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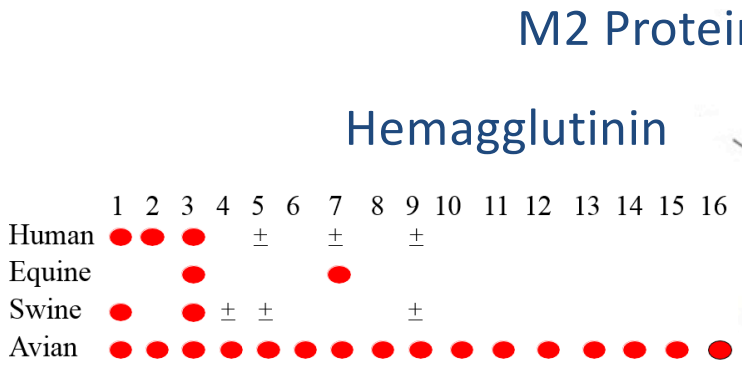
The key to your profit!

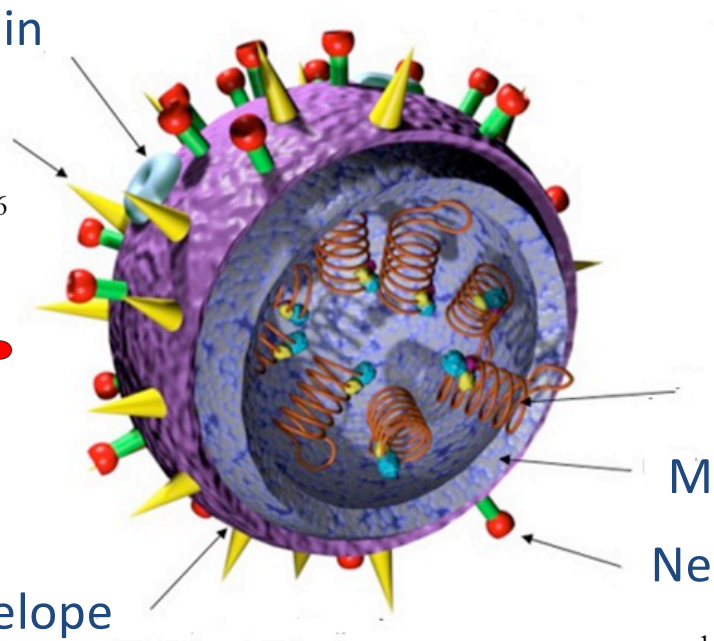
AI management with low biosecurity

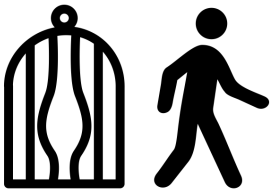
Fernando Carrasquer DVM CEAV

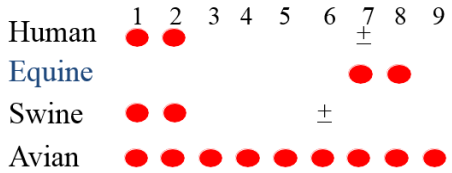
Global technical service – H&N International GmbH

Avian influenza virus: Orthomixovirus









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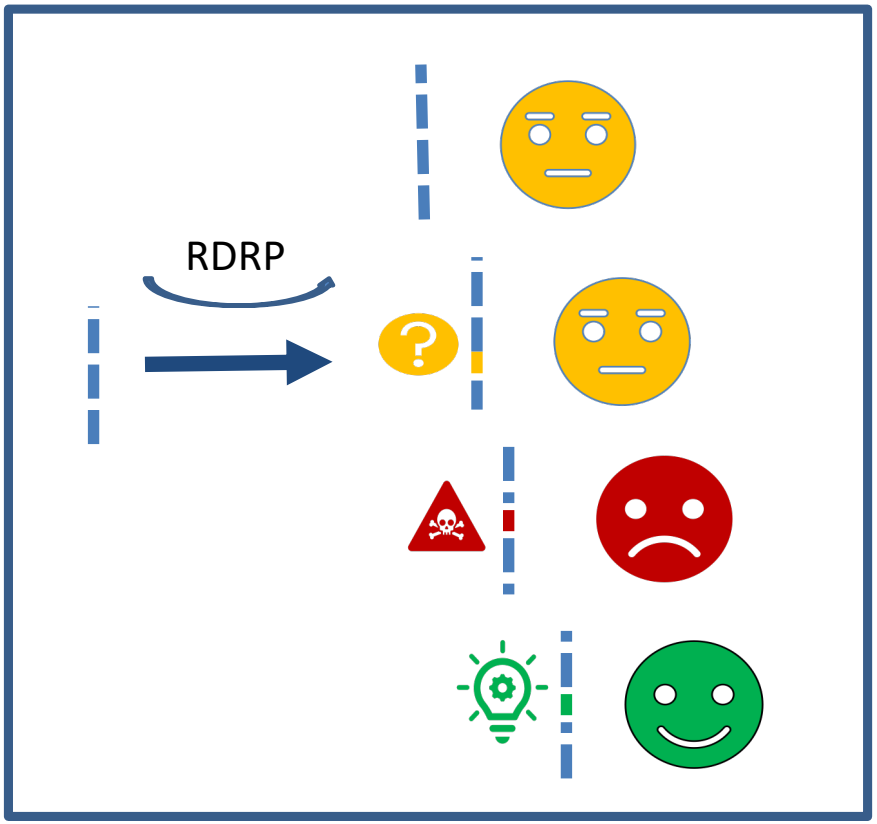
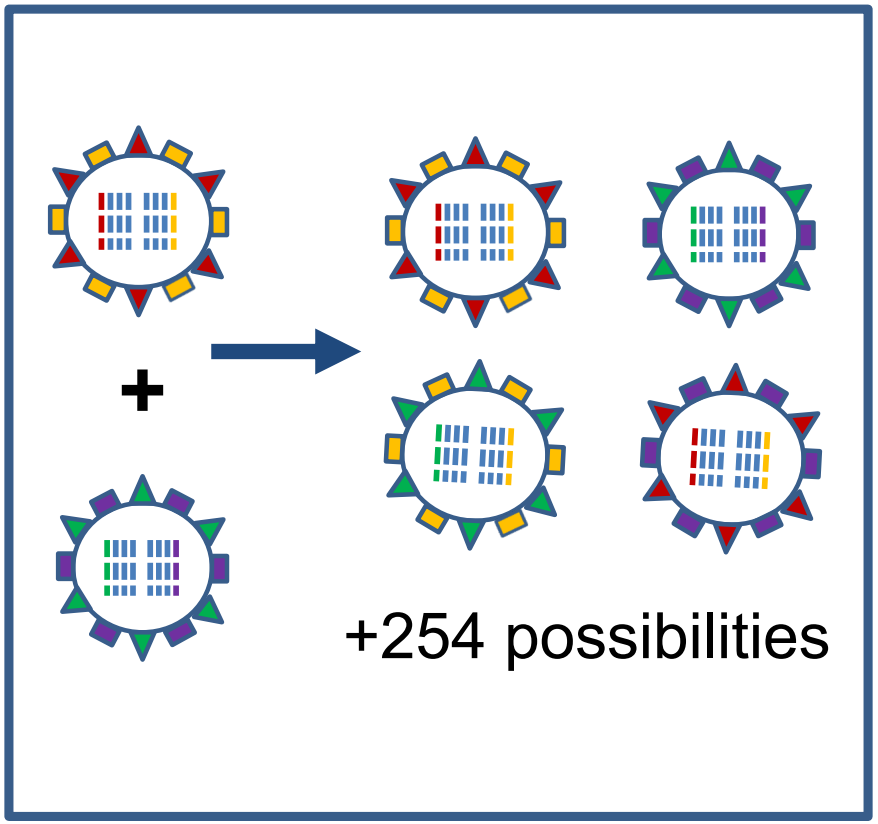
A master escape artist …..

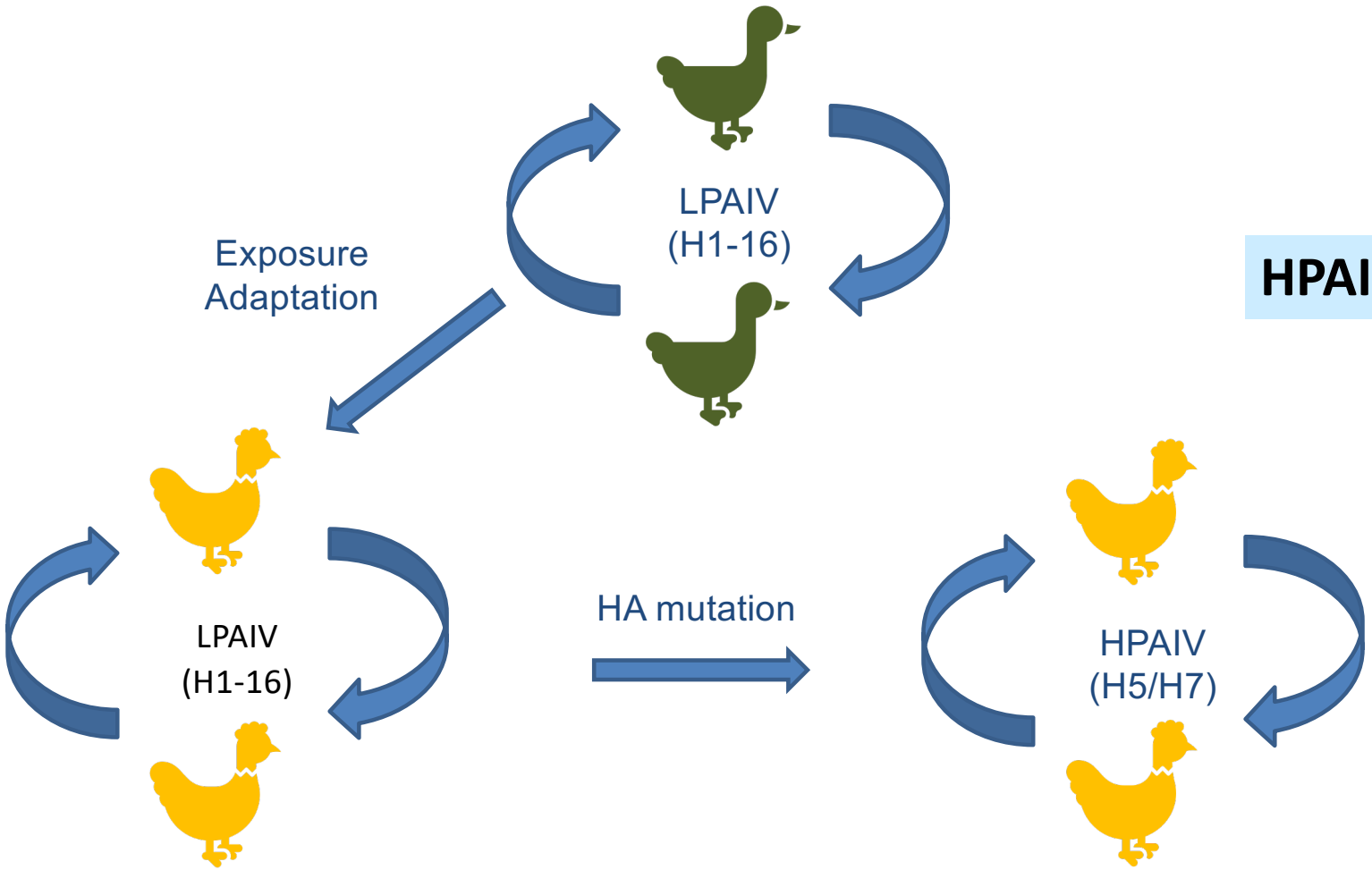
Antigenic Drift



Antigenic Shift



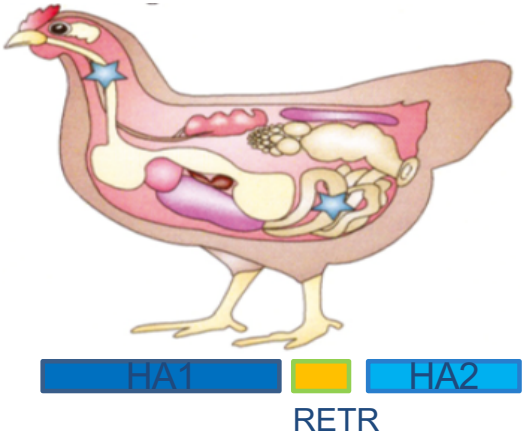
Avian Influenza epidemiology



HPAI H5N8 ??

LPAI vs HPAI

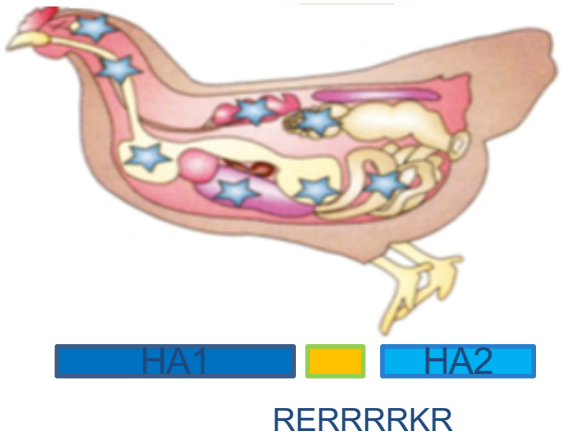
Low Pathogenic Avian Influenza



Non OIE list
Mild respiratory disease

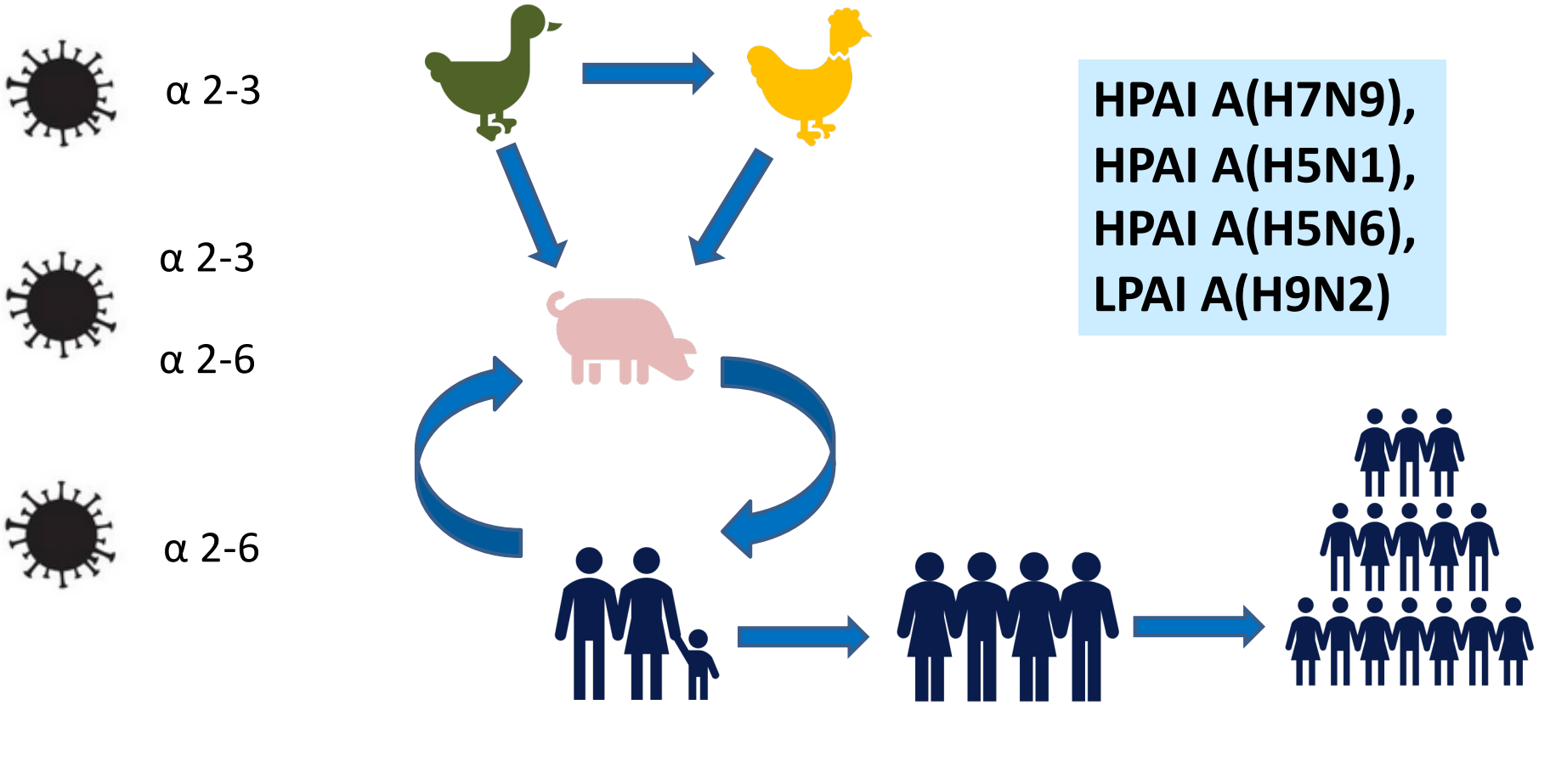
LPAI H9N2 ??

High Pathogenic Avian Influenza

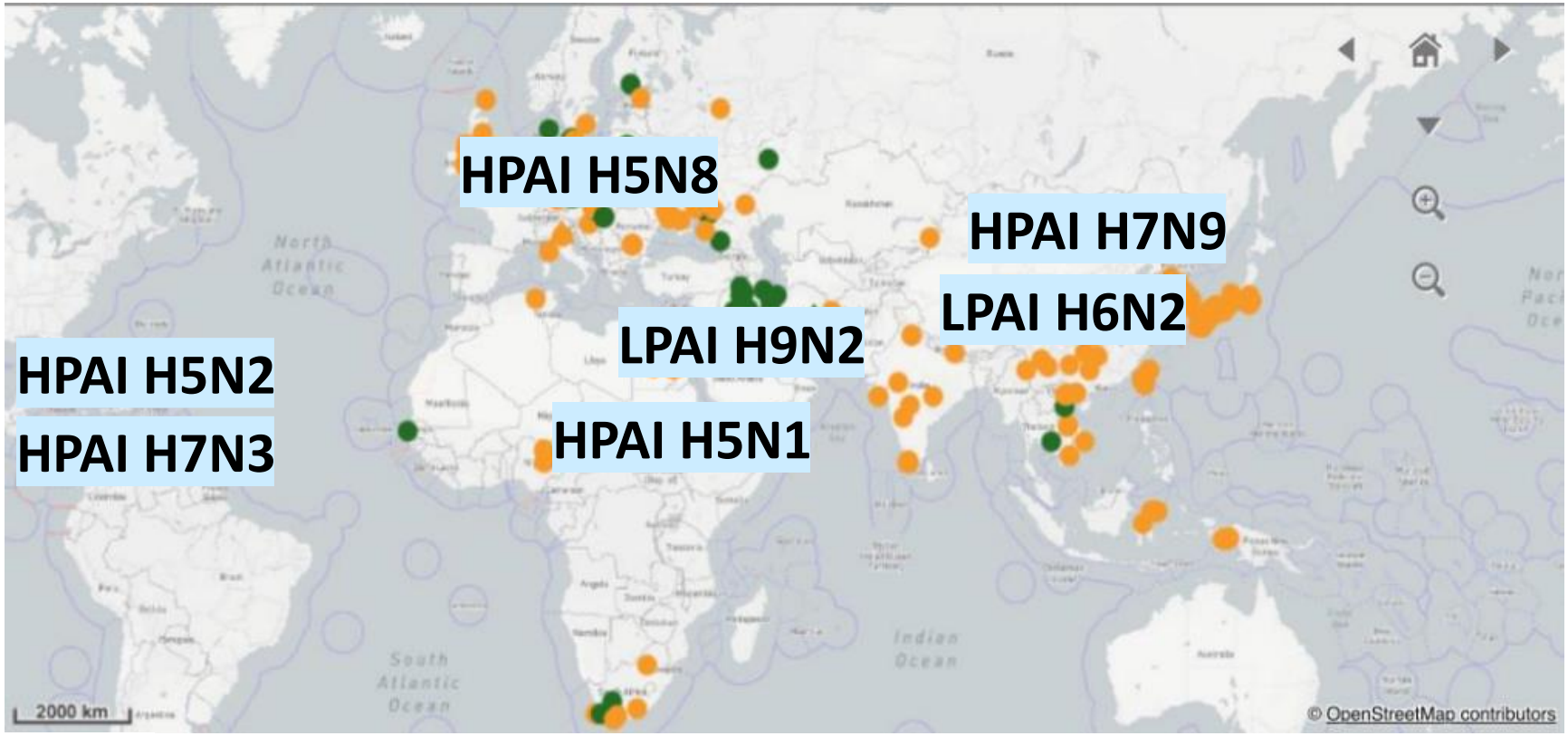


OIE list
High mortality

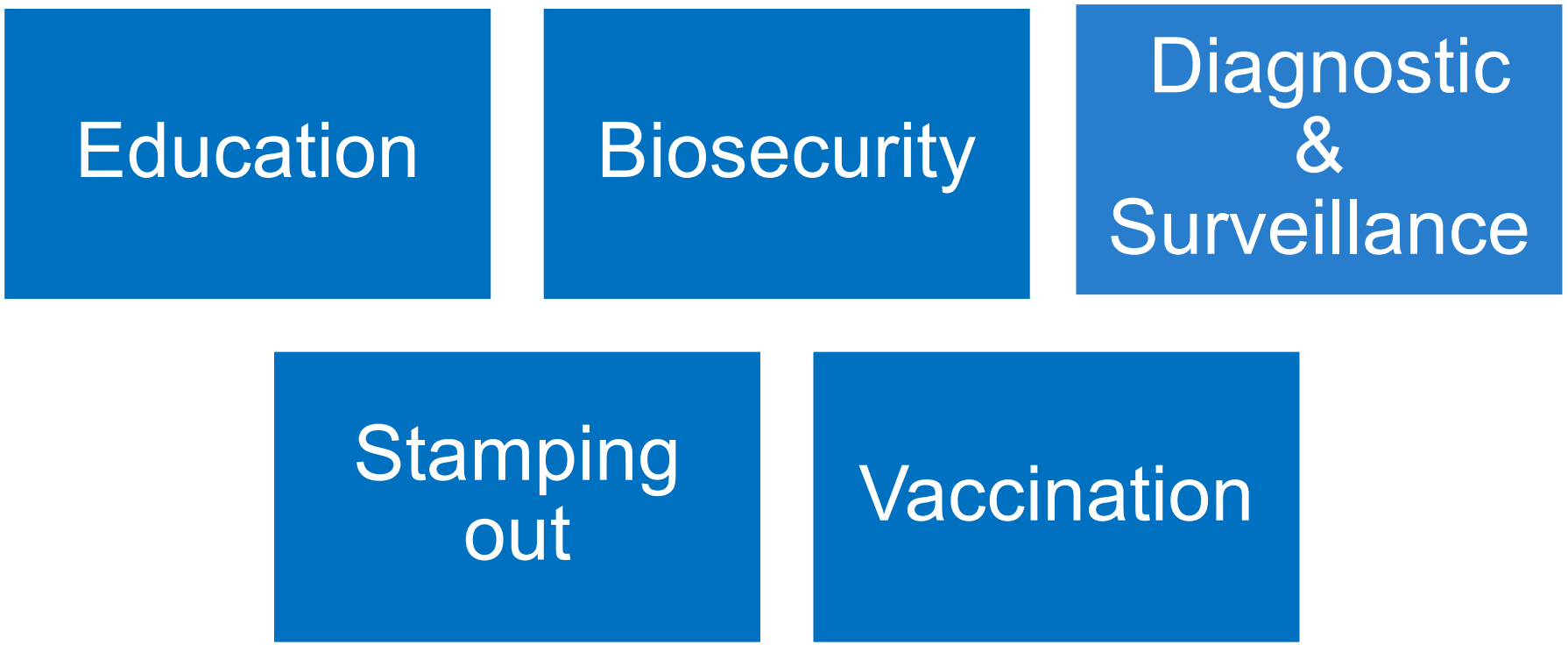
Avian influenza as zoonosis



HPAI current situation



Avian Influenza Control



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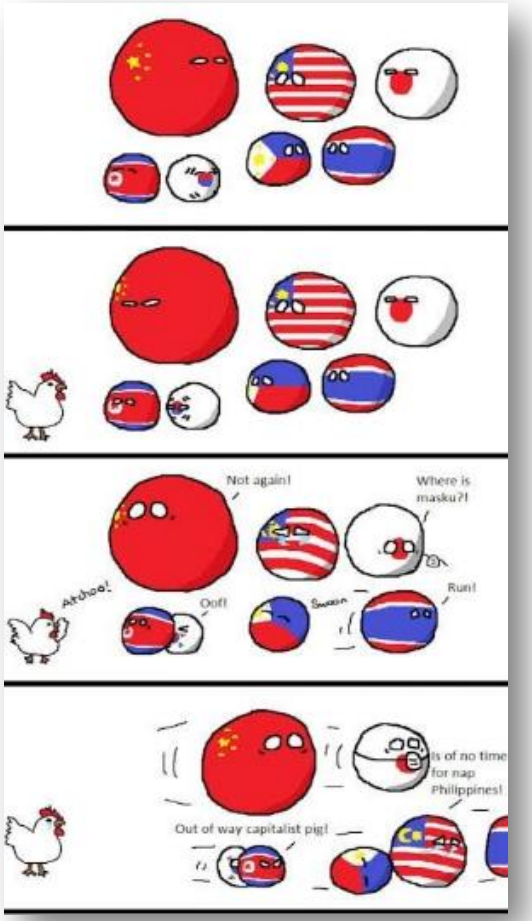
Education



Or

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Biosecurity

Design

Structures

Operations

Country level

County level

Farm level

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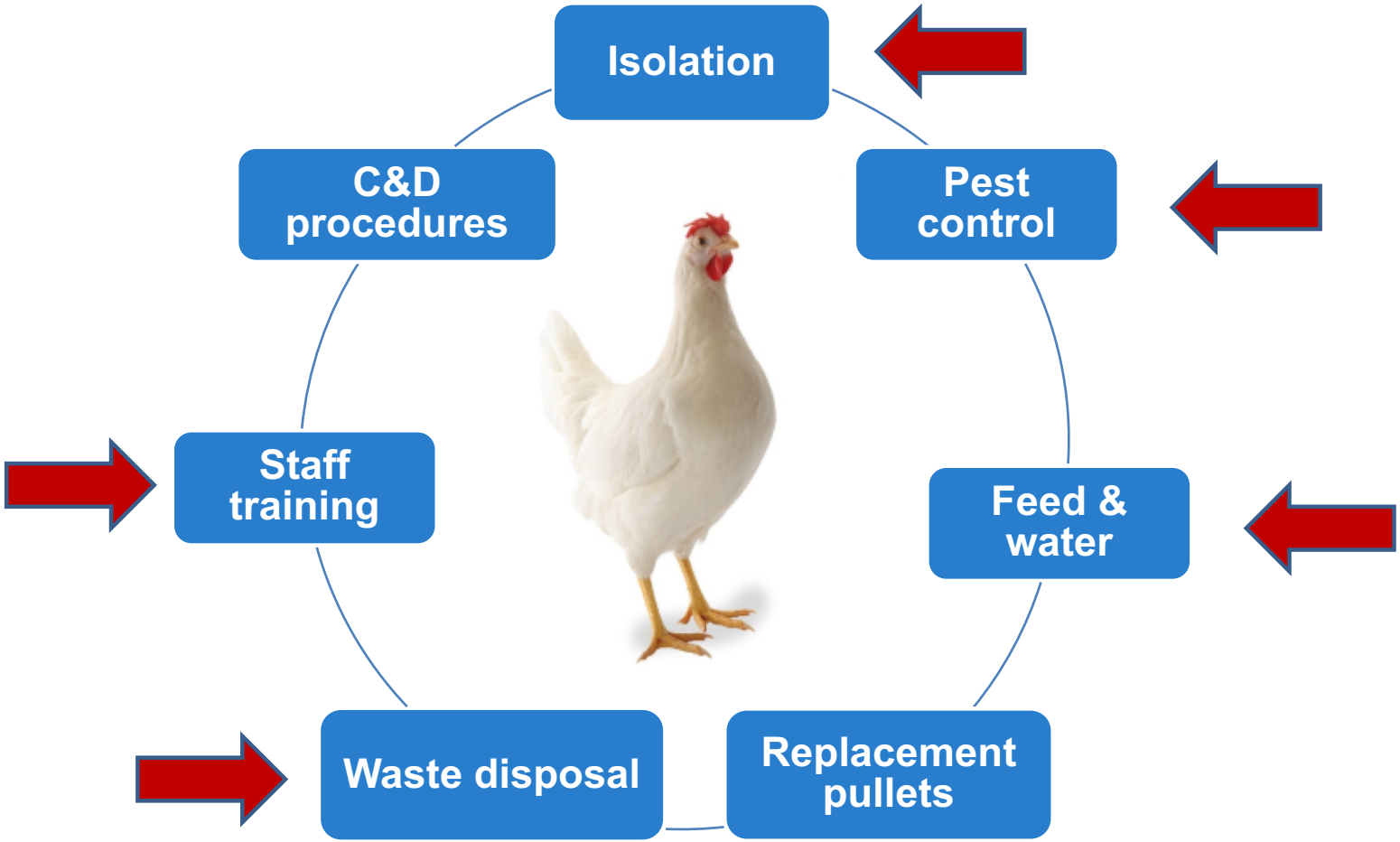
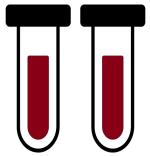
Biosecurity in Asia

Biosecurity programs



Diagnosis & surveillance



Blood

@Flock Surveillance

Serology
- ELISA
- HI (H1 - H16)
- NI (N1 - N9)

LPAI infections monitoring programs

Vaccination monitoring

Tracheal swabs
Caecal tonsils
Cloacal swabs

@Suspected flock

Virology
- SPF chicken embryos
- Tissue cultures

Molecular biology
- RT- PCR
- Sequencing

Case confirmation

Clade determination

Epidemiology studies

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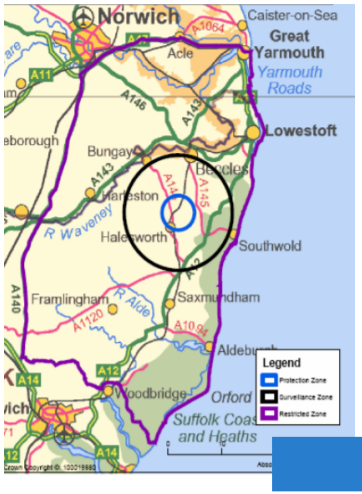
Stamping out

Restriction



Depopulation

Destruction

C&D procedures

Avoid completely the spread of an exotic virus.

Timing is critical. Logistics is the key point.

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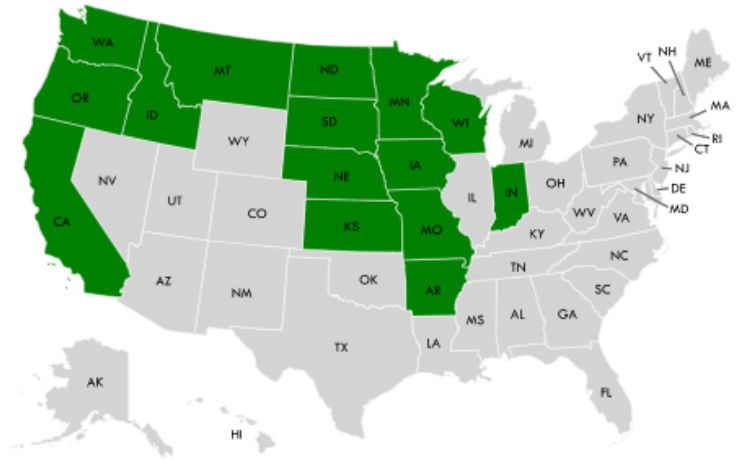
Stamping out example

HPAI 2014/15 Confirmed Detections



211 Commercial Flocks	**21** Backyard Flocks
50,400,000 Birds Affected	**6/16/15** Last Detection Reported

USDA

Reward:

U.S poultry production in 2020

- 400 million laying hens
- 85 billion broilers
- 238 million turkey

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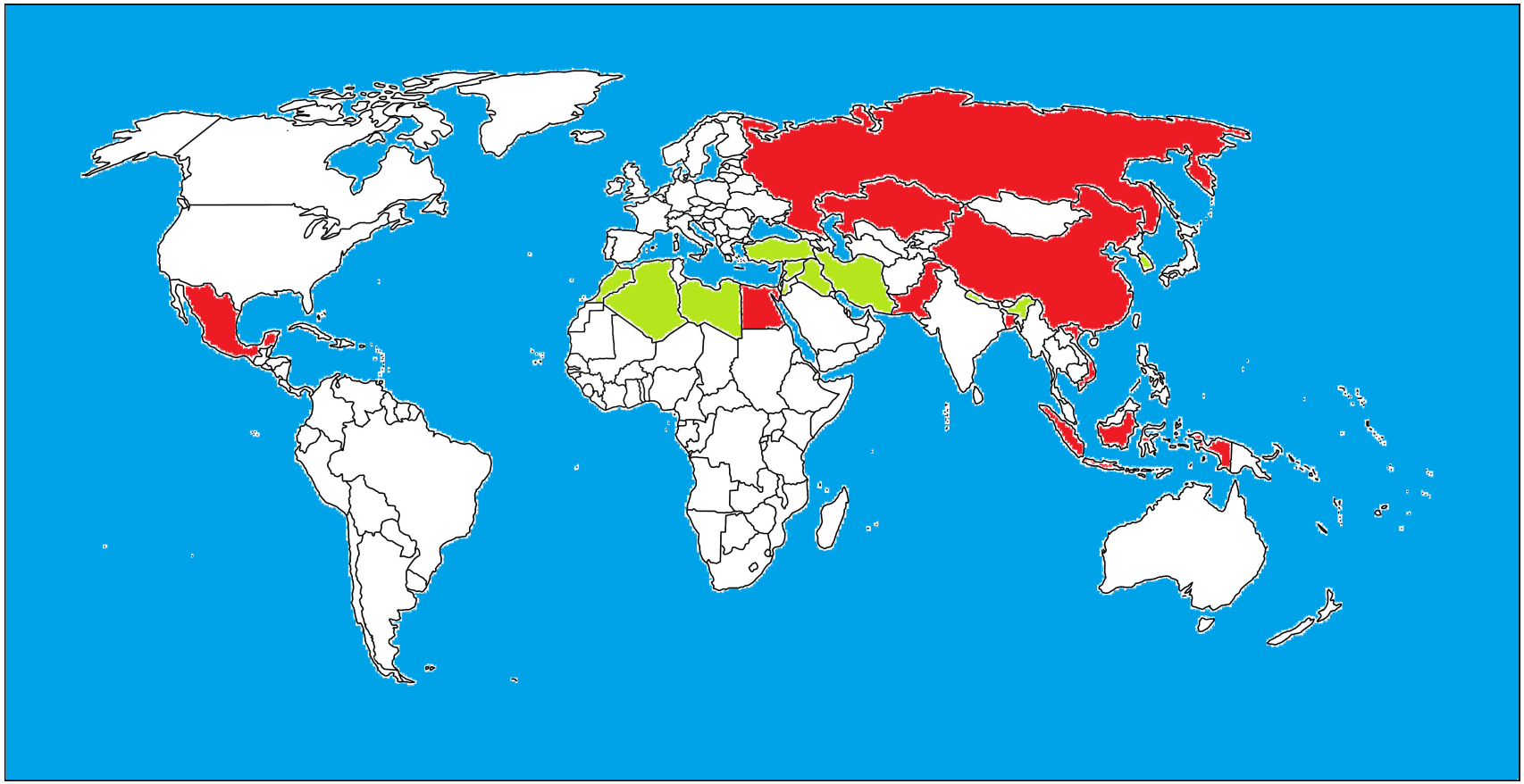
Vaccine programs



HPAI vaccination program

LPAI H9N2 vaccination

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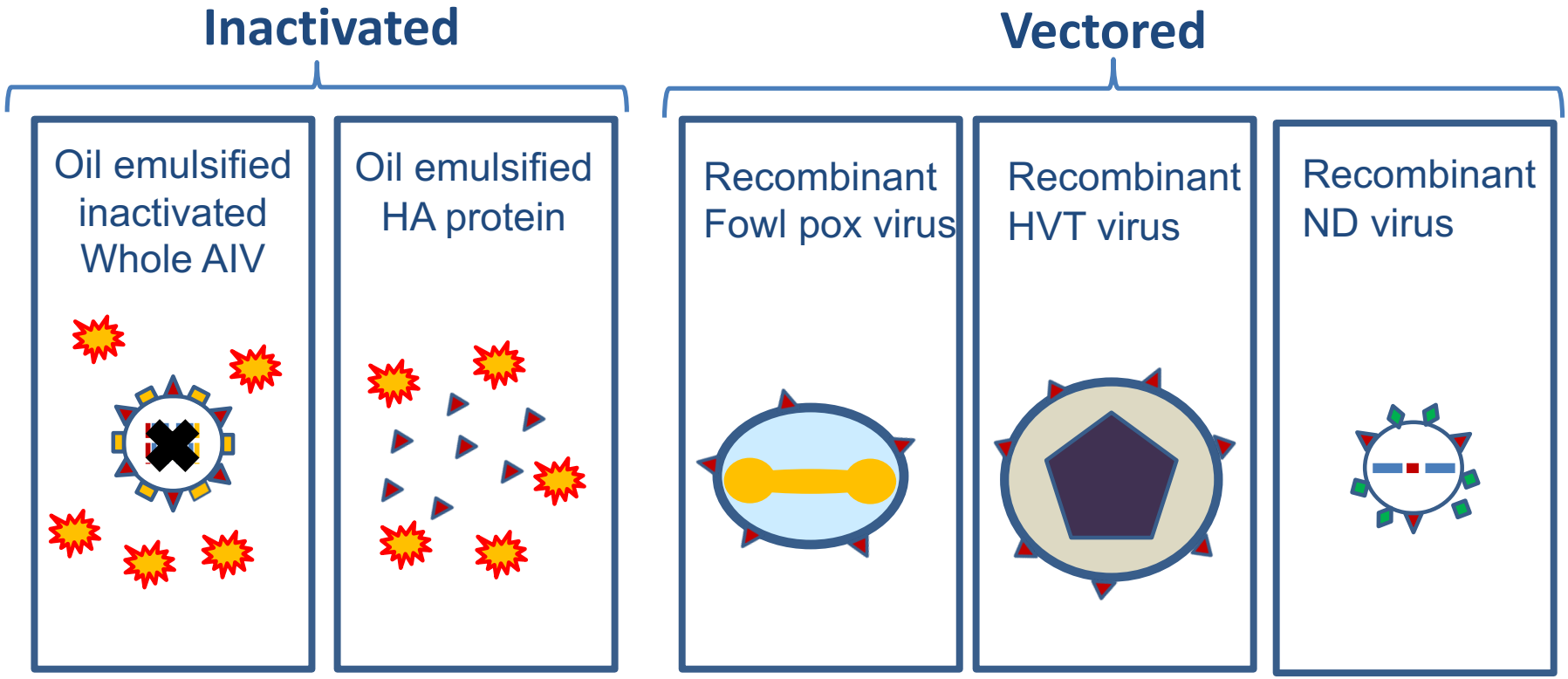
Avian Influenza vaccines types



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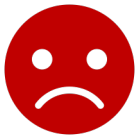
What to expect from AI vaccination ?

CAN

- Reduce replication of AIV in respiratory & GI tract
- Prevent illness and death in poultry
- Reduce transmission to birds and humans



CAN'T

- Infection is still occurring to infection
- Interferes with monitoring programmes
- Poor protection against AIV from other serotypes/clades

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Mexico: H7N3 vaccination program

2014

2016

2018

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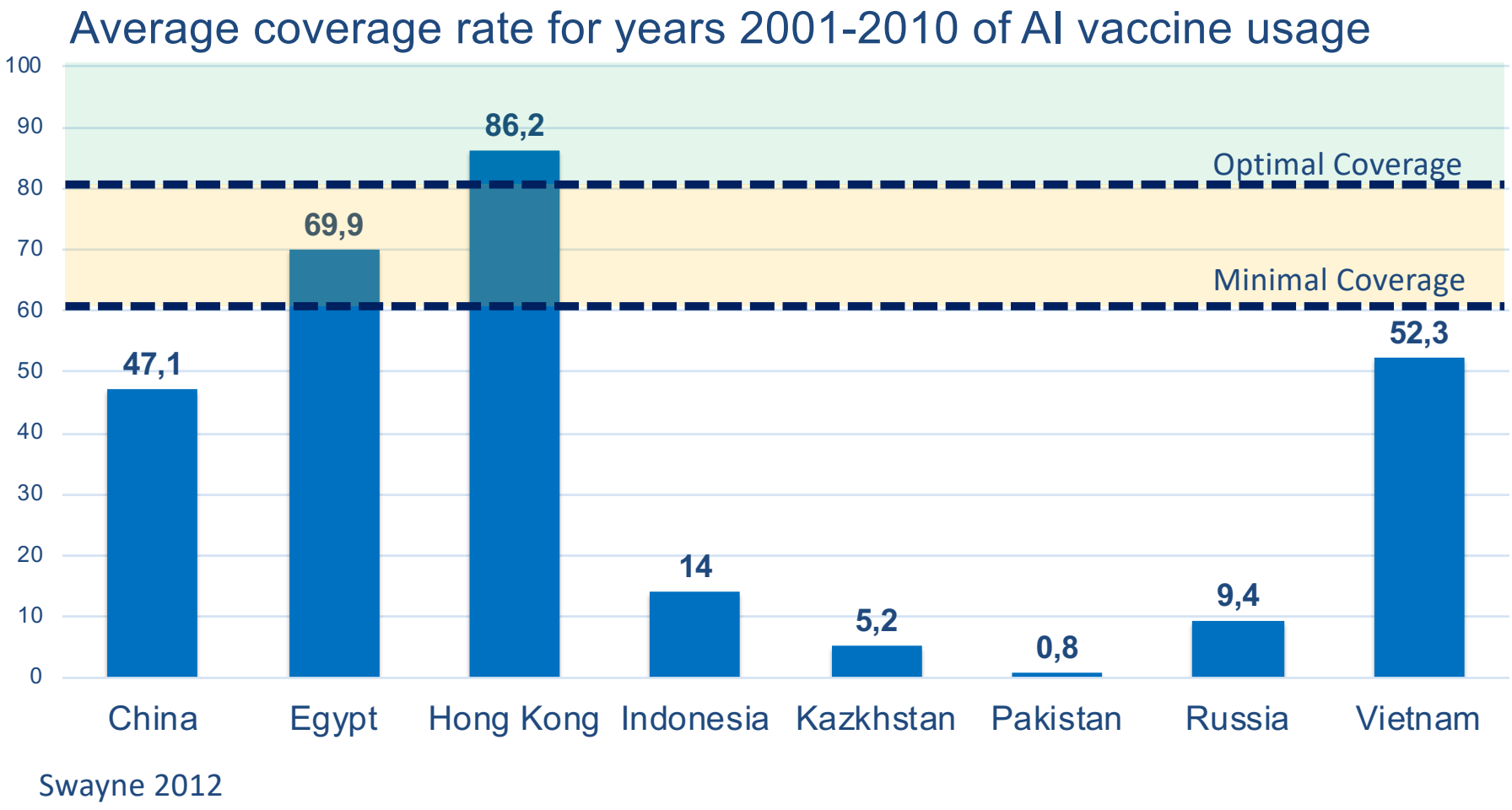
Coverage rate



Swayne 2012

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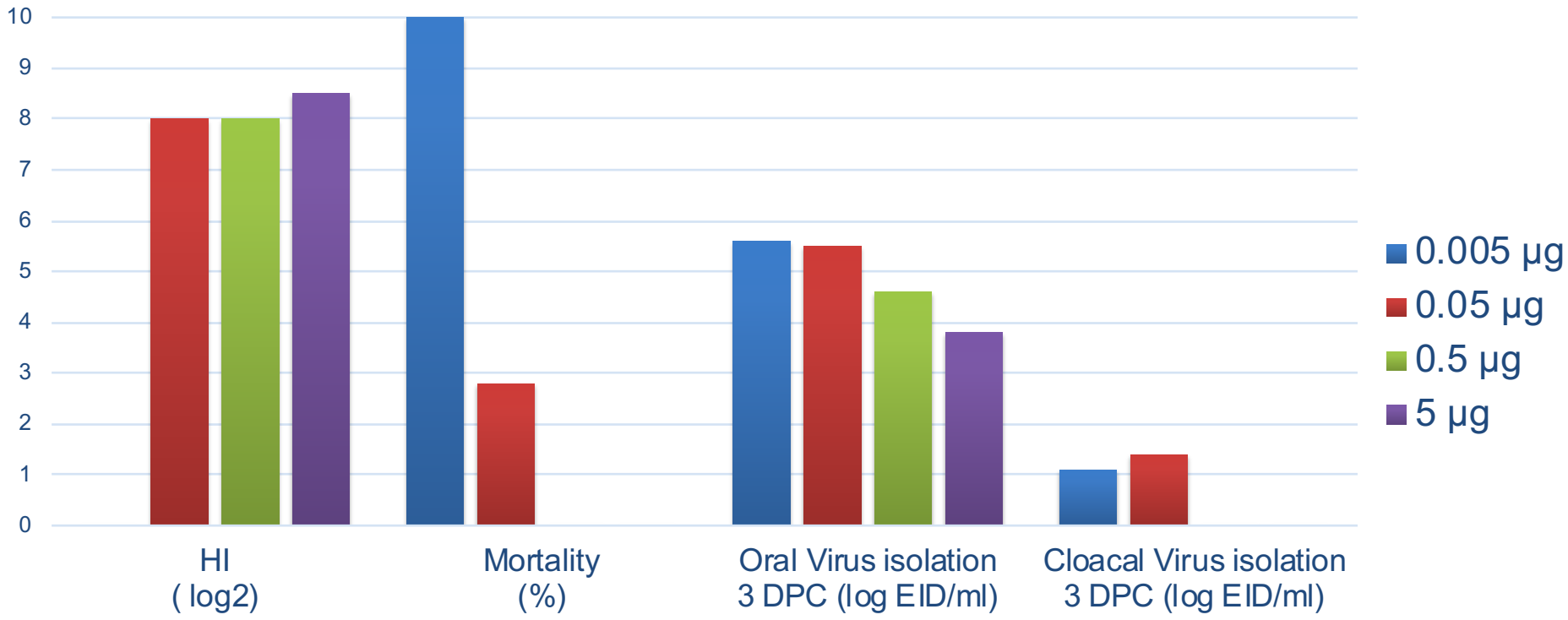
Vaccine potency & protection



Swayne 1999

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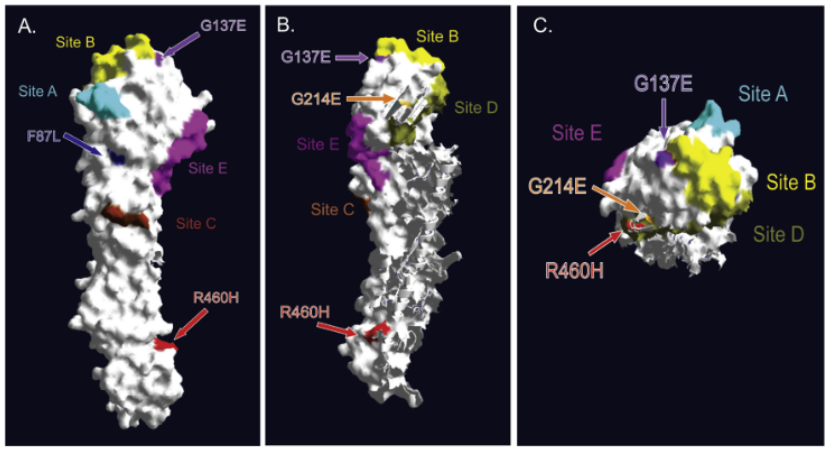
Vaccine potency & antigenic scape

AIV can scape from vaccines protection by mutation at critical antigenic site



Sitaras 2020

1. Update in vaccine seed strain can be needed time by time.

2. High titers from Antigenically relevant vaccines slow down antigen escape dynamics.

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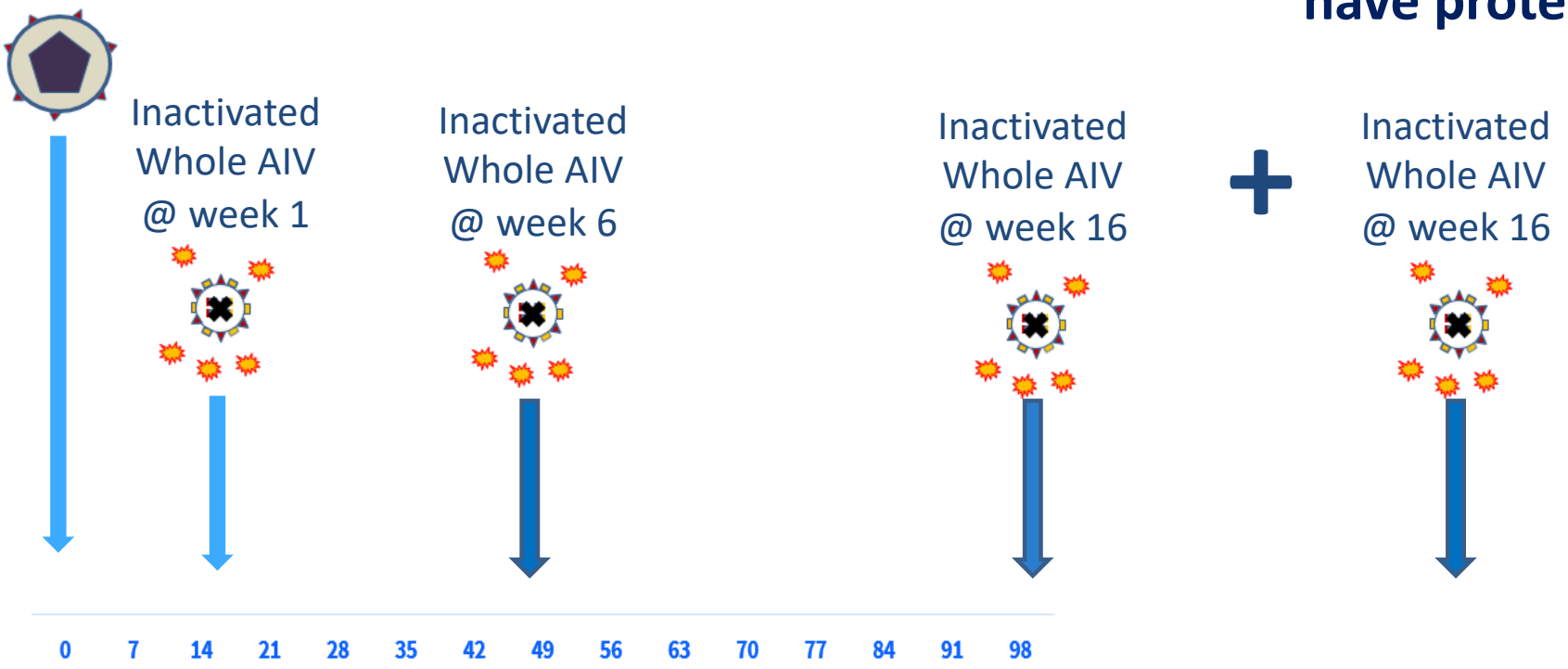
Vaccine program

Vectored HVT-AI @hatchery

1:32 HI: Prevents mortality
1:128 HI: Prevents oral shedding

Revaccination if less than 80% population have protective titers



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Conclusion

1. **AIV** is a virus with a **great capacity for mutation** and evolution. This must be **taken into account in its control.**

2. **Farm biosecurity** is even **more required** for AI control in area where biosecurity is lacking. **Biosecurity** is the **base** for effective **control programs**

3. A **properly implemented vaccination** programme is a **great help** in controlling AI in **endemic areas** but cannot solve the disease on its own.

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H&N LAYER ACADEMY

INTERACT WITH US!

Make use of our multiple-choice poll tool and pick what you think is correct.

THANK YOU FOR YOUR INTEREST