Avian Influenza policy in The Netherlands

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Devastating outbreak of HPAI type H7N7 in 2003

- Both chicken and turkey farms infected
- Mortality 90-100%
- Pre-emptive culling practiced in increasing circles of 1 to 5 km’s around an outbreak
- 30 M birds killed and destroyed in 3 months!
How could this happen?

- Highly developed poultry industry
- High biosecurity standards
- Veterinary service with all needed resources
- Experience with animal health crises (CSF and FMD)
Lessons learned

- Every disease is different and needs specific preparation and exercise
- Effective early action is crucial and should not be hampered by a lack of preparedness or for logistic reasons (for instance killing capacity)
- Highly developed poultry industry is very vulnerable for HP AI!
Vulnerability of industrialized poultry industry

- Specialization: breeder + hatchery; multipliers + hatcheries; layer hen raising farms; layer hens and broiler farms → interdependence/movements
- Large farms: average 20,000 layer hens/70,000 broilers → difficult to kill quickly; enormous virus multiplication
- High density: farms often not more than a few hundred meters apart → rapid spread; also by air?
Lessons learned (3)

- HPAI spread in areas with a high poultry density may be too fast to control by standard methods
- Complete separation of infected and non-infected areas may be necessary (people, lorries etc)
- Vaccines need to be improved for use in ring vaccination in densely populated areas
Lessons learned (4)

- Problems with hobby keepers of poultry need to be dealt with adequately
- Local wild birds may become infected with HPAI
- Public health consequences underestimated. Many workers in the eradication campaign were found to be seropositive and one person died of bird flu
- Cooperation with health officials necessary in preparing for and during a crisis
- Objective communication on human risks is important
Present policy (similar preventive measures in all member states)

- Restriction of imports
- Information to travellers
- Increased vigilance at outside borders
- No hunting with decoys
- Intensified monitoring of wild birds; harmonized action if H5N1 positive wild birds are found
- Inside feeding of free-range poultry
- Biosecurity awareness campaigns to all involved
2. Additional national measures

- **Syndrome surveillance**: obligatory notification of slight production drops and less water and feed intake
- **Serological monitoring** of all poultry flocks once a year and for flocks with a high risk profile (free-range flocks, turkeys) every 3 months
- Mainly aimed at detecting LP H5 and H7 infections
3. Early detection and eradication of all Highly Pathogenic AI strains

- NPAI notifiable for owners and veterinarians
- Official team investigates all suspicions; all samples transported to NRL in Lelystad
- Actions taken according to an agreed, published and trained contingency plan, based on EU legislation
- Rapid compensation of owners
- In The Netherlands: preventive culling around outbreak
4. Other activities

- **Vaccine development**: government funded project to develop easy to administer vaccine with fast response for use around an outbreak in a densely populated area.

- **Fighting the disease in endemic areas**: active support to H5N1 control in several countries, both bilateraly (Indonesia) and through international organizations, such as UNDP (Vietnam), FAO (Egypt), EU and World Bank.
Thank you for your attention
Virus characteristics

- Highly virulent: IVPI = 2.94
- All genes of avian origin
- H7 closely related to: Influenza A / mallard /2000 H7N3
- N7 closely related to: Influenza A / Northern shoveler/ 1999 H11N7
Facts:
- Free range chickens, two flocks on one farm
- Poultry in flock 1 positive serology, but no clinical AI
- Poultry in flock 2 high mortality, but no serology

Hypothesis:
- LPAI infection by wild ducks; circulation in flock 1
- Mutation into HPAI prior to or shortly after infection of flock 2
- Full blown clinical HPAI causing disease
Outcome of 2003 epidemic

- 241 farms with H7N7 AI confirmed
- 1086 farms preventively culled
- 30 million birds culled, nearly two third preventively killed flocks
- 17,000 “hobby flocks” culled, generating much resistance
Killing of birds inside the houses

- Close and seal all openings with plastic, shut of ventilation and light
- CO: 1.5 to 2% for 30 –60 min.; careful! Assistance of fire brigade needed
- CO 2: liquid or preheated, slowly up to 40%; 30 – 60 minutes
- Thoroughly ventilate before emptying
- Co2 method is preferred on animal welfare grounds, spread of virus and human risks
KILLING OF BIRDS OUTSIDE

1. Small mobile containers filled with CO2
2. Larger containers of 35 cubic meters prefilled with CO2
3. Mobile electrocution lines

Disadvantages:
- Animal welfare (handling stress, painful immediate high concentrations of gas; electrocution needs experience)
- Risk for virus spread
- Risk for human infections
Literature

M.A. Gerritzen et al:
Slaughter of poultry during the epidemic of avian influenza in the Netherlands in 2003

The Veterinary Record July 8, 2006
Measures taken

- Total standstill of animal transports for 72 hours
- Export immediately stopped
- Stamping out of infected flocks and contact flocks; cleaning and disinfection
- Protection zone (radius 3 km)
- Surveillance zone (radius 10 km)
- Tracing and screening
- Pre-emptive culling in zones of 1 km, then 3 km, and later even larger buffer zones