

A large group of fluffy yellow chicks are shown in a farm setting. The chicks are densely packed, with many in the foreground and others receding into the background. They have bright yellow downy feathers and small orange beaks. The background is slightly blurred, showing more chicks and some greenery.

On-farm Biosecurity – Clinical Perspective

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Overview

- Aims of biosecurity
- Reality of Biosecurity
- Case Studies



A close-up photograph of a person's hands gently holding a small, fluffy yellow chick. The chick is positioned in the center of the frame, facing left. The person's hands are visible, with fingers spread to support the chick. The background is dark and out of focus. The text "Aims of Biosecurity" is overlaid in white, centered horizontally.

Aims of Biosecurity

What is biosecurity?

- A set of management practices which when followed correctly reduce the potential for the introduction and spread of disease-causing organisms onto, and between sites.
- Should be judged from the perspective of the bird rather than the farm
- Should not be reaction to disease outbreak. Good hygiene and biosecurity practices should be always carried out.



Levels of Biosecurity

- Conceptual – Where?
- Structural – How?
- Operational – What?



Operational Biosecurity

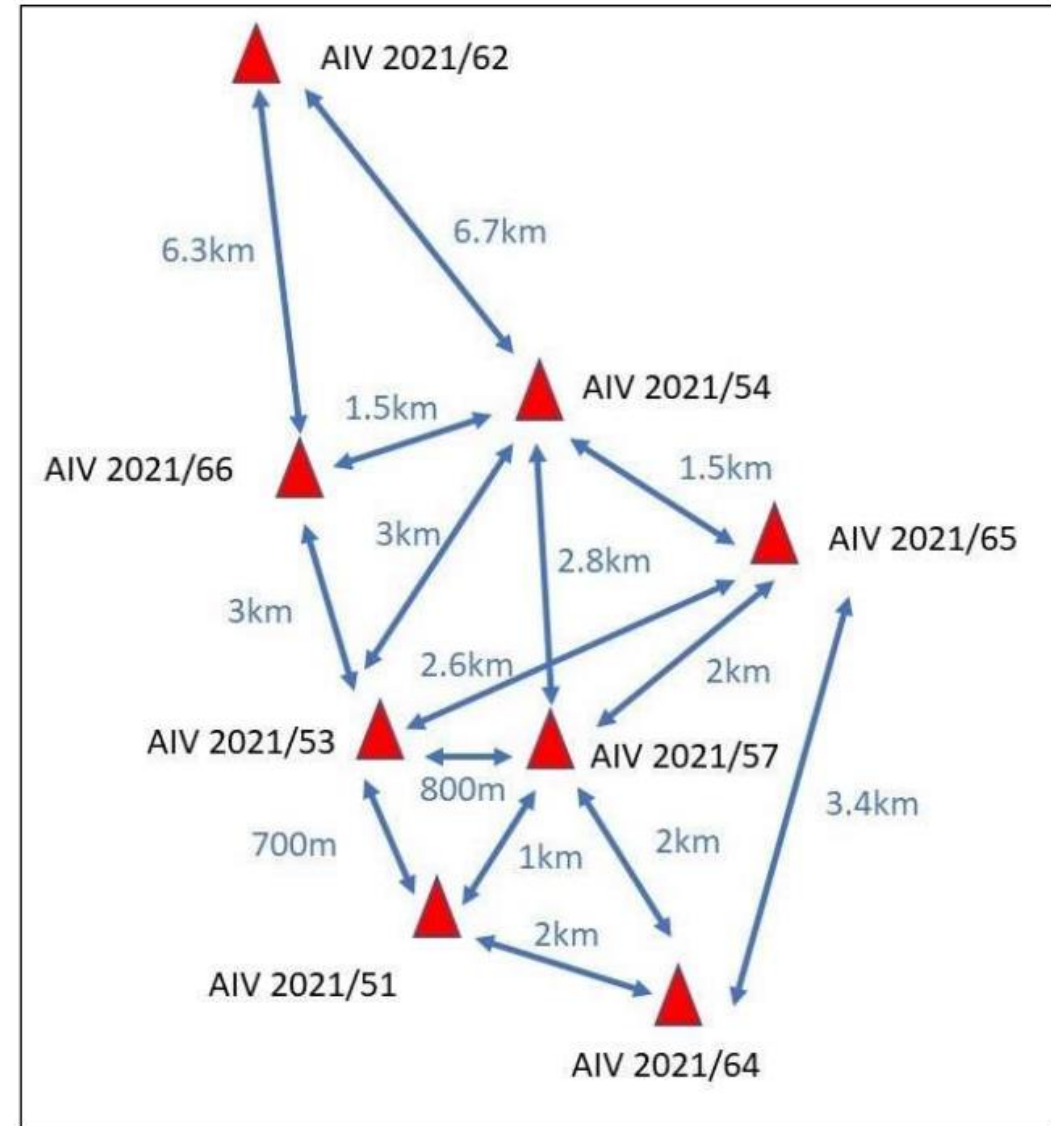


A close-up photograph of a person's hands gently holding a small, fluffy yellow chick. The chick is positioned in the center of the frame, facing left. The person's hands are visible, with fingers spread to support the chick. The background is dark and out of focus. The text "Reality of Biosecurity" is overlaid in white, sans-serif font across the middle of the image.

Reality of Biosecurity

Lincolnshire – Company Linked Cluster

- 8 infected premises
- 11/12/2021 – 18/12/2021
- Commercial layer – rear and lay



Source:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1166985/Highly Pathogenic Avian Influenza H5N1 outbreaks in Great Britain 2021 to 2022.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1166985/Highly_Pathogenic_Avian_Influenza_H5N1_outbreaks_in_Great_Britain_2021_to_2022.pdf)

Investigation

- Wildfowl were likely to be abundant and a significant sources of infection was anticipated regionally and suspected locally.
- Compulsory housing order in place
- Biosecurity standards across all infected premises were average to poor

Source:
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1166985/Highly Pathogenic Avian Influenza H5N1 outbreaks in Great Britain 2021 to 2022.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1166985/Highly_Pathogenic_Avian_Influenza_H5N1_outbreaks_in_Great_Britain_2021_to_2022.pdf)

Investigation

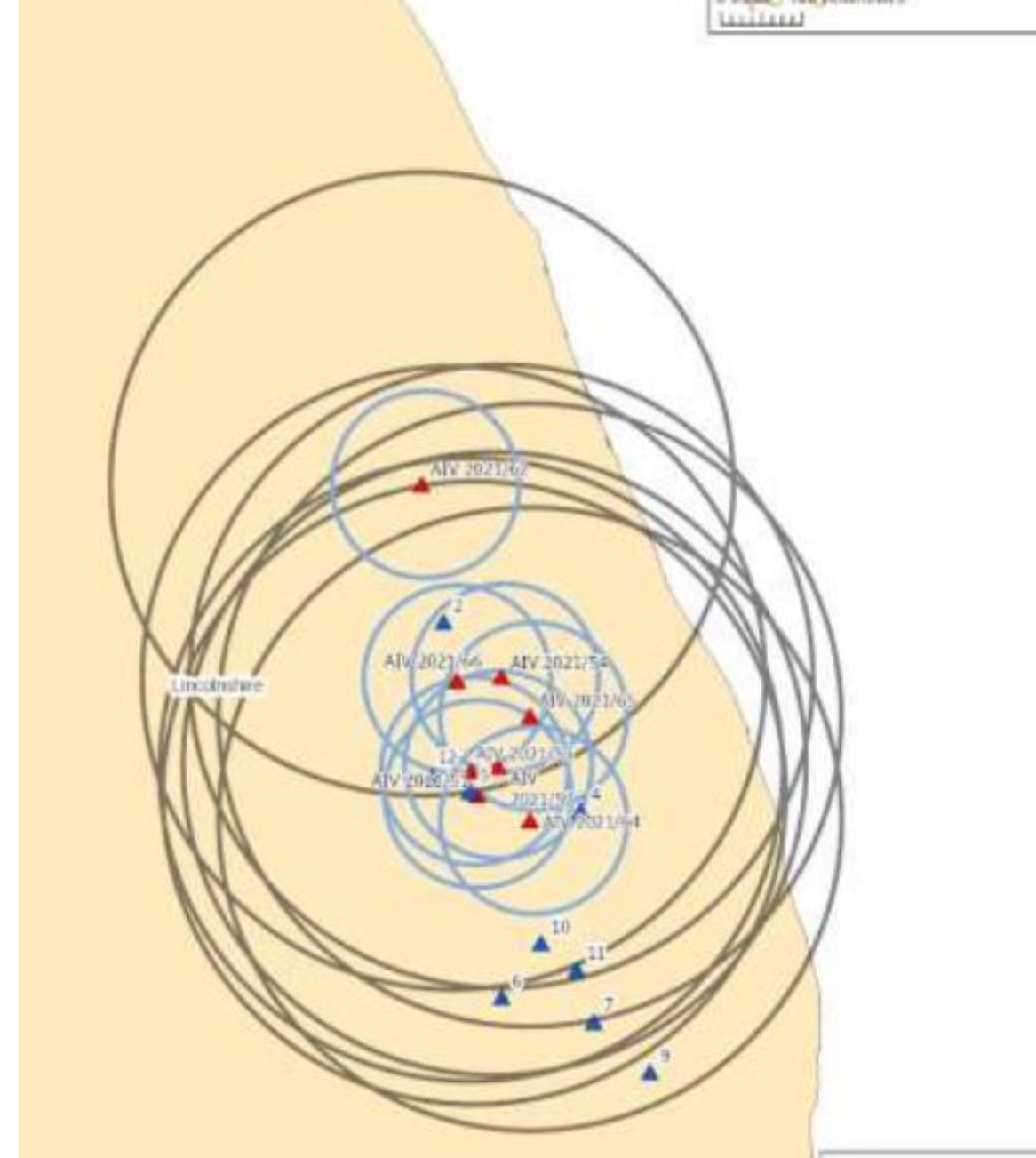
- PPE – cross over between Biosecure areas, 1 premises visibly contaminated footwear in canteen
- Movement of staff between sites
- Poor compliance with company policy for visitors
- Visitor books absent on some sites and incomplete
- Structural deficits on some sites – allowing ingress of water/rodents/wild birds
- Rodent activity on some sites
- Storage of bedding outside with visible bird faeces present

Source:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1166985/Highly_Pat_hogenic_Avian_Influenza_H5N1_outbreaks_in_Great_Britain_2021_to_2022.pdf

Outcomes

- Indirect contact with wild birds.
- Indirect spread to other domestic flock (such as egg collection/egg tray delivery, feed delivery, ABP collections, staff sharing).



Source:
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Avian Influenza Virus Introduction (Nishiguchi et al, 2007)

- Sharing of farm equipment – 29.4
- Operational biosecurity – 7.0
- Distance to IP (1-1.5km) – 20.1



Salmonella

Arsenault et al, 2007

- Broilers
- Unlocked poultry sheds – 2.6

Snow et al, 2010

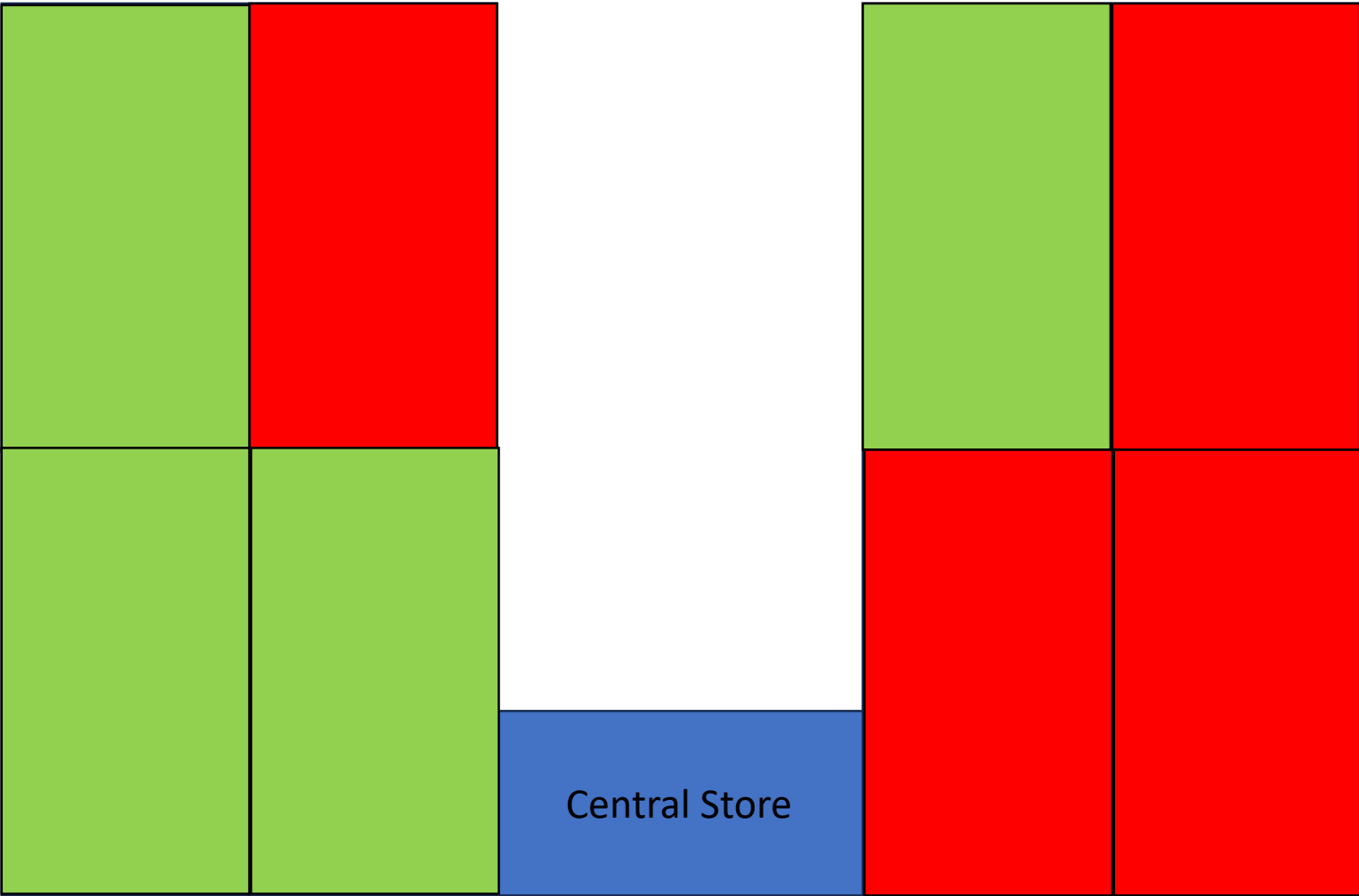
- Layers
- Car parking near poultry sheds – 7.1

A close-up photograph of a person's hands gently holding a small, fluffy yellow chick. The chick is positioned in the center of the frame, facing left. The person's hands are visible, with fingers spread to support the chick. The background is dark and out of focus, with a blue and white striped pattern visible on the right side. The text "Case Studies" is overlaid in white, centered horizontally and slightly below the middle vertically.

Case Studies

Case # 1

- On-farm notifiable disease – both sheds
- Excellent on farm biosecurity
 - Double step over barriers
 - House specific footwear
 - Handwashing facilities
- Farm sampled prior to depopulation to understand distribution



Shed A

Shed B

Outcomes

- Both houses likely infected prior to arrival on farm
- Disease likely has a low level of infectivity
- Local biosecurity measures work to contain disease

Case # 2

- Campylobacter
- Campylobacter is the leading cause food-borne zoonotic diseases in humans (Gutierrez et al, 2022)
- The most common source of infection in humans due to *Campylobacter* are broiler meat and milk (EFSA / ECDC, 2019)

Background

- 5 shed site, multiage
- Poor on-farm biosecurity
 - Unlocked doors
 - No step-over barriers in place
 - No hand washing facilities
 - House specific footwear?
 - Dogs around yard
 - Associated dairy farm







Considerations

- Multiage
 - Poor operational biosecurity
 - Thinning
 - Persistent gumboro challenge
 - Dogs
-
- 6 Consecutive crops of
>10,000,000

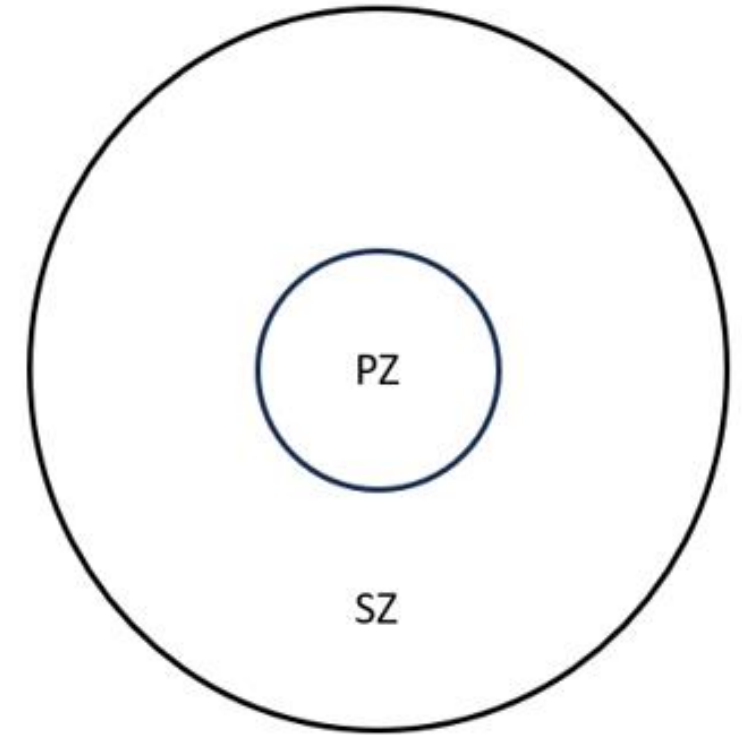


Outcome

- Implementation of enhanced cleaning and disinfection
- Handwashing facilities in each house
- Step-over barriers
- House specific footwear
- Environmental management
- Gumboro vaccination (double)
- Water sanitation
- In-feed acidification

Conclusions

- Know your weakness
- If you think you have no weakness, that's your weakness!
- Biosecurity is constant
- Fail to prepare, prepare to fail!



IP #1: ????????