

What animal vaccines exist or are under development, and what could be their potential role?

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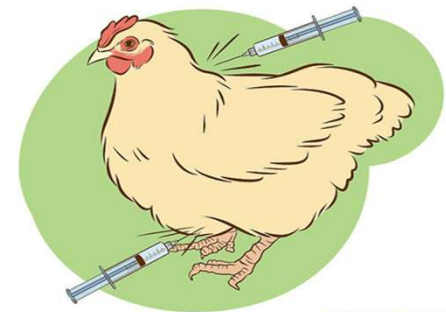
WHO workshop: What research is important to prepare and respond to H5N1 influenza outbreaks?

WHO webinar 19/3/25

Avian influenza vaccination

- Protection against clinical signs/disease
- Decrease bird susceptibility to infection
- Reduction in virus excretion
- Reduction in transmission

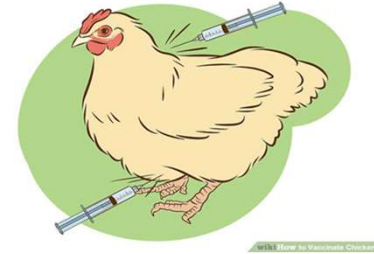
BUTVaccinated flocks can become infected



Criteria for vaccine suitability

Swayne and Sims (2020) proposed 8 criteria

- Inexpensive
- usable in multiple avian species
- provide protection after a single dose; duration of immunity for life of bird
- can be applied by low-cost mass application methods
- allow easy identification of infected birds within the vaccinated population
- produce a protective humoral response in the presence of maternal antibodies
- be applied at one day of age in hatchery or *in ovo*;
- antigenically close to field virus.



No current vaccine or vaccine technology meets all eight criteria so the user must select the licensed vaccine that best meets their needs.

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Veterinary vaccines for H5 AI

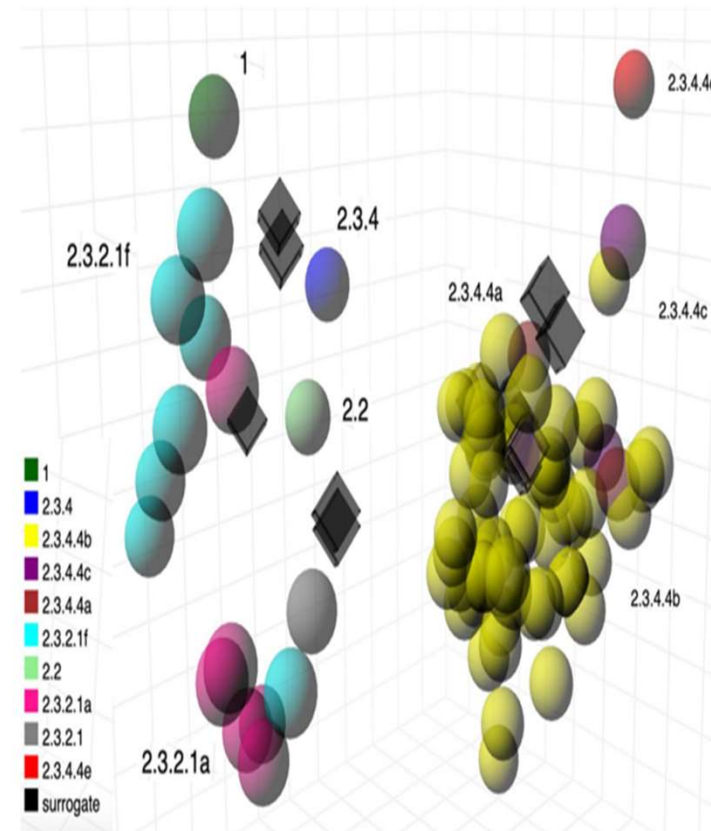
- Inactivated vaccines
 - Most widely used
- Vectored vaccines (H5 insert into viral delivery vector)
- Recombinant H5 protein
- Self amplifying RNA



Vaccine strain matching



- OFFLU new system for defining match amongst vaccine strains to field virus (AIM)
- International scanning for new threats/changes in virus
- Viruses from vaccinated birds rapidly characterised
 - Including any change in zoonotic risk profile
- Information fed into ongoing assessment of vaccine effectiveness
- Increased search for an optimally designed broadly protective H5 vaccine



Define purpose of programme



- Protect food security
- Improve animal health and welfare (reduce culling)
- If trading in birds and their products assurance over freedom from disease in vaccinated populations (DIVA etc)
- Prevent disease incursion versus a changing virus
- Reduce spillover risk to humans and wildlife

Key conclusions/challenges

H5 HPAI has become truly panzootic in the world affecting poultry and wild birds with mammal spillover

- International frameworks and standards in place that support vaccination
- Vaccines available with proven utility in lab and field based trials
- Improved and faster deployment of next generation vaccines?
- Surveillance needs refinement to detect vaccine breakthrough
- Overcoming regulatory hurdles to incentivise vaccine updates
- Trust and assurance with trading partners
- Global risk increasing with vaccination having a role for threat mitigation/control
- Reduction of threat to human health