WHO Global Influenza Program:
(Human-Animal Interface Team)

HPAI Activities

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Current Activities

- WHO Working Group on Influenza Research at the Human-Animal Interface
- Live Animal Market project (Indonesia)
- Nomenclature standardisation
- Sequence linking
- Assessment of HPAI virus infections in humans
1. WHO WG on Influenza Research at the Human-Animal Interface

- Made up of researchers from H5 Labs, WHO Collaborating Centers, other research Institutes, and national labs from affected countries (includes several members of OFFLU)
- Last meeting Sept 2006 in Geneva
  - Diagnosis in humans
  - Pharmaceutical interventions
  - Results from animal surveillance
  - Virulence and pathogenicity factors
- Report available on WHO website
- Helps set the agenda for the WHO GIP HAI team
1. WHO WG on Influenza Research at the Human-Animal Interface (2)

- HAI-relevant recommendations:
  - Improve virological surveillance and monitoring of the evolution of H5N1 virus strains in animals as it directly relates to human health
  - Standardise nomenclature for grouping H5N1 viruses into clades and lineages
  - Identify factors affecting transmission of the virus to humans and associated interventions
  - Improve understanding of human H5N1 exposure/infection/disease relationships, including development of better diagnostic tools
  - Promote rational vaccination of poultry according to OIE / FAO guidelines
2. Live Animal Market project (Indonesia)

- WHO/FAO field collaboration
  - Development
  - Implementation

- Goal: To better understand points of environmental contamination in Live Animal Markets
  - Guide development of risk reduction measures

- Activities:
  - Collection of data and samples
  - Specific protocol still under discussion
3. Standardised Nomenclature System

- **Goal:** To establish a standard methodology for categorising H5N1 viruses into clades/subclades, and for generating trees

- **Activities:**
  - Draft system is being developed by CDC Atlanta and HKU
  - Small working group of researchers (e.g. WHO, HKU, CDC, VLA, Harbin, Geelong) will comment on/contribute to proposed system
    - perhaps via consultation
  - Agreed final version will be made public
    - optimally as WHO/FAO/OIE joint recommendations
  - Initial system based on HA sequence will later be expanded to include antigenicity and full genome evaluation (genotyping)
4. Virus Tracking/Sequence Linking

- Goal: To allow global tracking of H5N1 virus evolution, allowing identification of:
  - new strains with pandemic potential
  - new genetic/antigenic variants that could impact diagnostics and vaccine development

- First must be able to link virus isolates and sequences temporospatially with human cases and animal outbreaks

- Activity: Establish a useful platform to provide these linkages to bioinformaticists and other researchers

- Tools in development:
  - 'Real time' global timeline containing official/unofficial data, rumours, and activities
    - WHO, OIE, FAO, GLEWS, COs, ROs, sequence databases (NCBI/LANL), publications, personal communication
    - Current & retrospective since 1996 Guandong Goose
  - Sequence spreadsheets
  - Maps
<table>
<thead>
<tr>
<th>accession</th>
<th>strain name</th>
<th>host</th>
<th>age</th>
<th>gen</th>
<th>country</th>
<th>province/governorate/state</th>
<th>place</th>
<th>submitting institution and date</th>
</tr>
</thead>
</table>

All accessions in NCBI and LANL listed.

Sequences available **NOT** linked to cases.

Sequences available **ARE** linked to cases.
5. Assessment of HPAI virus infections in humans

- **Goal:** To improve understanding of human H5N1 exposure/infection/disease relationships
  - In particular, to understand the extent of subclinical human infections
- **Currently,** subclinical human infection is detected using microneutralisation assays
  - not widely available
  - highly dependent on antigenicity of circulating strain
  - limits data gathering
- **Activities:**
  - Compile and evaluate currently available data on human cases
  - Promote development of better serologic (and other diagnostic) tools
Epidemic and Pandemic Alert and Response
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.

Due to data entry concerns, Shanxi and Shaanxi provinces have been combined.

Provinces with confirmed H5N1 cases in humans since 1997

Provinces with reported H5N1 outbreaks in birds since 1997

Data source: WHO/EPR/GIP, OIE, NCBI, LA