

The planning and executing of a vaccination campaign against AI

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AI – EPIDEMIOLOGICAL SITUATION



**From 1959 to 1996 14 epidemics
worldwide promptly eradicated**



**From 1997 to now...
Worldwide spread of AI
infections**

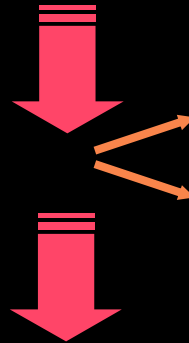
AI CONTROL IN DOMESTIC POULTRY

**High number of “at-risk” contacts
Neighbouring (local) spread of infection**

IF

**Late detection of the presence of infection
Late implementation of adequate control measures**

Massive spread of infection



**High number of outbreaks
Possible endemic infection**

Widespread culling (high costs, waste of resources, negative repercussions on public opinion and on disease control)

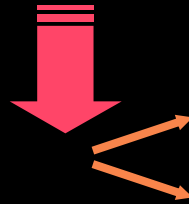
AI CONTROL IN DOMESTIC POULTRY

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High number of outbreaks
Possible endemic infection

**Possible re-introduction or re-emergence of AI viruses
from wild or domestic reservoirs**

AVIAN INFLUENZA CONTROL

Frequent incursions or the re-emergence of AI viruses in some territorial areas can contribute to make poultry farming in these areas unsustainable in the long term, with:

- negative social effects on smallholder livelihood
- huge economic losses to the industry and the society as a whole

AVIAN INFLUENZA CONTROL

There is a clear need to implement prevention and control strategies based on a combination of measures that include the use of vaccination

VACCINATION FOR AI CONTROL

AI VACCINATION PROGRAMME

Strategy - routine, emergency, preventive (targeted or “mass” and ring vaccination)

Plan - vaccination area (compartment), duration (sustainability), co-operation of poultry producers, detailed organisation of field activities:

- Vaccines
- Vaccination protocols
- Monitoring (DIVA approach, level of protection)
- Additional control measures (biosecurity, restrictions)
- Information system

Exit strategy

AI VACCINATION PROGRAMME

POSSIBLE SCENARIOS

AI VACCINATION PROGRAMME

Possible scenarios

- Virus strain involved (HP/LPAI)**
- Characteristics of the poultry production sector(s)**
- Eco-epidemiological situation in a given region/country (risk of AI virus introduction, etc.)**
- Capacity of the veterinary infrastructure**
- Availability of adequate resources**

ASIA - POULTRY PRODUCTION SYSTEMS



Sector 1: Industrial integrated system
high level biosecurity



Sector 2: Commercial system
moderate to high biosecurity



Sector 3: Commercial system
low biosecurity



Sector 4: Village or backyard poultry
minimal biosecurity

AI VACCINATION

Possible scenarios in Asia

	Consideration of vaccination in each production sector			
Level of challenge	Sector 1	Sector 2	Sector 3	Sector 4
Negligible	No	No	No	No
Low	No	No	Yes	Yes
Moderate	No	Yes	Yes	Yes
High	Yes	Yes	Yes	Yes

FAO, 2004

VACCINATION STRATEGIES

VACCINATION STRATEGIES

- **Routine** vaccination performed in endemic areas
- **Emergency** vaccination, which is implemented in the face of an epidemic
- **Preventive** (i.e. prophylactic) vaccination carried out if a high risk of virus incursions is identified

ROUTINE VACCINATION

Routine vaccination is applied in countries with large village poultry populations and extensive spread of infection

If properly applied, routine vaccination can:

- reduce mortality and production losses
- decrease the size of susceptible poultry population and infection prevalence
- possible extension of disease-free compartments and zones

EMERGENCY VACCINATION

The success of emergency vaccination is associated to:

- **the correct identification of compartment(s) at risk** (bird species, type of production, no. and location of holdings, no. of birds, etc.)
- **the prompt deployment of emergency vaccines**
availability of licensed vaccine banks
logistics for vaccine delivery in different scenarios
- **the rapid enforcement** of appropriate
complementary monitoring and control measures

EMERGENCY VACCINATION

The implementation of an effective **emergency vaccination programme** is also related to the level of preparedness.

The emergency vaccination programme must :

- be part of the national contingency plan
- include **decision making patterns** in different scenarios in order to allow a rapid decision on whether to vaccinate or not in the face of an epidemic

PREVENTIVE VACCINATION

Preventive vaccination (H5 and H7 virus subtypes) might be applied whether a high risk of AI virus introduction and spread has been established

An intensive surveillance programme shall be put into action for an early detection of, and a rapid response to AI virus incursions

PREVENTIVE VACCINATION

Preventive vaccination (H5 and H7 virus subtypes) might be applied whether a high risk of AI virus introduction and spread has been established

AI risk modulating measures must be identified to formulate a clearly defined exit strategy

AI VACCINATION

- **Risk assessment**
- **Timely and clear-cut decisions**
- **Identification of the vaccination area (compartment)**
- **Cost/benefit analysis (trade implications)**

AI VACCINATION PROGRAMME

LOGISTICAL ASPECTS

AI VACCINATION PROGRAMME

- **Vaccination area (poultry compartment)**
- **Duration (sustainability)**
- **Co-operation of poultry producers (increase awareness)**
- **Detailed organisation of field activities**

AI VACCINATION PROGRAMME

Vaccine

composition

quality

availability (licensed vaccine banks)

delivery (e.g. vaccination crews, cold chain)

AI VACCINATION PROGRAMME

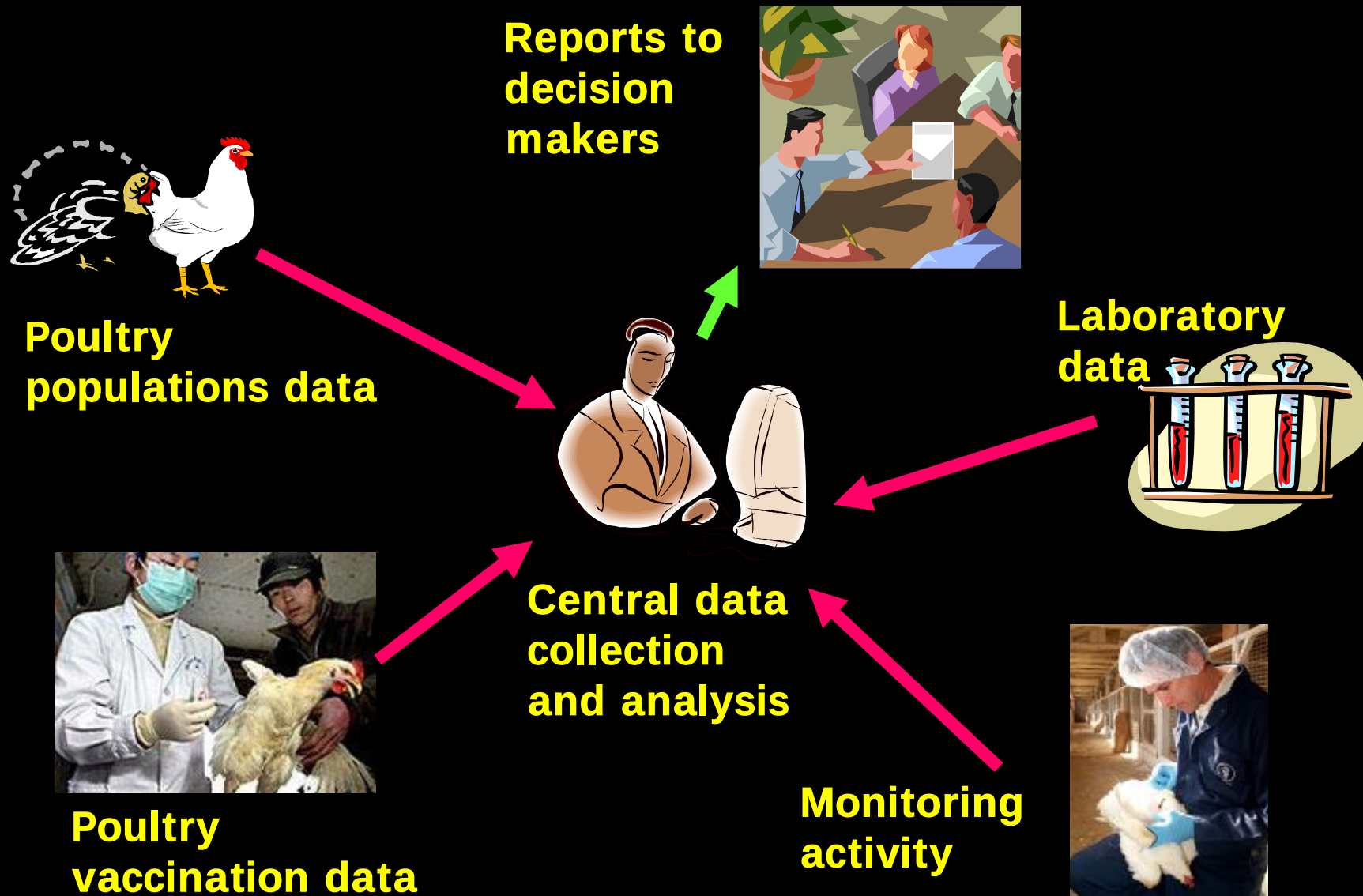
Vaccination protocols

- **Number and timing of vaccine interventions must be defined for different bird species and production types**
- **Application of the most efficient vaccination schemes**
- **Protocols that yield best results (blocking of transmission) must be recommended in the field**

AI VACCINATION PROGRAMME

- Properly implemented **territorial strategy**
 - monitoring and surveillance
(level of protection, evolution of infection)
 - biosecurity, restrictions
 - early detection and adequate management of AI outbreaks
- **Information system**

DATA MANAGEMENT SYSTEM



AI VACCINATION PROGRAMME

- Properly implemented territorial strategy
 - monitoring and surveillance
(level of protection, DIVA approach)
 - biosecurity, restrictions
 - early detection and adequate management of AI outbreaks
- Information system
- Exit strategy

AVIAN INFLUENZA: CONTROL STRATEGIES

Reservoirs



Poultry production systems



Monitoring and surveillance

- Identification and study
- Reduction (not increase) of poultry density in DPPA
- Avoid mixing of different species
- Improve hygienic standards (biosecurity, training, etc.)
- Monitoring and surveillance
- Contingency plans (vaccine banks)
- Risk communication
- Emergency or long term vaccination

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AI – EPIDEMIOLOGICAL SITUATION

- 1. Since 1997, increased frequency of LP/HP AI outbreaks worldwide**
- 2. HPAI H5N1**
 - endemic in several countries**
 - largely spread in three continents**
- 3. Direct transmission of AI virus strains to humans**