



# **Biothreat Preparedness – the Finnish Perspective**

Biodefence workshop

October 31, 2006

Oslo, Norway

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Finnish Defence Forces



# **Biothreat Preparedness – the Finnish Perspective**

**New Threats**



# *Category A B-agents (CDC) based on their risk to national security*

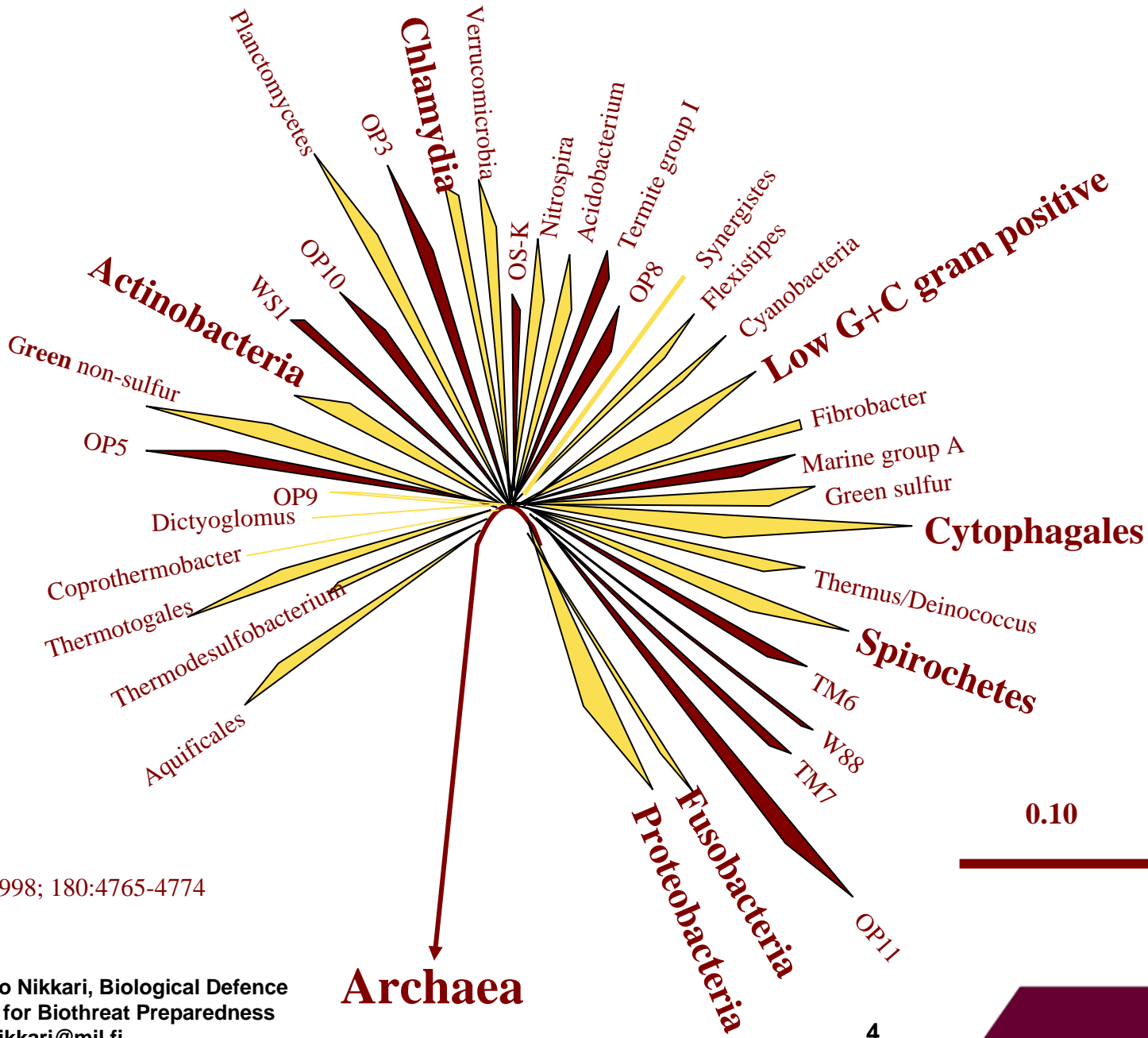
- Anthrax (*Bacillus anthracis*)
- Botulism (*Clostridium botulinum* toxin)
- Hemorrhagic fevers (Ebola, Marburg)
- Inhalation tularemia (*Francisella tularensis*)
- Plague (*Yersinia pestis*)
- Smallpox (variola)



# **Biothreat Preparedness – the Finnish Perspective**

**BW threats in the light of microbial  
environmental diversity**





J. Bacteriol. 1998; 180:4765-4774



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# The worst Bioterrorist may be Nature itself



# *Newly Emerging and Re-Emerging Diseases*

- New Diseases
  - SARS, (HIV/AIDS)
- Re-Emerging Diseases
  - West Nile virus
  - Multiresistant Tbc
  - Influenza A
- Deliberately Emerging Diseases
  - Bioterrorism



# ***Newly Emerging and Re-Emerging Diseases***

- New Diseases
  - SARS, (HIV/AIDS)
- Re-Emerging Diseases
  - West Nile virus
  - Multiresistant Tuberculosis
  - Influenza A (H5N1, H2N2 etc.)
- Deliberately Emerging Diseases
  - Bioterrorism

**Cumulative Number of Confirmed Human Cases of Avian Influenza A/(H5N1) Reported to WHO**

**Oct 16, 2006**

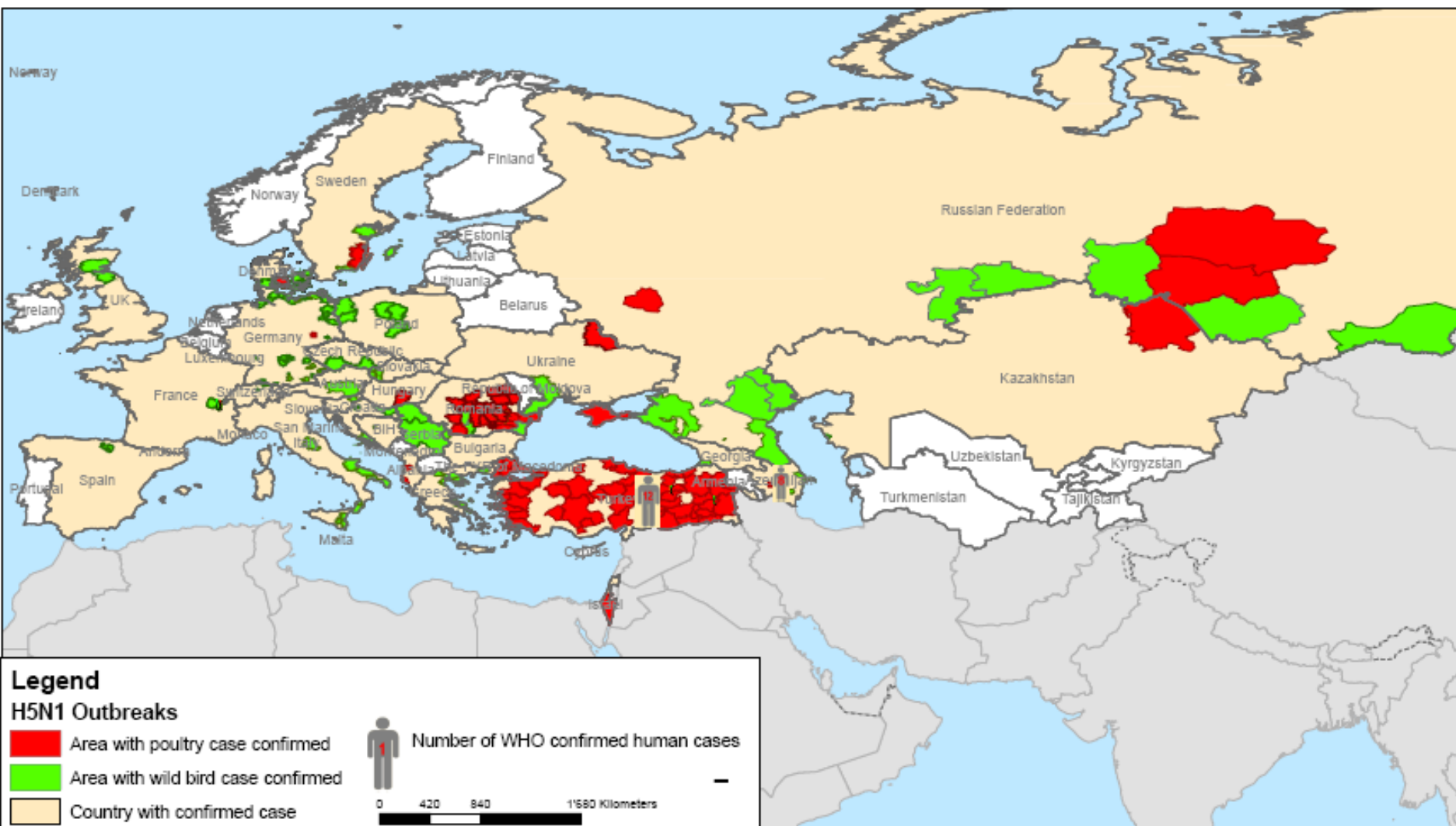
**151 deaths/256 cases**





# WHO/Europe - Avian Influenza Infections A/H5N1

## Areas affected since 01 July 2005 - Status as of 06 October 2006



**Influenza A H2N2**



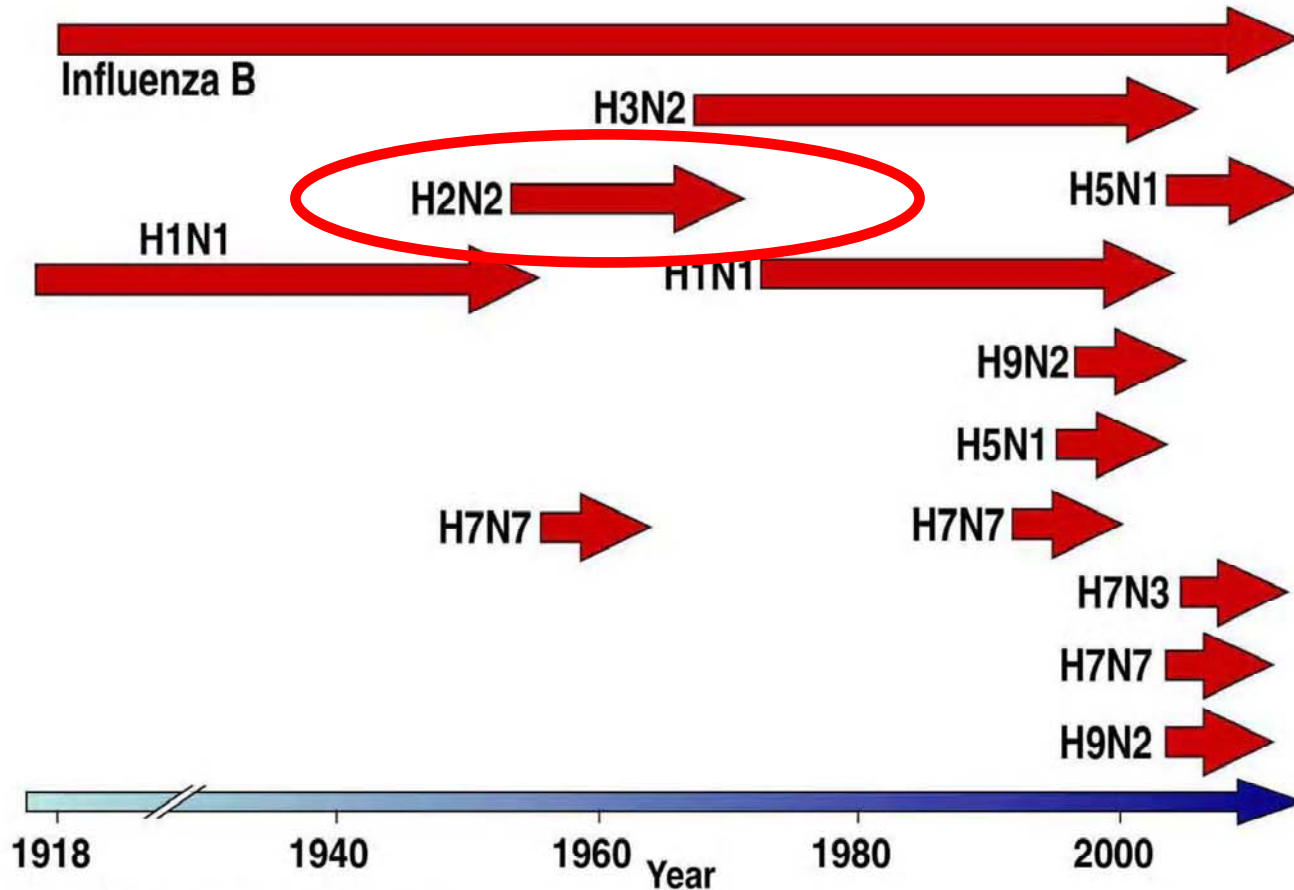
**Biosecurity**

**Biosafety**

**14.4.2005 ATLANTA, Georgia  
(CNN) – Authorities are doing everything possible to ensure samples of a killer influenza virus sent to more than 4,000 laboratories worldwide are destroyed before anyone becomes infected, a top U.S. disease expert says.**



# Influenza Viruses Infecting Humans



Adapted from *Nature Medicine* 10, S82-S87 (2004)



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**Centre for Biothreat Preparedness**

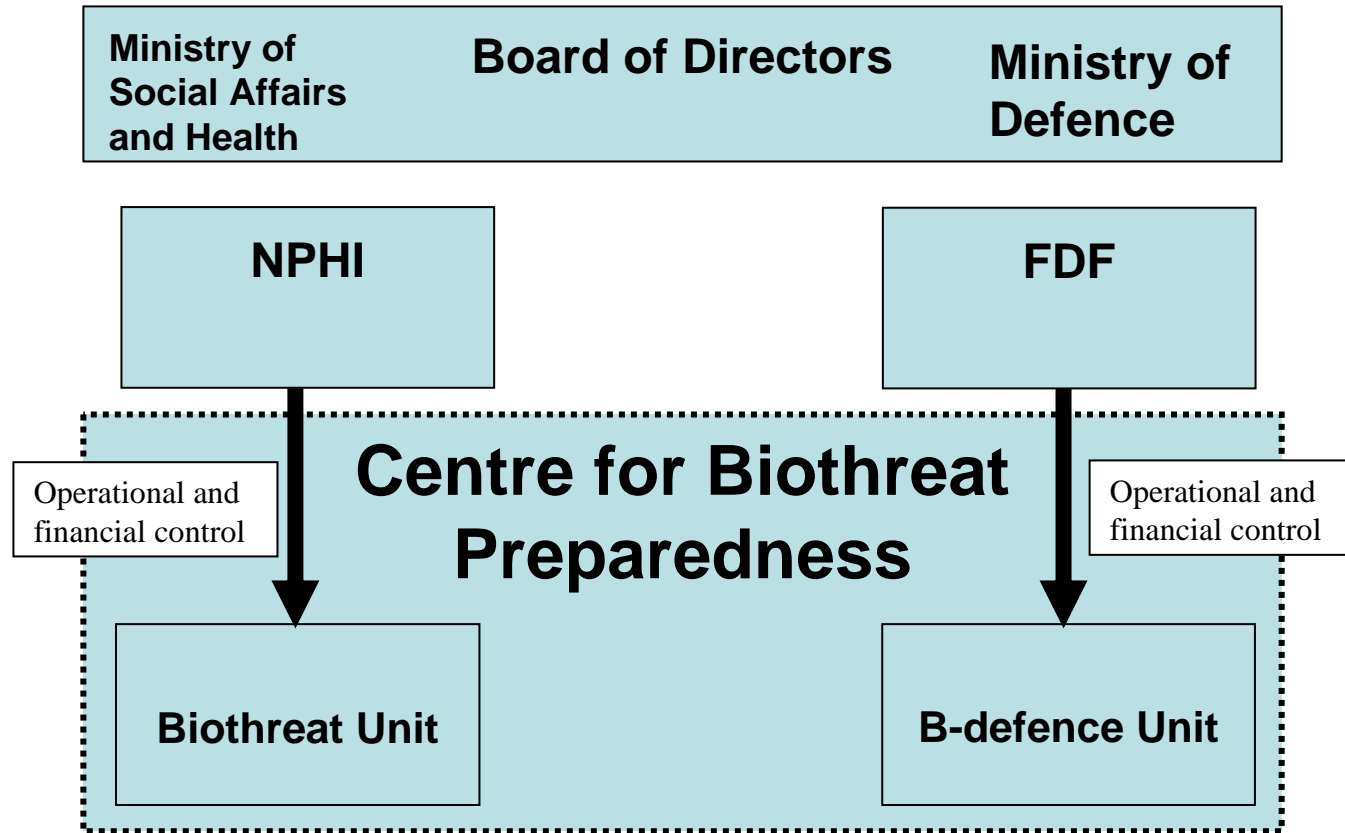


# Charter

- On 27 April 2005 the Ministry of Social Affairs and Health and the Ministry of Defence agreed to cooperate in the provision for biological threats.
- On the same day the Surgeon General of the Defence Forces and the Director-General of the National Public Health Institute signed an agreement on the organization of a joint centre of excellence for biological threat preparedness.



# Organization



**NPHI = National Public Health Institute**

**FDF = Finnish Defence Forces**



# Goals

- Efficient national research of and provision against biological threats
- Capability to evaluate biological threats
- International cooperation





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# **Biothreat Preparedness – the Finnish Perspective**

**Centre for Biothreat Preparedness –  
R&D Efforts**



# Biological vs Chemical

- Available from nature
  - Not volatile
  - Not dermally active
  - Odorless and tasteless
  - Aerosol delivery
  - Delayed onset
  - Can replicate in host and be contagious
  - Delayed identification
  - **Rapid ID may provide the possibility for medical intervention using antibiotics and vaccines**
- Man-made
  - Many volatile
  - Many are dermally active
  - Mist / droplet / aerosol delivery
  - Rapid onset
  - Do not replicate and are not "contagious"
  - Real-time detection available



# **Biothreat Preparedness – the Finnish Perspective**

**The Finnish Deployable Analytical  
NBC Laboratory**



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**Thank you  
for your  
attention!**



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