

# Biosecurity principles

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Learning objective

Biosecurity principles

Biosecurity application

# Learning objectives :



**Describe why biosecurity is important during Outbreak investigation**

**Apply the 3 key principles of biosecurity**

**Able to train veterinarians, animal health workers on biosecurity principles and its application in practice.**



## What is biosecurity? Recent pandemic COVID19

Procedures used to prevent the introduction and spread of disease





Why should veterinarians and animal health workers use good personal biosecurity procedures during outbreak investigation?





# Why Biosecurity is important for veterinarians ?

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High Risk !!!!!  
Direct contact  
infected animals  
and visit multiple  
villages and  
premises

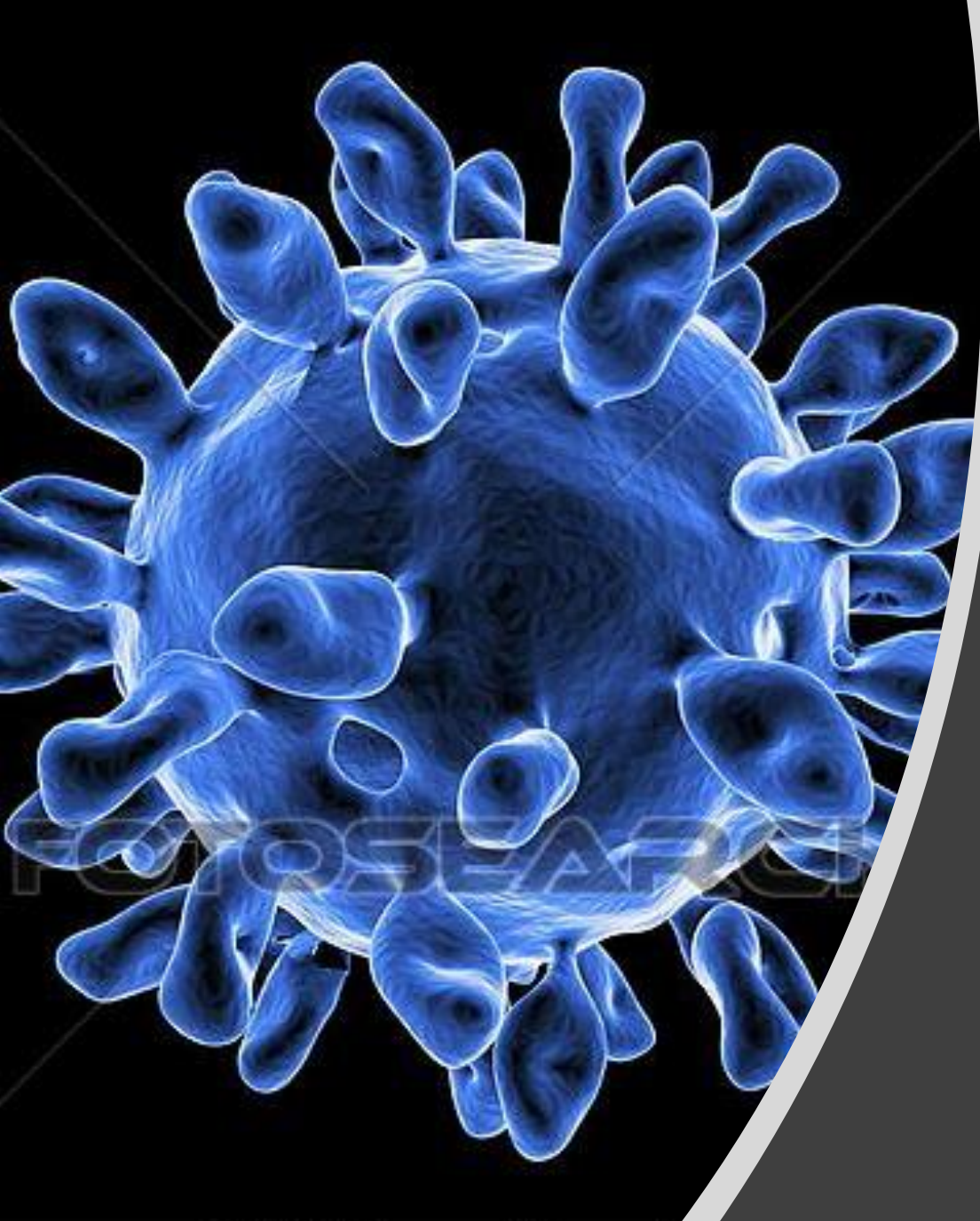


Must be led by  
example encourage  
to apply biosecurity  
farmers /CAHWs

Can not apply  
Retrospectively/Us  
e biosecurity even  
if disease is only  
suspected

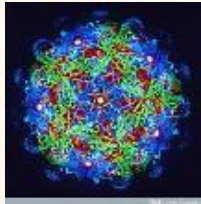


Ensure veterinarians  
are not accused of  
spreading disease:  
disinfect ONTO  
premises as well as  
off

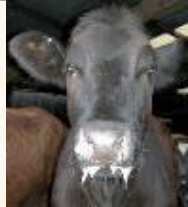


**Why do we  
need to  
prevent from  
Spread FMD  
infection?**

# Why Biosecurity is important for FMD Control



FMD requires a **very low infectious dose** and **virus is produced in large quantities** by the infected animals  
Virus is present in all **secretions** and **excretions**



FMD is disease of **high morbidity** and **low mortality**  
therefore infected animals remain alive to infect others



Wide host range



The virus is **capable of persisting** in the **environment** and **fomites**

**Multiple transmission routes** – direct contact, mechanical, fomites, products, aerosol etc



**BUT...** FMD virus is sensitive to **small changes in pH**, and it is possible to **reduce the risk of spread** if adequate **cleaning and disinfection** takes place



# Three Key principle of biosecurity

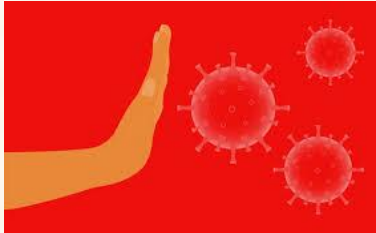
**1 Segregation**

**2 Cleaning**

**3 Disinfection**

1

# Segregation



*Prevent contamination*

*The first element of biosecurity*



*Formation of barriers*

*Physical*

lock on the doors, fence, gate,  
distance

*Temporal*

time break between farms  
visits

*Procedural*

washing hands, slippers, boots,  
change footwear, outer clothes, PPE  
/apron

# Three Key principle of biosecurity



FMD cannot be transmitted if **virus do not come in contact with** animals, people or equipment which **might act as Fomites**

- ✓ **Physical** – wall, fence, gate,
- ✓ **Temporal** – time between visits, quarantining of newly purchased animals
- ✓ **Procedural** – changing footwear, stop sharing tools with neighbours, segregating sick and healthy animals, proper carcass disposal

## 2

# Cleaning

*Remove organic matters/visible dirt*

- ❖ All surfaces/materials must be thoroughly cleaned prior to disinfection
- ❖ Disinfectants cannot work if infectious agents are hidden beneath dirt. Many disinfectants are inactivated by organic materials.
- ✓ *Soap, water and a brush are adequate for equipment*
- ✓ *Brush and water boots and slippers*
- ✓ *There should be no visible dirt on the surface of material*





# Three Key principle of biosecurity



- ✓ **Disinfectant** cannot kill virus **hidden beneath layers** of dirt and some disinfectants are **inactivated by organic materials**.
- ✓ Therefore it is important **to clean all visible dirt before disinfection**
- ✓ **Soap, water and a brush** are adequate for small objects
- ✓ **High-pressure water** required for vehicles and larger contaminated surfaces

# 3

# Disinfection

## Disinfect remained contamination

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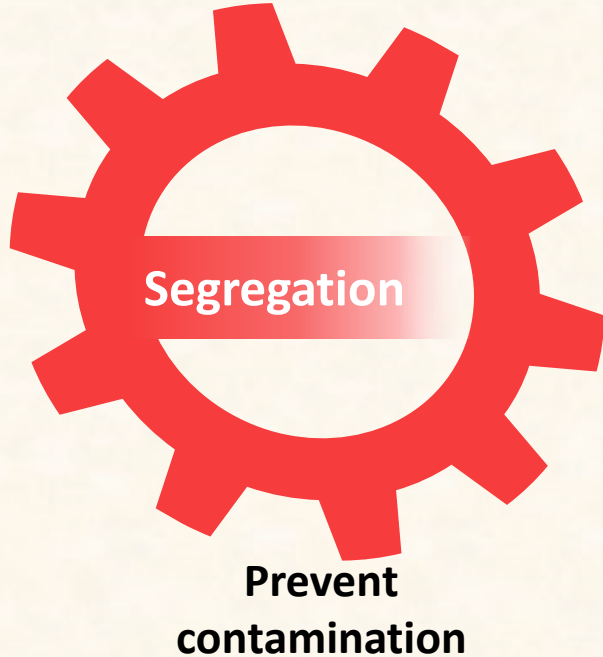
The application, after cleaning- the procedure intended to destroy the disease agent

To ensure that disinfectants work properly

- Select a disinfectant **appropriate for the disease agent, FMD:**
  - Citric acid
- **Correct concentration** (see label of disinfectant/concentration level )
- The disinfectant for sufficient **contact time** (the length of time the surface remains visibly wet)



# Three Key principle of biosecurity



FMD virus is rapidly inactivated **below pH 6.5** or **above pH 9.0**

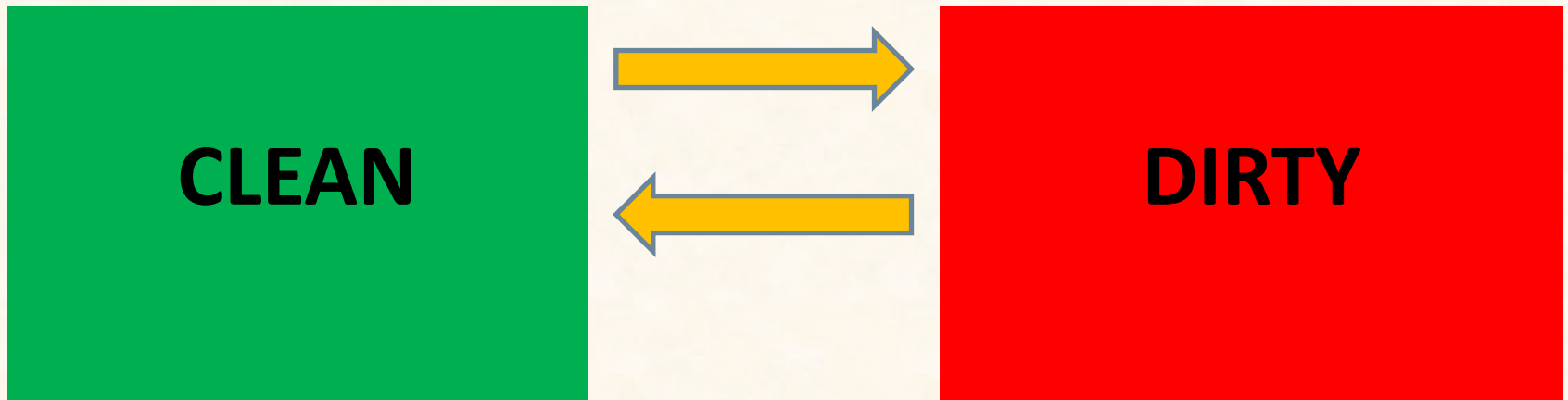


**Disinfection** is important but its effectiveness depends on quality of **cleaning process**



Use disinfectant **effective** against FMD Virus in **correct concentration** and by allowing **sufficient contact time** to be effective

# Biosecurity of outbreak investigation



**Entering a village/premises/farm**

**Existing a village/ premises/farm**



# Entering a village/premise/farm

## Step 1: Make a plan and checklist

- ☐ Liquid soap/Detergent
- ☐ Disinfectant
- ☐ 2 Brushes
- ☐ 2 Buckets (detergent and disinfection solution )
- ☐ Gloves
- ☐ Sampling equipment/ Cooling box
- ☐ Zipped plastic bag for note
- ☐ Disposal bag
- ☐ Plastic sheet for disinfection point
- ☐ +/- Mask
- ☐ +/- PPE or Disposable Apron
- ☐ +/- Clean clothes
- ☐ +/-Boots
- ☐ +/- Camera
- ☐ +/- Note/Outbreak investigation form
- ☐ +/-Note holder/pen

**Check all equipment**

**Adjust in your country  
context**

## Step 2 : Park your vehicle away and select biosecurity point



- At the entrance village
- At the farm gate
- Inside village near water source or paved place

### Step 3 : Setting up biosecurity point

**CLEAN**

**DIRTY**



**CLEAN**

Set up disinfection point

Place equipment/  
Bucket with water  
and with disinfection

Use zipper bag for  
small objects

Gowning/Wear  
apron

Bring necessary  
equipment

**DIRTY**



## Step 4 : Entering village/premises/farm





Step 4 : Exiting village/premises/farm

**CLEAN**



Get dressed

Degowning

Disinfection

Cleaning

Remove dirt  
(equipment and  
boots)

Put used disposables  
in the bag/spray bag



**DIRTY**

# Some Practical tips



Set up disinfection point near water source/or choose paved place



Do not wear watch, ring earring ..ect., leave unnecessary items



Zipper bags, disinfect by spraying



Use disposable apron in the tropical weather instead of outer wear

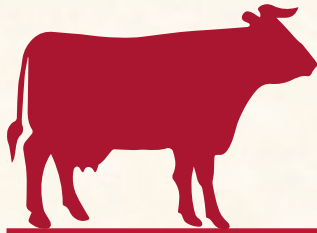


Use mobile apps instead of hard copy questionnaire/taken note

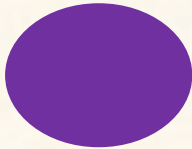


Use waterproof phone case (common during Water festival )

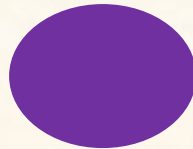
# Be a Biosecurity Leader in your country



Key message



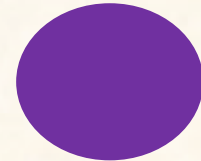
Make a  
Biosecurity  
Plan OI  
investigation



Bring all  
biosecurity  
supplies

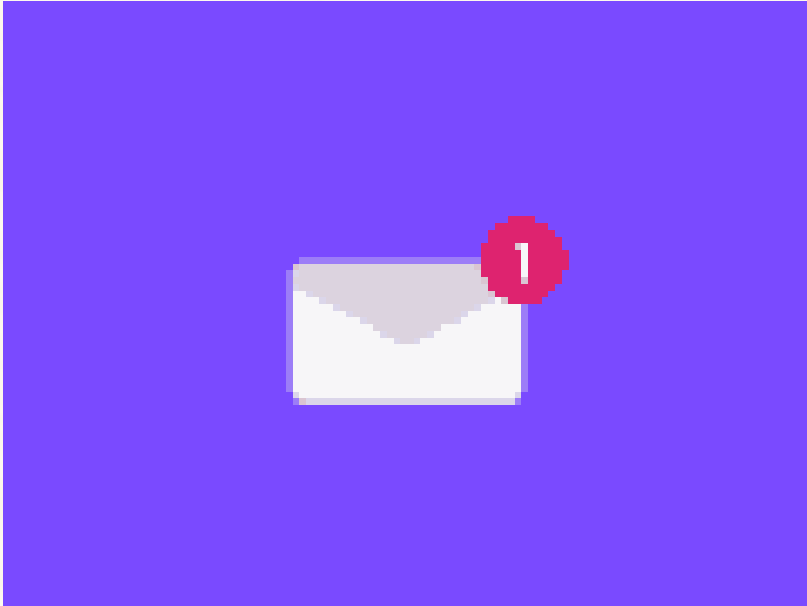


Follow  
Biosecurity  
steps



Practice  
biosecurity all  
village/premises

# Summary



- Use biosecurity procedures properly when visiting village/premises/farm during an outbreak to prevent and spread of disease
- Be a biosecurity leader in encouraging animal health workers and farmers to apply biosecurity themselves
- Apply the 3 key principles of biosecurity: Segregation, Cleaning, Disinfection – During outbreak investigation

**NO SINGLE  
BIOSECUTIRY  
PROCEDURE. ADJUST  
IN YOUR COUNTRY  
CONTEXT**



# Recourses :

Biosecurity. Visiting a premises suspected of FMD  
(EuFMD)

<https://www.youtube.com/watch?v=IjS-53r0FJk>

Biosecure premises: entry and personal decontamination  
(Dept of Agriculture and Fisheries, Biosecurity Queensland,  
Australia)

<https://www.youtube.com/watch?v=I5lsaJZV0ds>

Thank You  
for your attention!

