Wildlife Disease Surveillance and Investigations

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Environmental Health

- Wildlife Health
- Plant Health
- Domestic/Pet Health
- Human Health
What Creates the Need for Disease Investigations of Wild Animals?

• The primary reasons are reflected by values which are culturally based and highly variable. **Subsistence vs recreation.**

• The level of importance and associated financial support is economically based. **Human Health > Domestic Animal Heath > Wildlife Health**
In the Weeds

- Carcass numbers need to be great enough to be noticed. *Scavengers*
- Area must be accessible and animals observable.
- There needs to be a local reporting system that feeds into a larger regional/national system.
Surveillance
Field investigation and response

Training, outreach, information transfer

Surveillance
Field investigation and response

Diagnostics

Epizootiology
Microbiology
Parasitology
Pathology
Statistics/Modeling
Toxicology/Chemistry
Veterinary Medicine
Virology
Wildlife Ecology

Field and lab research
Why are Disease Investigations of Wild Animals Important?

- Because outbreaks can dramatically affect wild populations.
- Which can have a dramatic affect on local ecosystems.
- Outbreaks can be an indication of environmental damage/introduction of new diseases.
- Type/intensity/location of zoonotic diseases in wildlife.
- Potential bioterrorism attack/testing/practicing.
Requirements for Effective Wildlife Disease Surveillance

• Greater awareness and understanding
• Substantial resources to build or improve capabilities
• Clarified roles and responsibilities
• Mandate for reportable wildlife diseases
• Standardization of observations and reporting
• Global data clearing house for reporting
Where’s the Data?

- There are some international programs, FAO, OIE, GAINS.....limited and voluntary reporting.
- In USA, some federal, state, university-based reporting but not coordinated on a national scale.
- Most local data is in file cabinets or desk drawers.
The Three Legged Stool

Surveillance

Wildlife Health

Human Health

Domestic Animal Health
Mortality, All Causes - White Males: 1988-1992
Age Adjusted Death Rate per 100,000
Can animals - like canaries in coal mines - warn humans about chemical, infectious, and physical environmental hazards?

We select, curate, and index 1000s of scientific studies from MEDLINE, CAB Abstracts, and Agricola so you can review the evidence of animals as "early warning" sentinels of human health hazards.

Try it now! Find evidence of animal as sentinels:

...for environmental hazards:
- Dogs and Lead
- Birds and West Nile Virus

...for diseases:
- Cancer and Whales
- Reproduction and Fish

...by location:
- Anthrax and Sverdlovsk
- West Nile Virus and New York City

Or, try the advanced search page, or read more about how to search.
Welcome to the unified wildlife event reporting system

Partners:
- SEA NET
- Tufts University
- U.S. Fish & Wildlife Service
- USGS
- NBII
- WDIN

Options:
- Add Event Report
- View Event Report Details
- View Event Reports Map

Wildlife Health News:
- WDIN News Digest
- USGS NWHC AI News

(Wildlife Health Monitoring Network)
Potential Wildlife Disease Reporting System

International Surveillance

- Federal Resource Agencies
- Federal Wildlife Health Agencies
- Local Resource Agencies
- Public
- Human Health Agencies
- Veterinarians

National Surveillance

- State Resource Agencies
- State Wildlife Health Agencies
- Tribal Resource Agencies
- Wildlife Rehabilitators
- Domestic Animal Health Agencies
International Agencies

- **OIE**
  - Working Group on Wildlife Diseases

- **FAO**
  - Wildlife Disease Programme
  - Crisis Management Centers

- **WHO**
  - Alert and Response Operations
Possible HPAI Insights from Animal – Human Case Data

- Preliminary analysis shows that animal surveillance data may accurately predict human risk, but only if other variables are taken into account (that estimate human-animal contact risk)*

- We need to understand what factors determine linkage (and go beyond showing cases as only dots on a map)

*Rabinowitz, 2008: personal communication
## National Surveillance Programs

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<td>Australia</td>
<td>2002</td>
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</tr>
<tr>
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</tr>
<tr>
<td>France</td>
<td>1986</td>
<td>545,000 (wild and domestic)</td>
</tr>
<tr>
<td>UK</td>
<td>1998</td>
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Wildlife Disease Informatics Working Group

- Suggested at 2007 Wildlife Disease Association Meeting
- Participation from 6 countries
  - National governments, Universities, NGO’s
- Projects
  - Inventory of surveillance programs
  - Selection of core shared data elements
  - Agreements on data standards
Wildlife as a Component of Global Emerging Zoonoses Surveillance

- Recognition of relevance
- Infrastructure enhancement
- Understanding burden of infection
- Communication and information exchange
- Data standards / Data sharing
USGS National Wildlife Health Center
http://www.nwhc.usgs.gov

NBII Wildlife Disease Information Node
http://wildlifedisease.nbii.gov/

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