

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

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FAO-OIE-WHO scientific consultation on avian influenza at the human animal interface
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H5N1 situation in animals (1)

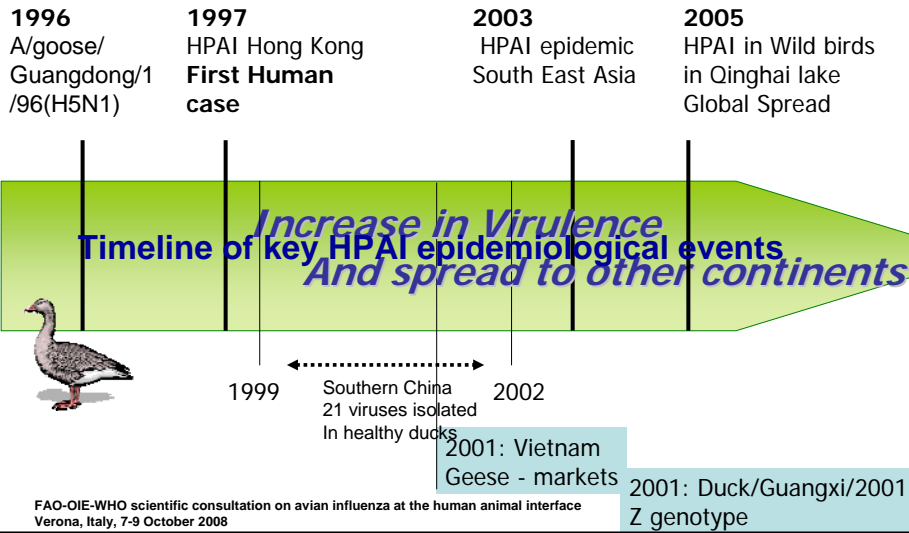
- Total poultry population of country

China is one of the largest countries for poultry production in the world, with the production of domestic poultry totaling 17.2 billion in 2007, accounting for 20% of the total amount of global poultry production. Among the 17.2 billion poultry, over 60% are bred in small scale farms or in backyards. China is home to an even larger population of waterfowl, that encompasses approximately 70% of the world total.

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Animal health sector

Geographical distribution and timeline of animal outbreaks



HPAI, H5N1 outbreaks in domestic poultry in China (2004-2008)



Legend
● HPAI, H5N1 outbreaks in China



H5N1 control measures in poultry

- Control measures currently in place to reduce circulation of H5N1 in poultry (briefly)

A culling plus vaccination mixed strategy is used for the control of outbreaks of highly pathogenic avian influenza in China. After the final confirmation of a highly pathogenic H5N1 avian influenza infection, all of the poultry within a 3 kilometer radius should be depopulated. Disinfection and movement control are implemented for 21 days after the poultry depopulation. Any existing live bird market within a 10 kilometer radius will be shut down for at least 21 days.

H5N1 control measures in poultry

- Short description of poultry vaccination program
 - Vaccination program was initiated in China in 2004 after the H5N1 outbreak in domestic poultry.
 - In 2004, only the birds in the buffer zone were required to be vaccinated. However, the epidemiological investigation indicated that all of the outbreaks in 2005 occurred in farms that were not vaccinated or vaccinated with unqualified vaccines. Therefore, by the end of the 2005, the government provided financial support for 100% vaccination coverage in domestic poultry

Vaccine seed viruses generated and applied

Surface gene donor virus	Vaccine	
	Inactivated reverse genetics vaccine (2+6)	Recombinant NDV vaccine
GS/GD/96	Re-1 (Strain name), been used since 2004	rLa-H5, Been used since 2006
BHG/QH/05	Re-3, generated and evaluated	Generated and evaluated
CK/SX/06	Re-4, been used since 2006	Generated and evaluated
DK/AH/06	Re-5, been used to replace Re-1 in 2008	Been used to replace rLa-H5 in 2008

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H5N1 control measures in poultry

- Short description of poultry vaccination program
 - What are the strengths and weaknesses of vaccination program?

Strengths: In China, we watch the viruses that are circulating in nature very carefully and evaluate the protective efficacy of the vaccines to the newly detected strain. The vaccine seed viruses are updated as soon as there is a need.

Weaknesses: The vaccination coverage is still very low, especially in waterfowls. Though the government has required 100% vaccine coverage in domestic poultry since the end of 2005, it is impossible to give every single bird one or two doses of the vaccine in actual practice as over 70% of the birds are reared in small scale or backyard farms, oftentimes in the open field with ducks and geese.

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H5N1 control measures in poultry

- Short description of poultry vaccination program
 - Is the vaccination program commonly assumed to be working?

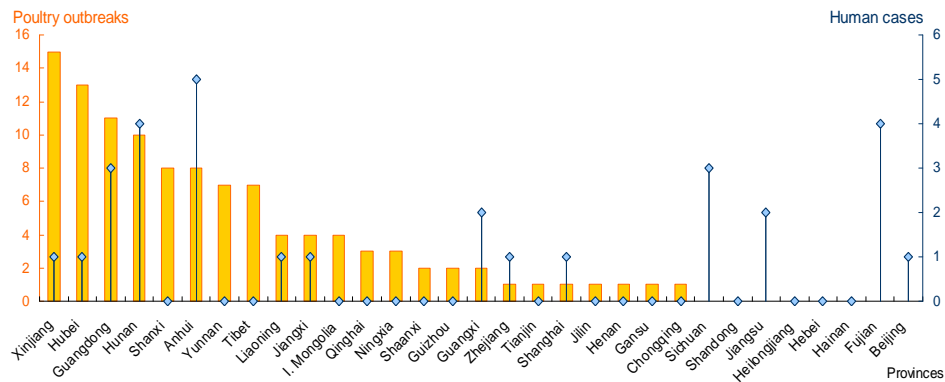
Yes, of course the vaccination program is working!

We have utilized the latest developments in biotechnology to prepared state of the art vaccines for poultry. Over 40 billions doses of the vaccine have been produced and used in China and Countries in Asia and Africa. These vaccines have played important roles for the disease control in poultry and protecting humans from H5N1 infection.

While there have been a few outbreaks in poultry and some human cases of H5N1 in China, the number would have been much more without these vaccines. Perhaps the clear evidence comes from Vietnam. While in 2005, there had been 90 human cases of H5N1 with over 60% lethality. After the introduction of the reverse genetics vaccine to H5N1, there were no human cases in 2006.

Gaps in understanding and Challenges at the human – poultry interface

Gaps and Challenges at the human – poultry interface



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Gaps and Challenges at the human – poultry interface

- Unvaccinated poultry in live poultry markets and backyard still pose risks for human infection of H5N1 influenza.
- Huge numbers of free ranged, unvaccinated waterfowls may still serve as reservoirs for highly pathogenic H5N1 influenza viruses.

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Animal health sector

Gaps and Challenges at the human – poultry interface

- From the animal health perspective as regards reducing public health risk from H5N1:

-- What has worked well?

Governmental compensation ensured the disease rapid reporting and transparency; Application of vaccine prevents the disease spread in poultry, reduces virus loading in the environment, and therefore, reduced public health risk from H5N1

--What needs strengthening or improvement?

Vaccination coverage still needs to be increased, and surveillance needs strengthening Monitoring of live bird markets in southern China needs strengthening.

Acknowledgements

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