

Increasing Impacts of Animal Disease on Human Health.....

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Approach

- **Background**
- **Case example**
 - Avian influenza
- **Socio-economic Impacts**
- **Eco-health**
- **Conclusion**

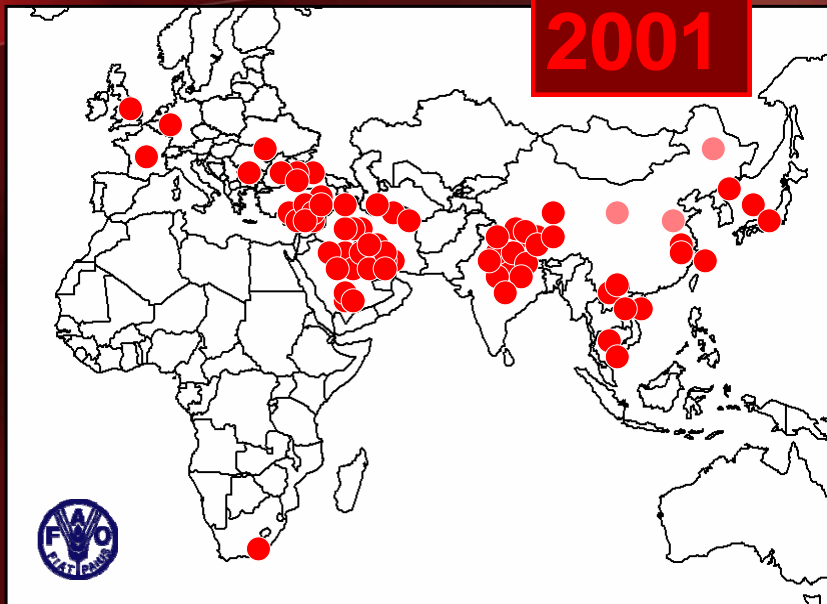
Background (1)

- **US Surgeon General; 1967**
 - “time to close the book on infectious diseases”
- **Australia; 1970s**
 - “decline” in animal health services

Background (2)

- **But what was happening?**
 - 75% of emerging pathogens of humans zoonotic
- **Zoonoses**
- **Emerging and re-emerging diseases**
- **Transboundary diseases**

FMD - evolution of S-Asia toptype



Examples of some Zoonoses

- **Animal Reservoirs**
 - Anthrax; rabies; West Nile; Nipah; Hendra
- **Well established in humans**
 - TB; salmonella
- **Occasional Outbreaks: humans**
 - Monkeypox; Ebola; Hanta

Examples of some Zoonoses

- **Human to human transmission**
 - TB
- **Sudden appearance in humans**
 - HIV; influenza type A; SARS; BSE
- **Some novel/emerging diseases in Australia**
 - Hendra; Menangle; bat Lyssavirus; porcine myocarditis; feline spongiform encephalopathy

Predisposing Factors

- Demographic changes
- Intensive production
- Tourism
- Trade
- War
- Climatic changes
- Environmental change
- Bioterrorism

One Medicine

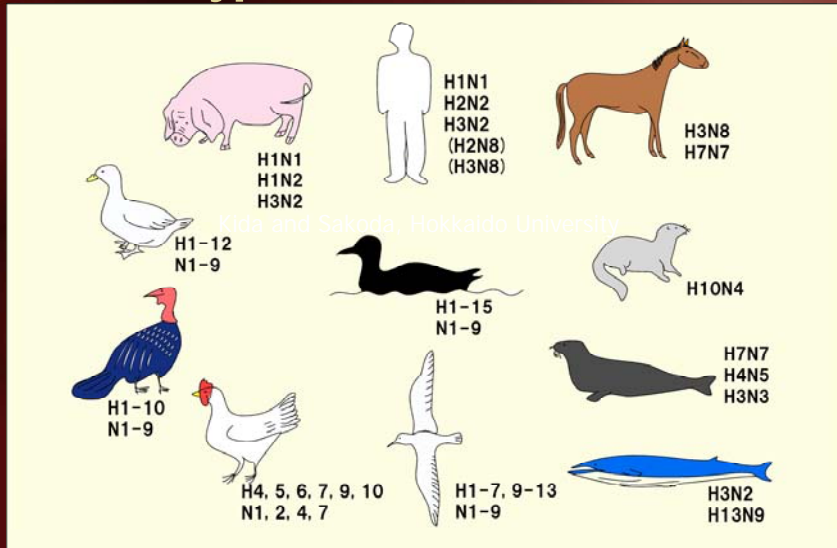


- Risk

Avian Influenza

- Nature of influenza viruses
- Influenza in animals
- H5N1
 - Breaking the rules
- Pandemic flu in humans

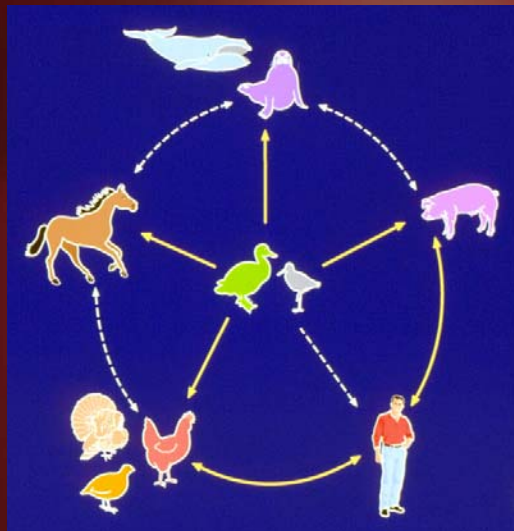
Host animals & HA and NA subtypes of influenza A virus



Kida and Sakoda, Hokkaido University

The Ecology of Influenza Viruses

- That there are a limited number of host specific lineages of influenza viruses
- There is a geographical separation into Eurasian and American lineages

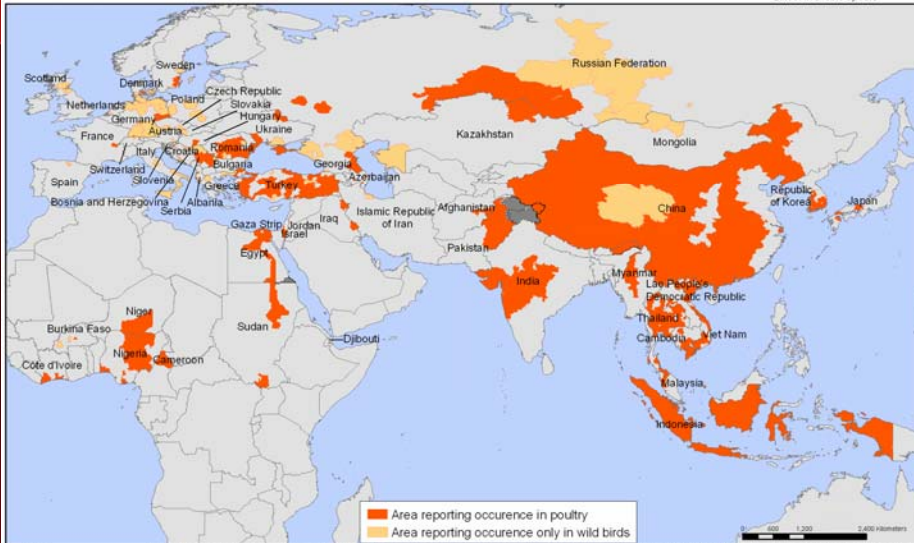


Robert Webster, St Judes Childrens' Hospital

Avian Influenza

Areas reporting confirmed occurrence of H5N1 avian influenza in poultry and wild birds since 2003

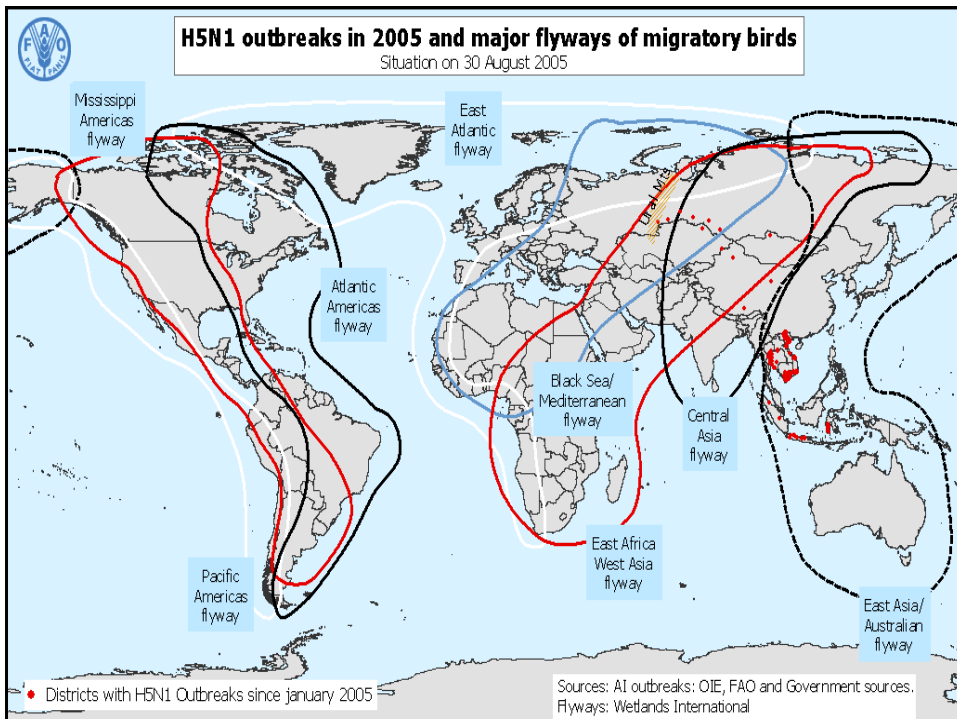
Status as of 4 October 2006
Latest available update



World Health Organization
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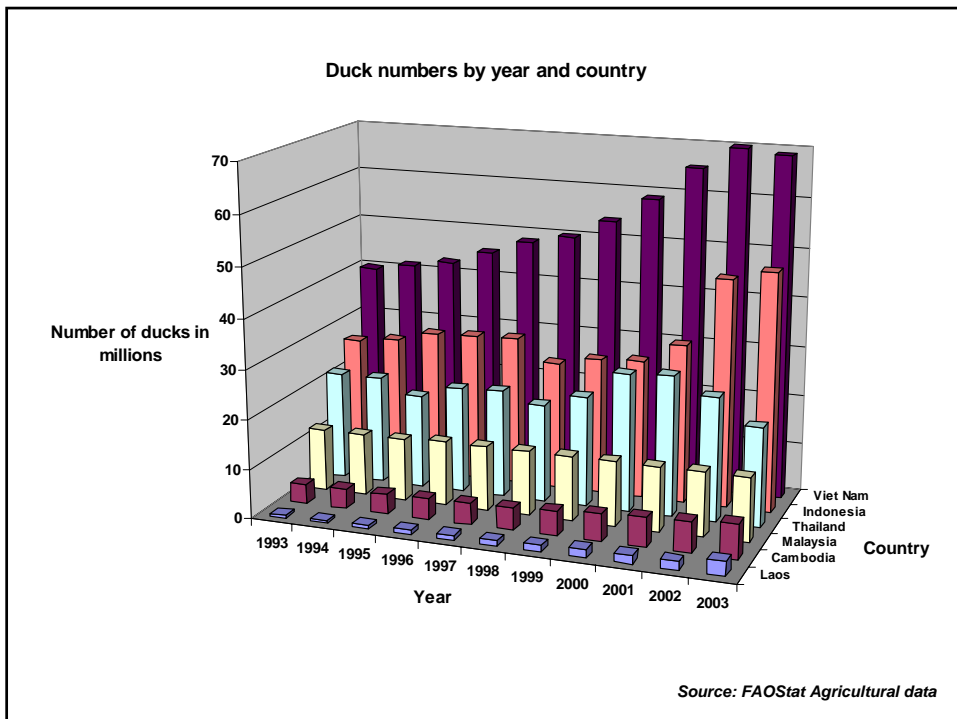
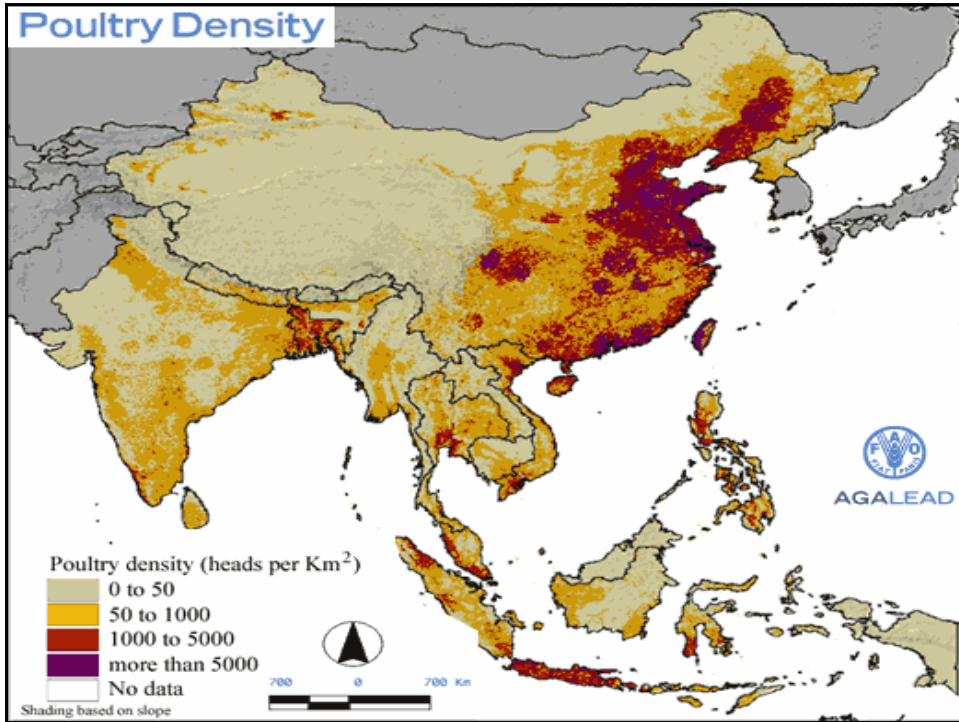
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Organisation for Animal Health (OIE) and national governments
Map Production: Public Health Mapping and GIS
Communicable Diseases (CDG) World Health Organization



• Districts with H5N1 Outbreaks since January 2005

Sources: AI outbreaks: OIE, FAO and Government sources.
Flyways: Wetlands International





Socio-economic Impacts

- **H5N1 (World Bank)**
 - Regional impacts up to 0.7% GDP
 - 0.2% global workforce
 - Changed agricultural/marketing practices
- **Severe Pandemic influenza (World Bank)**
 - Up to 3% global GNP
 - \$1 – 2 trillion
- **SARS (ADB)**
 - \$60 billion

Eco-health

- Risk
- Concept
- Disciplinary approaches
- "Common" language

CONCLUSION

- Risk ↑
- Invest in prevention

