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VACCINATION AS A CONTROL TOOL AGAINST HIGHLY PATHOGENIC AVIAN INFLUENZA (HPAI)

Planning large scale or targeted vaccination

L.D Sims

Asia Pacific Veterinary Information Services

Establish the need for vaccination

- Virus endemic and infection cannot be well contained or prevented with existing measures (e.g. Egypt)
- High risk of virus incursion based on past evidence (e.g. Hong Kong SAR)
- Too many human cases e.g. Viet Nam 2005)
- If endemic and unlikely to be eliminated (or repeat incursions), why is controlled vaccination not being used in commercial poultry?
- Recognise that under-reporting of disease is the norm.

Understand the disease

- How is the virus being spread between poultry and to people?
- What is the quality of available information?
- Main ‘reservoirs’/sources of infection
- Understand the various production systems (‘value chains’) – avoid overkill
- Determine whether vaccine could reduce the risk to poultry and humans in (parts of) these chains
- Define and implement parallel measures

Determine the objectives of the program

- Virus elimination
- Emergency vaccination
- Virus reduction (farms and markets)
- Public health
- Poultry health and welfare
- Various combinations

- Will then determine the scope of the program
- Usually more than one objective
- Be realistic

Determine the scope of the program

- Species to vaccinate (remembering limitations)
- Production types (layers, broilers, breeders, western vs native/Asian)
- Sectors to vaccinate (which farm types need to vaccinate ? – discussions on commercial broilers in Indonesia)
- Determine if vaccination is feasible in these sectors (are other vaccines being administered effectively?)
- If not viable in some sectors, look at alternatives (Cambodia)
- Work out funding arrangements, including cost sharing
- International support if public good?
- Aim for high level coverage in all vaccinated poultry
- Seasonal vaccination?

Ensure availability of appropriate vaccine

- Good antigenic match(es) – may need bivalent vaccines in some places
- Capacity to modify vaccine antigens if required
- Registered
- Properly manufactured in accordance with OIE standards
- Control and, if possible, minimise number of different vaccines used (but also supply issues)
- Appropriate pack sizes
- Hatchery vaccination versus on-farm vaccination

Ensure resources are available

- Cold chain
- Trained vaccinators (including farmers)
- Equipment
- Record keeping
- Laboratory capacity
- Field capacity including training
- Contingency fund
- Funds to support – discussed earlier

Adapt existing monitoring programs

- Establish measures for success (e.g. levels of immunity, virus circulation etc)
- Private sector testing (performed for other vaccines as well)
- Viruses in high risk places such as markets and traders yards
- Add additional measures
- Ensure early detection and capacity for modification if/when antigenic variants arise
- Review and modify the program based on results

If required, undertake

- Trial program (but don't reinvent the wheel or delay vaccination unnecessarily)
- Challenge studies in different species post vaccination (but may have been done already)

Ensure stakeholder support

- Likely from commercial sector, unless exports affected
- Publicity and discussions
- Very much a public private partnership
- Ensure appropriate legal framework
- Political support at all levels (competing priorities)
- Support from hatcheries if vaccination used there
- Industry must understand their obligations

Regular reassessments

- Is vaccination still needed?
- Is the target population still reasonable?
- What needs to be done better?
- Long term goal is virus elimination but have to recognise realities of industry structure and animal health services
- Stop vaccinating when it is appropriate to stop vaccinating

Lessons

- Hard to sustain large scale programs in multiple small flocks
- May be possible in smaller areas
- Vaccination likely to be a long term measure, political interest/support short term
- Risk-based vaccination fine in theory
- Much harder in practice (but still being done)

OIE FAO
network of expertise on animal influenza

Lessons

- Cannot justify a blanket vaccination program for backyard poultry on the basis of poultry losses
- Be creative in working out ways to get vaccine to target populations (vector vaccines, hatchery vaccination with appropriate products, novel donor funding matching villages to donors)
- Difficulties in attributing successes to vaccination, but some successes

Lessons

- Focus on ducks appears to make sense in some countries if they can be vaccinated fully
- Other diseases interfere with vaccination
- We seem to be setting a higher standard for implementation of vaccination than we are for other measures – all measures should be assessed in the same manner as vaccination
- Negative narrative on vaccination – in part due to failure to recognise what vaccines can and can't achieve
- H7N9 forcing changes to marketing practices – good for H5N1 control and may reduce need for vaccination