Summary of animal health information relevant to human exposure to avian influenza H5N1 in Vietnam

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Presentation Outlines

1. Livestock production of Vietnam
2. H5N1 situation in animals
3. H5N1 control measures in poultry
4. Country-specific risks
5. AH/PH collaborations
6. Acknowledgements
## 1. Livestock production
*(2002 – 2007 (Thousand)*)

<table>
<thead>
<tr>
<th>Year</th>
<th>Buffalo</th>
<th>Cattle</th>
<th>Pigs</th>
<th>Goat/Sheep</th>
<th>Poultry (Mil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>2.814</td>
<td>4.062</td>
<td>23.170</td>
<td>0.622</td>
<td>233.3</td>
</tr>
<tr>
<td>2003</td>
<td>2.835</td>
<td>4.395</td>
<td>24.885</td>
<td>0.780</td>
<td>254.0</td>
</tr>
<tr>
<td>2004</td>
<td>2.869</td>
<td>4.908</td>
<td>26.144</td>
<td>1.020</td>
<td>218.1</td>
</tr>
<tr>
<td>2005</td>
<td>2.920</td>
<td>5.540</td>
<td>27.730</td>
<td>1.310</td>
<td>219.9</td>
</tr>
<tr>
<td>2006</td>
<td>2.920</td>
<td>6.510</td>
<td>26.850</td>
<td>1.500</td>
<td>214.56</td>
</tr>
</tbody>
</table>

## 2. H5N1 situation in animals (1):
*Temporal distribution*

**Temporal Pattern of HPAI outbreaks in Vietnam** From Jan 2004 to Dec 2007

- **1st wave: 2003/4**
  - 45 ml. Poultry culled

- **2nd wave: 2004/5**
  - 2 ml. Poultry culled

- **3rd wave: late 2005**
  - 4 ml. Poultry culled

- **4th wave: end 2006/early 2007**
  - 99,040 Poultry culled

- **5th wave: mid–end 2007**
  - 169,188 Poultry culled

**Data source:** DAH and WHO

FAO-OIE-WHO scientific consultation on avian influenza at the human animal interface
Verona, Italy, 7-9 October 2008
2. H5N1 situation in animals (2):
Spatial distribution, 1st wave (2003-2004)

2. H5N1 situation in animals (3):
Spatial distribution, 2nd wave (2004-2005)
2. H5N1 situation in animals (4):
Spatial distribution, 3\textsuperscript{rd} wave (late 2005)

2. H5N1 situation in animals (5):
Spatial distribution, 4\textsuperscript{th} wave (Dec 2006 – Mar 2007)
2. H5N1 situation in animals (6):

Spatial distribution, 5th Wave (5-7/2007)

2. H5N1 situation in animals (7):

HPAI in 2008: Sporadic outbreaks

- Totally, 97 outbreaks occurred in 74 communes of 51 districts in 27 provinces. 75,470 birds culled (29,048 chickens & 43,457 ducks, plus 2,965 Muscovy ducks).

- To date, only one province (Ca Mau) where AI outbreak have been reported within the last 21 days.
2. H5N1 situation in animals (8):

- Species affected: almost all domestic poultry was affected during the three waves; during the 4th and 5th waves, most of species affected have been ducks and chickens.

- Poultry sector(s) affected: All sectors was affected during the first wave of AI outbreaks (2003-2004). Sectors 3 and 4 are the most vulnerable during the subsequent waves. Especially when vaccination start (2005), the majority of infected flocks have been those of Sector 3.

- Evaluation of level of outbreak reporting: it is evidence that there is a certain level of outbreaks from Sector 4 that went unnoticed. Inadequate compensation would be one of reason contributing to the under-reporting.

3. H5N1 control measures in poultry (1)

- Mass vaccination and post-vaccination monitoring, backed up by vaccine efficacy trials;

- Improved disease surveillance with focus on community-based and risk-based surveillance, including also enhanced surveillance of AI in wild birds;

- Outbreak containment: rapid response by culling (of birds within infected flock) with compensation;

- Strict animal movement, especially border control;

- Restructuring of poultry production, marketing and processing (slaughtering);

- Improved communication and education.
3. H5N1 control measures in poultry (2):

**vaccination program**

- Since 2005, mass vaccination was implemented nationally;
  - Phase 1 (2005-2006) 640M doses: 365M doses H5N1 + 275M doses H5N2
  - Phase 2 (2007-2008): 1009M doses: 1000M doses H5N1 + 9M doses H5N9. Besides, there were 16.7M doses H5N2 donated by OIE.
- The goal vaccination is to reduce the virus circulation rather than elimination of virus.
- The serological monitoring and virological surveillance activities show that vaccination works adequately.

4. Country-specific risks

- Farming system: Backyard poultry production system is dominant.
- Cock fighting: is a particular risk for human exposure.
5. AH/PH collaborations

• Though a lot of improvements have been made through joint outbreak investigations and exchange of viruses, further collaborations are still required.
• Laboratory cooperation between animal health and public health needs to be strengthened.
• WHO and FAO is trying to bring AH-PH closer (possibly with the use of a broader umbrella with zoonosis as the key area).

6. Acknowledgements

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• National Centre for Veterinary Diagnostics.
• Regional Animal Health Offices.
• FAO and various donors…