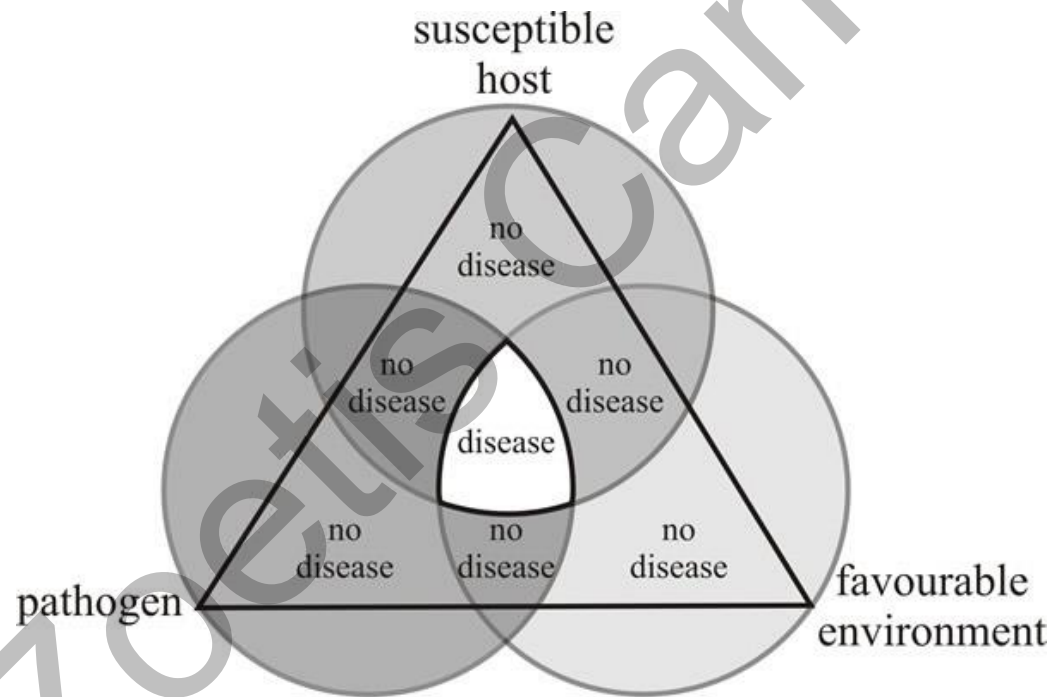


Getting Past Our Guard

Hidden pathways for disease transmission

The Disease Triangle



There are five main routes for disease transmission

Aerosol

**Direct
Contact**

Fomites

**Oral
Ingestion**

Vector



How do we minimize disease transmission?



Biosecurity

- Has been a pillar in swine production over the last 40 years
- Has allowed us to prevent disease from occurring
- Helps to eliminate some diseases
- Reduces exposure to diseases
- Increases productivity
- Involves putting up many safeguards/hurdles

What Pathways Into The Barn?

Air

Feed

Water

Pests

Fomites

Caretakers

Infected
animals

Aerosol

- Occurs when tiny droplets containing disease particles are inhaled
- Most require short distances and close contact
- Many diseases can be aerosolized
 - PRRS
 - Influenza
 - PEDV/Delta Corona
 - Mycoplasma hyopneumonia
 - Swine Vesicular diseases
 - APP
 - TGE
 - ASF



Aerosol Interventions

- Physical distance
- Barn filtration
- Eliminate diseases
- Masks
- Vaccination
- Biocontainment



Source: https://collection.onf.ca/film/epidemic_foot_and_mouth_disease

Oral/Ingestion

- Occurs when the animal ingests the disease-causing agent
- Types of ingestion
 - Feed
 - Water
 - Licking
 - Chewing



Diseases Contracted By The Oral Route

- Colibacillosis
- Cryptosporidia
- Campylobacter
- Cysticercosis/Teniasis
- Erysipelas
- Leptospirosis
- PCV2
- PED/Delta Coronavirus
- Parvovirus
- Rotavirus
- Salmonella
- Brachyspira
- Senecavirus A
- Foot and Mouth Disease

Interventions for Oral Transmission

- Water filtration and sanitation
- Known feed sources and ingredients
- Heat treatment for feed ingredients
- Remove certain ingredients
- Keep bins closed
- Dead removal
- Minimize pests
- Separate sick animals



Direct Contact

- Animals have to touch
- May have contact with body fluids
- Includes horizontal and vertical transfer from sow to piglet
- May also occur during breeding



Diseases That Rely on Direct Contact

- Colibacillosis
- Influenza
- Camplobacter
- PRRS
- Erysipelas
- Leptospirosis
- PCV2
- ASF
- Mycoplasma
- PED/Delta Coronavirus
- Parvovirus
- Rotavirus
- Salmonella
- Brachyspira
- Senecavirus A
- Foot and Mouth Disease
- Strep Suis
- Pseudorabies

Direct Contact Prevention

Known
sources of
animals

Modern
swine
production

Artificial
Insemination

Avoid
assembly

Pest control

Fomite Transmission

- Occurs when contact with an object or surface that was contaminated by feces or body fluids
- Surfaces and objects include
 - Equipment (feed and watering equipment)
 - Footwear
 - Handling equipment
 - Housing
 - Transport
 - Water
 - Soil
 - Treatment equipment

Diseases Transmitted by Fomites

- Colibacillosis
- Cryptosporida
- Camplobacter
- Cysticercosis/Teneniasis
- Erysipelas
- Leptospirosis
- PCV2
- ASF
- Influenza
- PRRS
- PED/Delta Coronavirus/TGE
- Parvovirus
- Rotavirus
- Salmonella
- Brachyspira
- Senecavirus A
- Foot and Mouth Disease
- Strep Suis

Controlling Diseases Transmitted by Fomites



CLEAN AND
DISINFECT



ALLOW
TIME/TEMPERATURE



CONTROL ENTRY



CHANGE CLOTHES
AND BOOTS



BE AWARE OF
SURFACE
CONTAMINATION

Vector Transmission

- Occurs when an organism moves a disease-causing agent from an infected animal to another animal
- Insects are common vectors
 - Flies
 - Mosquitos
 - Ticks
- Less diseases are transferred this way

Vectors Continued

- What can be transmitted?
 - Camplobacter
 - Colibacillosis
 - Japanese encephalitis virus
 - PCV2
 - PRRS
 - Salmonella
 - Seneca
 - Strep Suis
 - Brachyspira
 - TGE
- Key is to manage insects

What Can We Do?



Knowledge is power



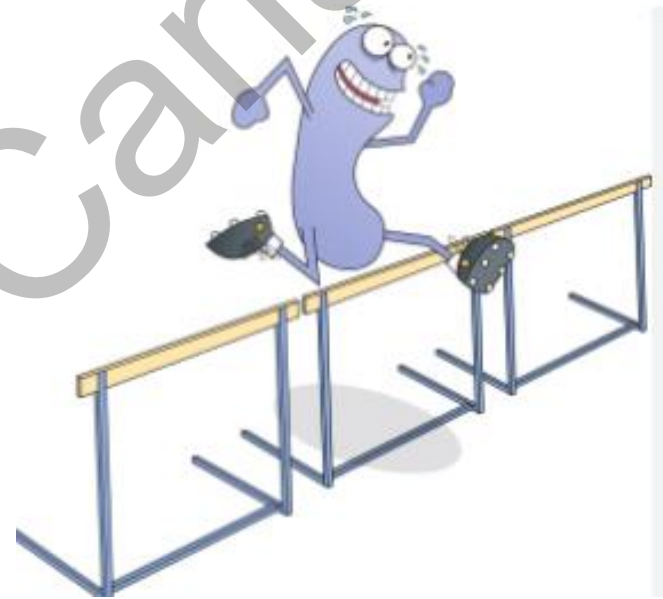
Biosecurity is key



Knowing these pathways into the barn allows us to help prevent



An ounce of prevention is worth a pound of cure



Source: <https://www.nature.com/articles/s41579-019-0224-3>

**Thanks For Your
Attention!**

