

# Big Red Biosecurity Program

## MODULE 2

### Developing and Evaluating a Biosecurity Plan



# Description of Module 2

---

Module 2 will define what a biosecurity program/plan is, why it is important and the purpose of a biosecurity program. Developing, assessing and evaluating a biosecurity program is also presented.

# Why is Biosecurity Important?

---

## What are we protecting our birds from?

- Answer = DISEASES
- Biosecurity is first line of defense
  - Preventative measures (i.e. prevents exposures/infections)
    - Decreases
      - Spread of diseases
        - Losses due to mortality and morbidity
        - Economic losses from disease
        - Public health concerns (i.e., diseases transmissible to humans)
      - Use of disease treatments and preventatives
        - Usage of antibiotics = decreases antimicrobial resistance
        - In some instances use of vaccines = decreases resistant strains
    - Increases
      - Health and well-being
      - Profitability
- Biosecurity programs “Required” by some government programs (USDA NPIP)

# Ultimate Objective/Purpose of Biosecurity

---

**The ultimate objective/purpose of a biosecurity program is to:**

## **Reduce risk!**

- We can never totally eliminate the risk of disease
- We can substantially mitigate risks and risk factors

# What is a Biosecurity Program/Plan?

---

- What is a biosecurity program?
  - The practices and procedures you are currently using to reduce risk of disease
- What is a biosecurity plan?
  - The practices and procedures you will implement if circumstances change
- Biosecurity programs can (and should) contain biosecurity plans
  - Typically implement plans into programs when something changes
    - Threat level
    - Assessment
    - Other

# Developing/Evaluating a Biosecurity Program/Plan

---

# Determine Your Objective(s) and Goal(s)

---

- Biosecurity program
  - What problem(s) are you trying to solve?
    - What are you attempting to do?
    - What do you want to accomplish?
- Biosecurity plan
  - What-if scenarios?
    - What if a low incidence high impact disease occurs (e.g., HPAI)?
    - What if our biosecurity index/score goes over/under a certain benchmark?
  - Determine when and how the biosecurity plan becomes implemented into a biosecurity program
- These are the first steps to be taken and should provide you guidance in establishing goals, guiding principles, etc.

# Setting the Goal(s)

---

## Goals should be

- Clear, concise and unambiguous
  - Examples:
    - Protect against *Salmonella spp* introduction
    - Decrease the mortality from a specific disease
    - Raise antibiotic free poultry
    - Increase awareness of a biosecurity program
- Attainable
  - Track progress with benchmarks
    - Example—within one year decrease antibiotic usage by 50%; within two years by 75%
- Reasonable number representing most urgent needs



# Threat Level

---

## Goals may change according to threat level

- Example:
  - Outbreak of a highly infectious, high impact disease in near surroundings
    - HPAI = High Path Avian Influenza
    - END = Exotic Newcastle Disease
- Have biosecurity levels representing corresponding threat level
  - Normal / Emergency (or urgent)
  - Lo, medium, hi
  - Level 1, Level 2, Level 3
  - The parameters of how different levels are designated and achieved should be delineated and written
    - Example—we will go to level 2 if AI is present in USA; Level 3 if HPAI is within 50 miles
    - The goals, SOPs, etc. (i.e. the program) should be altered to accommodate the change

# Assessment

---

**A quantitative method for measuring (or estimating) the degree to which biosecurity risk is increased or decreased when changes to biosecurity programs and/or conditions are made or occur.**

- Often times use an index or score
  - Must define the meaning of increasing or decreasing an index/score
  - Results must be clearly communicated with follow up action
- May be the basis for changing the threat level
- If a change in index/score results in no risk reduction or action then you must ask:
  - Are we using the right formula?
  - Are we instituting the right changes?
  - Are we wasting precious resources?
  - How can we change things to make it meaningful/reduce risk?

# Assessment

---

## How to assess – a method for formulating an index/score

- Questionnaires
  - Example – What protocols are used for visitors to enter a production facility?
    - A. Sign in, shower-in, with clean clothing provided
    - B. Sign in, disposable shoe/boot covers and disposable coveralls required
    - C. Boots and coveralls required, boots to be washed in designated boot wash before entry
    - D. No protocols – all welcome
  - Answers should be
    - Clear and concise
    - Non-overlapping
    - Significantly different to represent significant scoring differences
  - Different scores can be assigned to different answers
    - The scores should be exponential vs arithmetic to observe wide differences in best biosecurity practices
    - Example above
      - Answer A = 1000 or 8, instead of 3
      - Answer B = 100 or 4, instead of 2
      - Answer C = 10 or 2, instead of 1
      - Answer D = 1 / 1, instead of 0

# Assessment

---

## How to assess – a method for formulating an index/score, cont.

- Questions derived / formulated from three sources
  - Experimental evidence
    - Examples:
      - Conditions for pathogen survival – may relate to selection of disinfectant, handling mortalities, building down time
      - Routes / incidence of transmission of pathogens under certain conditions
      - Availability of vaccines and their effectiveness
    - Data may not be available – may extrapolate from other sources (be cautious of over extrapolations)
  - Retrospective analysis
    - Learning from previous exposure / disease encounter = what works, what doesn't
    - Much written about previous disease occurrences
  - Expert recommendations
    - When no “good” information exists
    - Can be individual experts or derived from a broad range of people with different experiences

# Assessment

---

## How to assess – a method for formulating an index/score, cont.

- Use of quantitative data
- Examples:
  - How much traffic on premises?
    - Type of vehicles?
    - How long do they stay?
  - Methods for compliance and how effective?
    - Sign in sheet
    - Electronic entry
    - Video

# Assessment

---

## How to use assessment indices/scores

- Can be used as a benchmark over time for same facility
  - Year to year, month to month
  - Determine if progress is being made and changes are needed
- Can be used to compare facilities within operations or between operations
  - May more accurately determine or identify crucial risk factors
  - May determine what works and what doesn't
    - Can make changes to biosecurity programs
    - Can be used for future planning
- Can be used to establish best management practices, SOPs, etc.
- Can be used to measure compliance and training

# First Step in Developing/Evaluating a Biosecurity Program/Plan

---

## Who's in charge?

- Who is responsible for the biosecurity program / plan? Remember “the chain is only as strong as the weakest link”
  - Does this person have a title or designation?
    - Biosecurity coordinator
    - Director of biosecurity
    - Biosecurity officer
    - Is the person (and/or company/entity) serious and engaged about the program / position or was this by default (“the new person gets the job”)
  - Who and how are decisions made?
  - Who has authority to implement and/or change SOPs, rules, etc.
  - Is there a budget/resources and is it adequate?
  - Who is tasked with training/education?
  - Who is responsible for and how is compliance accomplished?

# Next Steps—Know What You're Dealing With

---

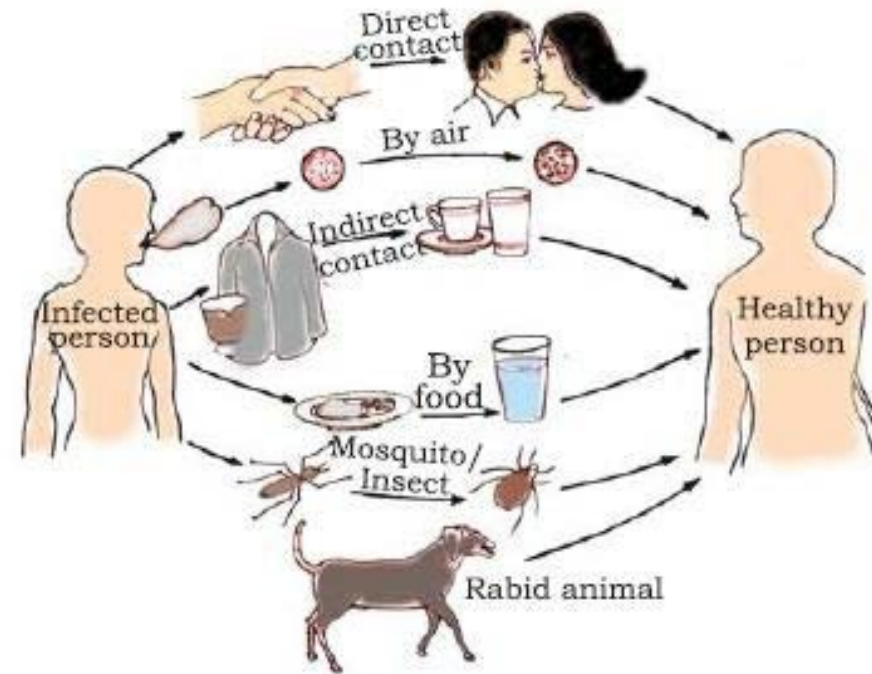
- For an infectious disease pathogen(s)
  - Determine basic information about the pathogen(s)
    - Example:
      - What type of microbe (e.g., virus, bacteria, fungus, parasite, etc.)
      - Survivability in environment(s) (e.g. best way to inactivate/kill/disinfect)
      - Transmission routes (e.g., vector, fomite)
      - Likely source
      - Vaccines/ drugs/chemicals available for protecting host
- For noninfectious diseases
  - Determine the cause
  - Determine factors associated with disease



# Next Steps—Disease Transmission

## Review all transmission routes in regards to pathogen

- How diseases are spread
  - **Modes (routes) of disease transmission**
    - Depends on disease/disease agent
    - Common routes
      - **Direct contact**
      - **Aerosol** (i.e., by air)
      - **Indirect contact = fomites** (inanimate)
      - **Oral** (food-borne/fecal oral)
      - Insects and bugs = **vectors** (animate)
        - **Mechanical vectors** – e.g., flies
        - **Biological vectors** – e.g., mosquitoes



# Review Transmission Routes & Other Factors with Regard to Biosecurity Components

---

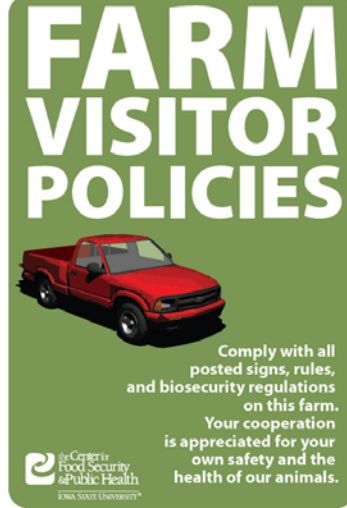
- What could be changed/alterred/added to reduce risk
- Establish
  - Lines of separation
  - Perimeter buffer area
  - Transition areas
- Conceptual = location of facilities
  - Examples
    - Location of facilities – risk factors
    - Traffic patterns or amount – place a gate or roadway
- Structural – equipment, buildings, materials
  - Examples
    - Change a building entryway
    - Add a chlorinator/medicator to water system
- Procedural – where most changes will be made
  - Examples
    - Add signage
    - Develop SOPs
    - Education and training specific to goal

# Management Practices—Signage

---

- Good and appropriate signage is typically our most underutilized tool
  - People that enter a premise should not have to guess as to what, or what not, to do
- Guiding principles/goals
  - Purpose is to communicate (common sense approach)
    - Multiple languages should be considered
      - Don't assume that all people can read and understand English
      - Consider languages known to be in your area
    - Iconic symbols and pictures should be considered
      - Don't assume that all people can read English (or other languages)
    - Consideration of where signs are placed is important
      - Consider people (foot) traffic areas
      - Consider vehicular traffic areas
    - The message should be:
      - Clear, informative, brief and instantly convey the message in a glance
      - Non-threatening

# Examples of Good Signage



- Only enter this farm with permission
- Park at the entrance or in designated parking areas
- Check-in with farm personnel upon arrival and sign the visitor log
- Follow instructions provided by farm personnel at all times
- Leave deliveries in areas designated by farm personnel
- All visitors must be accompanied by farm personnel at all times
- Do not handle or contact animals unless permission is granted by farm personnel



- Solamente ingrese a esta explotación si cuenta con la autorización correspondiente.
- Estacionese a la entrada o en las áreas designadas para estacionamiento.
- Regístrese con el personal de la explotación al momento de su llegada y firme la hoja de registro de visitantes.
- Siga en todo momento las instrucciones que le proporcione el personal de la explotación.
- Deje las entregas en las áreas que le indique el personal de la explotación.
- Todos los visitantes deben estar acompañados de un miembro del personal de la explotación en todo momento.
- No manipule ni entre en contacto con animales a menos que se lo autorice el personal de la explotación.



# Examples of Bad Signage

---

Too wordy and intimidating

**Please do not enter the dangerous area beyond this gate! You quite possibly will get hurt, then you will sue, then a protracted court battle will ensue exhausting your financial resources and you will lose because this sign that warned you will be "Exhibit 1".**

Too intimidating and unfriendly



# Specific Factors to be Considered in Relation to Biosecurity Components

---

- Physical distance of facilities from risk factors (i.e., location)
  - May place a risk evaluation on a distance
    - Example: > 200 yards from road = low risk; < 50 yards = high risk
- Incoming animals
  - New animals introduced in the site
    - Examples:
      - Prophylactic measures – e.g., vaccinations, medications, etc.
      - Quarantine

# Specific Factors to be Considered in Relation to Biosecurity Components

---

- People
  - Communications – meetings, signage, it, etc.
  - Company personnel
    - Animals owned or encountered
      - May restrict ownership or association with certain types of animals
      - Activities involving animals
        - Examples – shows, 4-H projects, fairs, etc.
    - Other:
      - Employee health
      - Entry system(s) to facilities
      - PPE
      - Education / training
  - Visitors/clients/others – “If a person wanders on to a premise are they directed?”
    - Examples:
      - Restricted areas
      - Entry system
      - PPE
  - Service personnel
    - Security
    - Maintenance
    - Etc.

# Specific Factors to be Considered in Relation to Biosecurity Components

---

- Equipment and tools
  - Common equipment that is owned or shared by others
    - Example: storage areas, refrigerator
      - Multiusers
      - Who and how maintained, decontaminated, cleaned, documentation, etc.
  - Equipment that is leased or part of a service company that goes from business to business (or farm to farm)
- Vehicles
  - Personal vehicles
    - Parking areas
    - Decontamination/washing procedures
  - Service vehicles (e.g., feed trucks, veterinary trucks, etc.)
    - Parking areas
    - Decontamination/washing procedures



# Specific Factors to be Considered in Relation to Biosecurity Components

---

- Animal risk factors (other than humans)
  - Rodent control
  - Birds and other wild animals
  - Insects and other bugs
  - Domestic animals – pets, food animals, etc.
- Waste and mortalities
- Cleaning and disinfection
- Storage
  - Feed/food
  - Bedding/supplies
  - Medications, vaccines, chemicals, etc.
  - Other

# Auditing

---

- Who does it?
  - Within company or operation (i.e. self audit)
  - Third party
  - NPIP official (OSA)
  - Other
- What type of audit?
  - Table-top / questionnaire
  - On-site visit and evaluation
- When / how often?
  - Annual review by biosecurity officer / coordinator
  - NPIP – every two years

# Biosecurity Program Should Include All 14 NPIP Biosecurity Principles

---

1. Biosecurity Responsibility
2. Training
3. Line of Separation
4. Perimeter Buffer Area
5. Personnel
6. Wild Birds, Rodents, Insects
7. Equipment & Vehicles
8. Mortality Disposal
9. Manure & Litter Management
10. Replacement Poultry
11. Water Supply
12. Feed & Replacement Litter
13. Reporting Morbidity & Mortality
- 14. Auditing**



End of Module 2