, internal injuries, 2nd/3rd degree burns
- **Lessons for other countries**
  - Demands on ambulance capacity
  - Surge capacity for hospital beds
  - Requirement for specialist Burns beds

# Madrid Deaths

- **192 deaths (178 deaths on site)**
- **Exceeded mortuary capacity**
  - Temporary mortuary at Madrid Trade Centre
- **5 hours after event 7 autopsy tables operating**
  - 60 forensic specialists
  - 7 teams of 3 pathologists, 2 photographers, 2 scientific police
- **Identification rooms, family rooms**

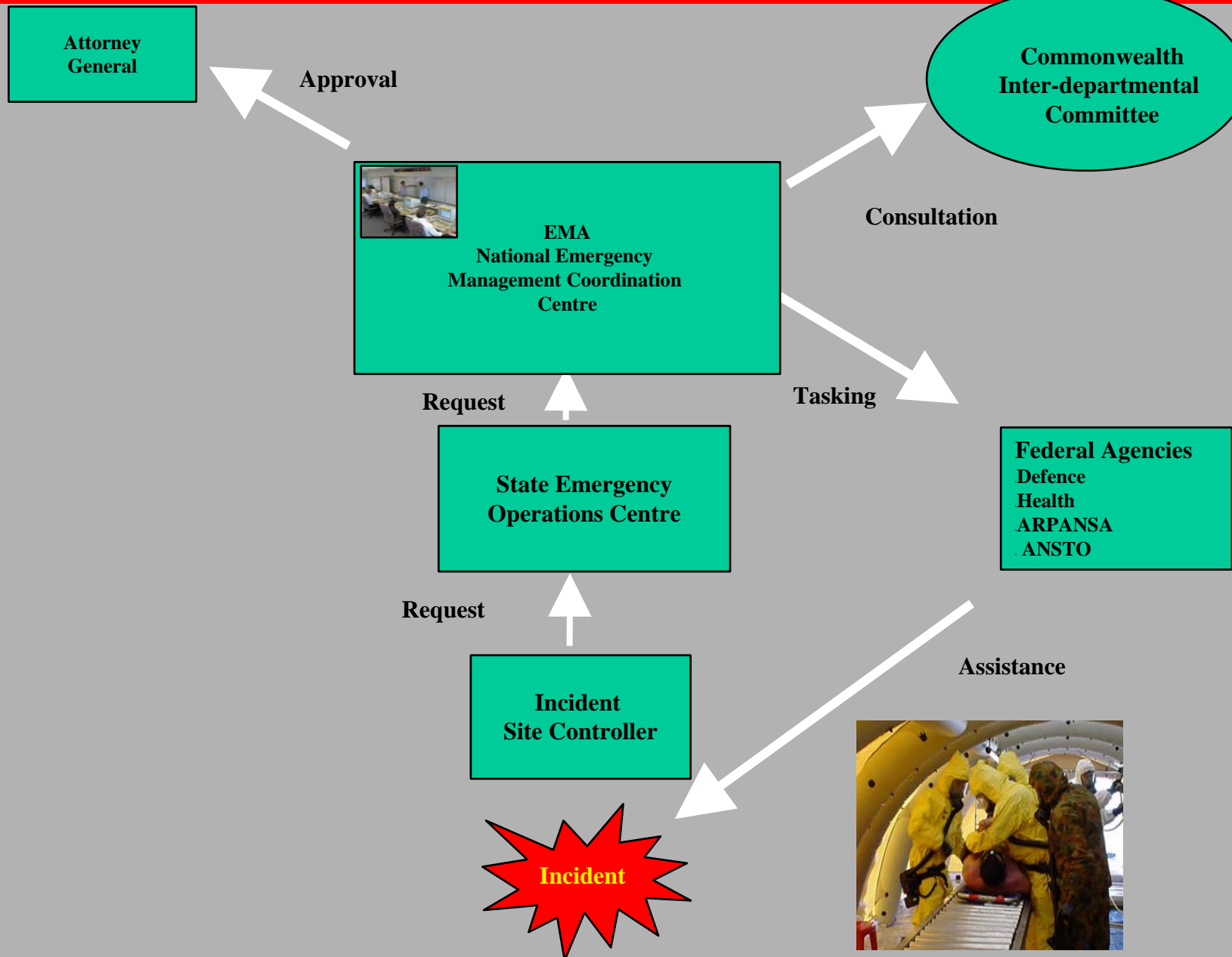
# Other lessons from Madrid

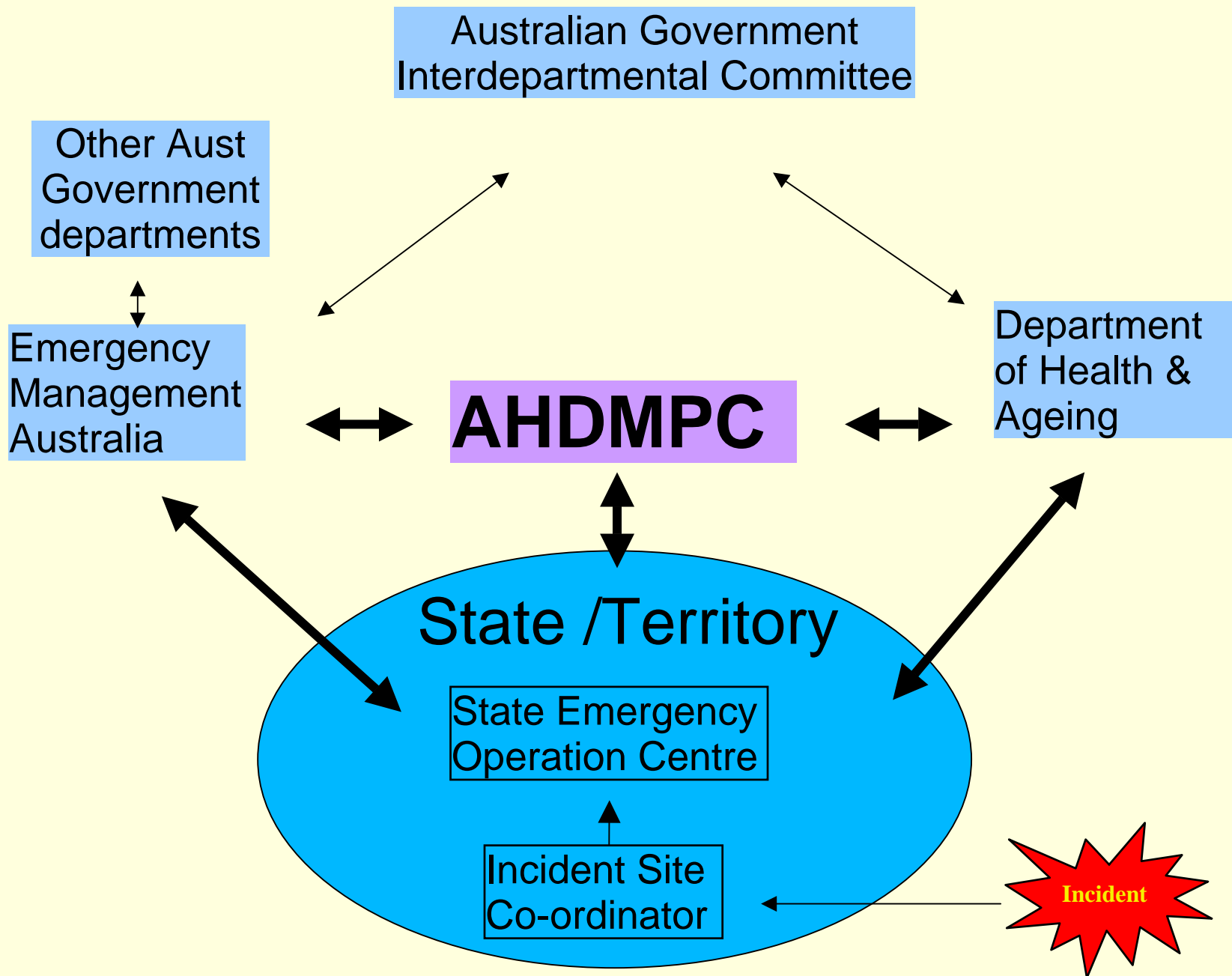
- **21,000 calls were received on emergency call line**
- **Mobile phones ineffective**
- **by p.m. website listed names of 173 deaths & 600 injured**
- **Inadequate tagging & recording of transport of patients**
- **Local supplies in Spain were made available to Madrid**
- **Excess volunteers**

# Australian Responses

- **State and Territory disaster plans**
  - Emergency services (health & hospital plans)
  - Emergency Management Australia (EMA)
- **National health planning**
  - AHMAC
  - Australian Health Disaster Management Committee
    - Jurisdictions, Defence, EMA
    - Post-Bali de-brief
    - Trauma / Burns / Infrastructure & personnel planning
    - Post Madrid review

# No Notice CBR Incident Coordination





# AHDMPC 2003 Audit of Health Capacity

- **What is the capacity of one jurisdiction ( state, territory or country) to manage the health consequences of an event?**
- **What limits this capacity?**
- **What are the trigger points where assistance is needed from other jurisdictions, local and international?**

Should capacity assessment aim for:  
event with highest likelihood or  
impact?

**Likelihood**

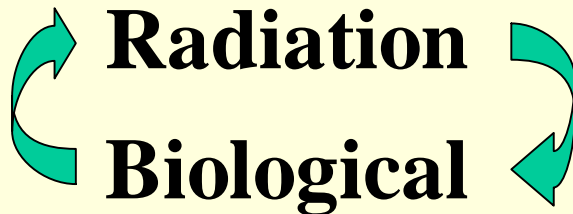
**Impact**

**Bomb**

**Biological**

**Toxic chemical**

**Nuclear**

 **Radiation**

**Toxic chemical**

**Biological**

**Radiation**

**Nuclear**

**Bomb**

# Australia's Assets in Fighting Terrorism

- Cohesive society
- Public trust in government
  - **Probity & Rule of Law**
  - **Efficient administration**
- Strong and effective industry sector
- Expert health work-force
  - **Professional & private sector**
  - **States & public health networks**
  - **Universities**
- Strong scientific and research sector
- Responsible and independent media

# Conclusion

- **Lessons from Bali, Madrid and the AHD MPC Audit have identified both strengths and weaknesses in Australia's health response in an emergency**
- **In partnership with States and Territories, national strategic plans (eg burns plan, transport plan) are being enhanced to improve Australia's response capacity**

**There is no terror Cassius, in your threats;  
For I am armed so strong in honesty  
That they pass by me as the idle wind,  
Which I respect not.**

**Shakespeare (1599)**

***Julius Caesar Act 4 Sc 3***