Retrospection into Avian Influenza Outbreak in Vietnam during 2003-04

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Poultry production in Vietnam

Number (2004):
- Chicken = 192 millions
- Ducks = 69 millions
- Total = 261 millions

Chicken meat production:
- 375 000 t to 700 000 t / year
- = 17% of total meat products (Pork: 75%)

Consumption:
- 60 eggs / person / year
- 4 kg chicken meat / person / year
Density of poultry in Vietnam

Source: LEAD FAO
Year: 2002
Map prepared by LEAD - FAO
installation
Highly Pathogenic Avian Influenza in Vietnam 2003-04
Outbreak and Spread of HPAI

Ha Tay
27/12/03

Long An, Tien Giang
23/12/03
Outbreak and **Spread** of HPAI

4 weeks post outbreak

6 weeks post outbreak
Particularities of HPAI (H5N1) in Vietnam 2003-04

- Super virulent in chickens
  - sudden death
  - not typical lesions at the end
- Not only chicken but also ducks affected
- Mortality: chicken > ducks
- Fatal cases in humans
  - 15 death out of 23 confirmed cases
- Patchy but simultaneous cases
- Cases in industrial chickens > scavenging ones
CONTROL MEASURES
Diagnosis
Diagnosis
Diagnosis

- Pasteurellosis
- Influenza by HA and HI, RT-PCR.
- N1 identification by CDC
- Number of samples increased rapidly.
- By epidemiological definition.
Government reactions

- **23 Dec**: Declaration, DAH responsible
- **28 Jan**: Steering Committee, MARD
- **4th Feb**: Banning bird movement and consumption. Gov. members to provinces
- **6 Feb**: Directive 35 of Polibureau. Outbreak decreasing
- **26 Feb**: last new case reported.

Effective but not in time
Number of communes New cases) that declared the new cases of HPAI

February 2004

Banning bird movement and consumption
## Control measures

<table>
<thead>
<tr>
<th>Administrative</th>
<th>Technical</th>
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<tbody>
<tr>
<td>• Detection,</td>
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<td>• Quarantine,</td>
<td>• Quarantine,</td>
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<tr>
<td>• Stamping out,</td>
<td>• Stamping out,</td>
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<tr>
<td>• Disinfection,</td>
<td>• Disinfection,</td>
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<tr>
<td>• Compensation,</td>
<td>• Compensation,</td>
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<tr>
<td>• Awareness,</td>
<td>• Awareness,</td>
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<tr>
<td>• No vaccination</td>
<td>• No vaccination</td>
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</tbody>
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Positive factors

• Determination of the Gov. (4th Feb.)
• Decision on banning,
• Population organized,
• Awareness (TV, Newspaper, Radio…),
• Objective reasons: virus virulence, human cases,
Could it be better?

- **Natl. Steering Committee 1 month after.**
  - Human case, Diagnosis, Institutional, …
  - Tet (Lunar New Year: 1st Feb)
  - Scientist discussions
  - Delay = Disease spreading

- **No preparedness:**
  - Diagnosis,
  - Compensation policy,
  - Institutional,
  - Human

Unanimity is primordial in fightings
Consequences

◆ 57 out of 64 provinces affected
◆ 40 million birds have either died or been destroyed (Aprox. 20% of total population)
◆ Estimated economic loss
  ➢ Total US$ 120 million
    • Direct loss = 40 million
    • Indirect loss = 40 million
    • Cost of containment = 40 million
Influenza (H5N1) infection in Humans in Vietnam

- Exposure history to ill or dead chickens
- No disease among cullers
- No human to human transmission proved

- Total of 23 deaths in 33 confirmed cases
  - 15/22 in Vietnam, 8/11 in Thailand
- Prevalence in humans: under investigation
  - 10% of poultry workers sero-positive in Hong Kong 1997
  - 20% of poultry workers sero-positive in Netherland 2003
Lessons learnt

- Early and accurate detection.
- Transparency and gov. determination timely.
- Unanimity on an updated understanding,
- Compensation (unanimous) policy.
- To alert but not to frighten
- Systematical surveillance (zoned at-risk-group)
- Awareness (Vet & Medical Corps first)
- Interest affected differently.
Lessons contd.

- Measures adapted to the actual situation.
- Evidence proved again that human Infl. comes from birds.
- AI virus can readily infect humans and other mamalians directly.
More questions arisen

• An immunity driven H5N1 AI virus?
• AI virus readily infect humans. What determine the species barrier?
• Were pigs infected by H5N1?
• LPAI can induce avian pandemic after becoming HPAI virus. Human pandemic needs absolutely in-mamal’s reassotted virus?
• Bird to human way of transmission?
Thank you
Fairy tale of tomorrow:

Long long ago, the ducks and the chickens were still free, they were friends and shared the same sweat home.