



Preventing pandemics, improving food security: sustainable control of vaccine preventable animal disease in resource-limited settings

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My passions: a commitment to family farming and systems thinking



Village chickens and their owners



Merino sheep and family farmers

Lots of talk re the need for
sensitive, efficient surveillance

but

it's **easy to say, very hard to do**

Challenges that work against effective surveillance for animal disease in resource-limited settings

- Weak relationships between livestock producers and wildlife hunters and government officials
- History of culling of animals without compensation in response to outbreaks of diseases, such as highly pathogenic avian influenza
- High mortality is common

Why would you report the death of animals when they die all the time and appropriate support is missing?



Credit: FAO, Alders

One Health: 'disease' versus 'health' focus

Disease-centric approach	Health-centric approach
Pathogen movement between animals (wild and domesticated) and people	Landscape change and habitat fragmentation
Prevention of disease	Securing needs for daily living
Eradication of pathogens	Climate and environmental change
Risk factors for disease	Addressing healthcare provision to remote populations of people, animals, crops, soil, and water

Adapted from White et al., 2020,
used in **FAO Field Training Programme on Wildlife, Ecosystems, Biodiversity and Environment**

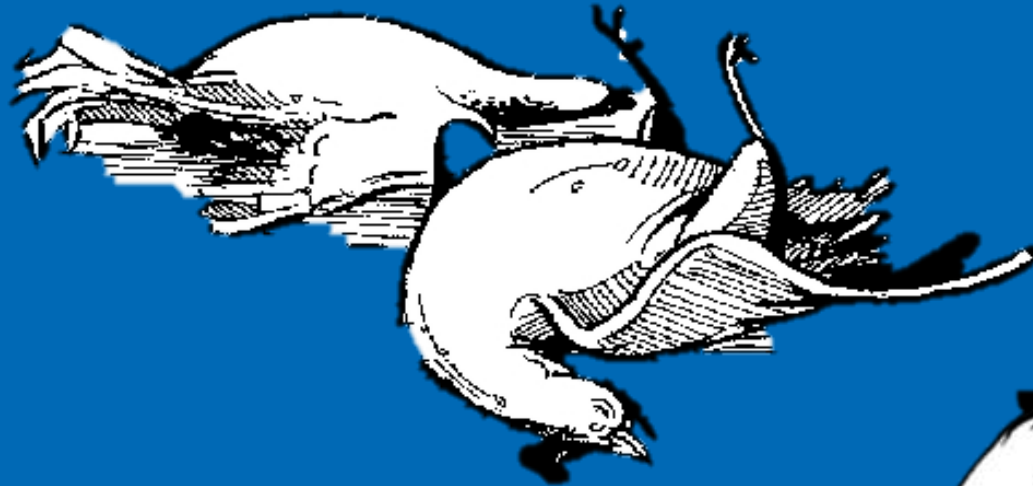
Failure to prevent animal mortality due to vaccine preventable diseases: some examples

Avian diseases

Newcastle disease

Fowl cholera

Infectious bursal disease



Porcine diseases

Classical swine fever

Bovine diseases

Haemorrhagic septicaemia



Failure to prevent animal mortality due to vaccine preventable diseases: contributing factors

Focus on individual diseases not herd/flock health

Short term projects and programs that do not support sustainable animal health systems

Focus on diseases of importance to outsiders

Lack of funding for animal health and extension services for vaccine production or importation

Inadequate investment in cold chains

Inadequate investment in capacity building of animal owners and frontline personnel

Failure to prevent animal mortality due to vaccine preventable diseases: some impacts

Inefficient production – increased clearing of land for livestock and forage production

Consumption of animals that died of disease by individuals and households facing chronic food insecurity

Increased reliance on hunting wild animals

Lack of trust between animal owners and animal health services

Increased use of antibiotics

Increased food and nutrition insecurity

Options for improving sustainable control of vaccine preventable animal disease

Co-design and co-implement biosecurity improvements including vaccination:

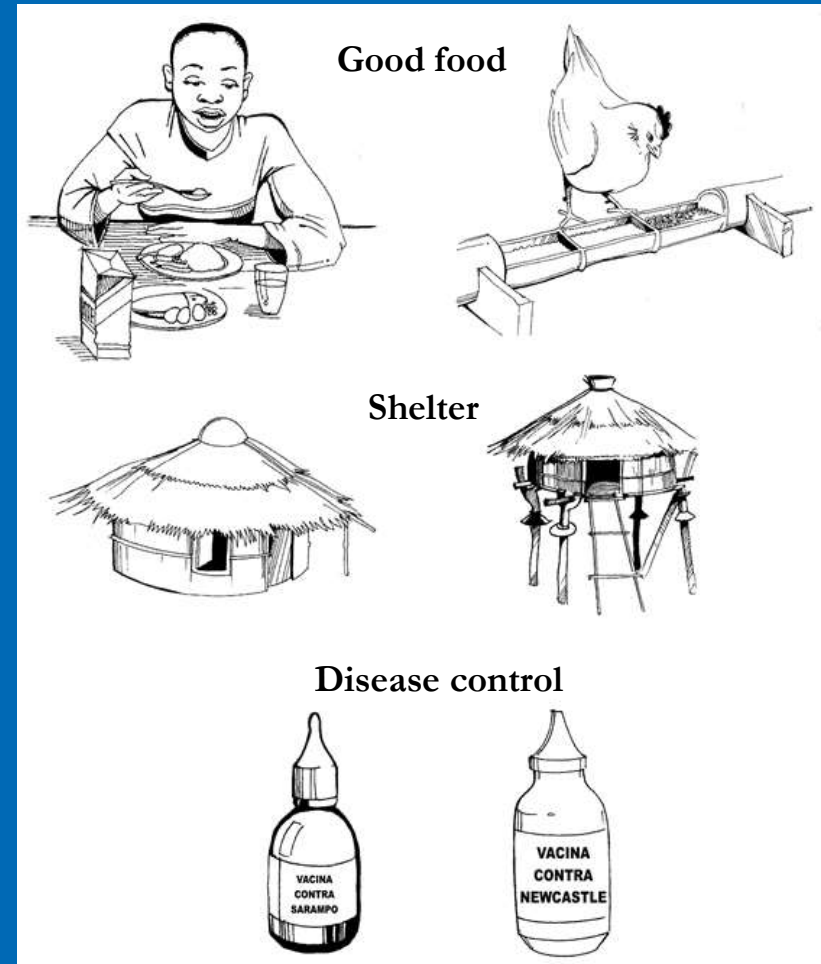
- **Local and/or regional vaccine production** - local language on labels, appropriate dose sizes, etc
- **Local or regional vaccine quality assurance** as a minimum for imported vaccines
- **Thermotolerant vaccines**
- **Cold chain establishment and maintenance** – public and private partnerships
- **Vaccine administration** – public and private partnerships
- **Cost-sharing options** with producers, etc



• Credit: Kyeema, Alders

Vaccine and vaccination activities embedded in wider One Health, One Biosecurity and One Welfare programs

- **Animal genetics** - raising animals well-adapted to their local environments with strong immune systems
- **Safe, sustainable feed and fodder**
- **Feasible biosecurity practices** tailored to specific production systems
- **Coordination with human, plant and environmental health programs** at local, national, regional and global levels through One Biosecurity and One Welfare



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Research Directions

One Health

Research Directions pushes beyond boundaries to answer important questions/hypotheses

One Health is a collaborative, multisectoral, and transdisciplinary approach—working at the local, regional, national, and global levels—with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment. One Health is an emerging paradigm seeking to engage interdisciplinary science with research scientists and professionals across society.

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Recommendations for achieving a One Health approach pandemic prevention



Value and empower family farmers and fishers who produce quality, sustainable food



Circular bio economies

valuing all inputs: e.g. labour, animal welfare, nutrients, soil, and water



Involve family farmers and

producers in vaccination and wider biosecurity program design and implementation



Transform health services so that farmers and producers are recognised as essential partners in delivering good health and wellbeing for people and our planet

Thank you for your time and your interest