



1



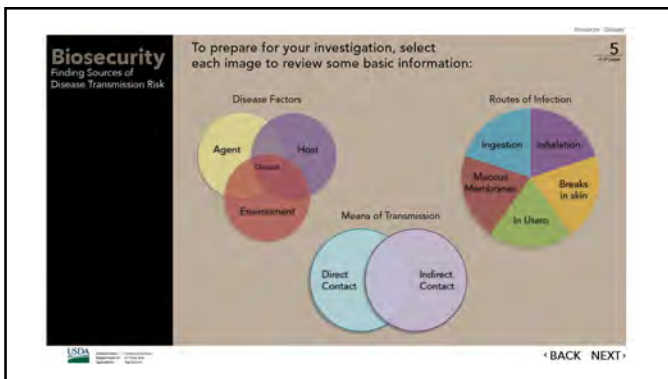
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5



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Biosecurity
Finding Sources of Disease Transmission Risk

Routes of Infection

Knowing routes of infection can help us block the spread of disease.

For each of the routes in the pie chart below, give an example of a situation that could cause infection.

1. type your example here
2. type your example here
3. type your example here
4. type your example here
5. type your example here

Submit

USDA

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Biosecurity
Finding Sources of Disease Transmission Risk

Means of Transmission

Two main ways to spread disease are through direct and indirect contact.

For each example that appears below, decide if the means of transmission is direct or indirect contact. Drag and drop the example into the correct circle.

Direct Contact

- Animals with respiratory disease licking non-infected animals
- Animals rubbing against other animals with skin disease

Indirect Contact

- Using a contaminated hoof trimmer
- Being bitten by a mosquito carrying a disease
- Grooming an animal with an infected brush

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Biosecurity
Finding Sources of Disease Transmission Risk

Clues to Look For

As you walk around the farm, think about possible sources of disease agents and how they can spread disease.

Examine these pictures, decide if each one poses a direct or indirect disease transmission risk, and then move it to the correct column.

Direct Contact

Indirect Contact

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Biosecurity
Finding Sources of Disease Transmission Risk

Ask Yourself These Questions

What questions should you ask yourself when trying to find ways disease agents could spread?

In this activity you are creating a list of questions you can use to help find sources of disease transmission. It's rather long, but you will be using this list to complete upcoming activities, so hang in there!

Move each question to the picture of the corresponding transmission method.

Animal to Animal

Human to Animal

Equipment, vehicles, and facilities

Contaminated feed and water

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Biosecurity
Finding Sources of Disease Transmission Risk

Biosecurity Risk Report

Farm Owner: Dave and Debbie Olson Date: Today

Biosecurity Investigator: You Livestock type: Dairy

Sources of Potential Disease Transmission

What is the risk?

This is the report you will create as you identify points of risk and complete the activities.

Fill in today's date and your name.

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Biosecurity
Finding Sources of Disease Transmission Risk

It's time to explore the farm and locate the sources of disease transmission risk. There are four areas to explore. Your goal is to locate 24 points of risk. Click next to begin your exploration.

Welcome to the Olson Farm

USDA

Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Bred Heifer Barn, Old Barn, Barnyard

Take a look around. Click on the photos and the magnifying glasses for more information. You might want to refer to your list of investigative questions for clues. In this area you need to identify six potential sources of disease transmission. (Hint: Not everything shown is a risk!)

Area A

Exploration points left: 4

Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Biosecurity Risk: Bred Heifer Barn, Old Barn, Barnyard

Find the 6 potential sources of disease transmission from the options below. When you're done, click on the SUBMIT button below.

0 Sources Selected

- "I wonder if there's enough airflow in this barn."
- "Could you please put on these shoe covers?"
- "I'm delivering the new heifer we picked up at the sale barn."
- "Watch out for those rodent traps!"
- RESTRICTED AREA - AUTHORIZED PERSONNEL ONLY

Questions SUBMIT

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Biosecurity
Finding Sources of Disease Transmission Risk

Let's explore the risks.

Drag each statement of risk to the colored box at the bottom of the page that describes the source of disease transmission.

Continually contaminate the environment and other animals.

Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Here is your Biosecurity Risk Report so far.

Biosecurity Risk Report

Farm Owner: Dave and Debbie Olson Date: Today

Biosecurity Investigator: You Livestock type: Dairy

Sources of Potential Disease Transmission	What is the risk?
1. Chronically sick animals	• Chronically contaminated environment and other animals. • Some animals can carry diseases without showing any signs of illness.
2. Borrowed tire	• Shared or new breeding tools could be carrying diseases that could spread to others.
3. New or returning animals	• Lack of quarantine for returning animals allows new animals to spread disease to existing animals. • Shows, auction markets, buying, breeder shows are the most likely cause of disease introduction.
4. Poor ventilation	• Air high in ammonia from urine and feces can irritate lungs of the nose, throat, and lungs and increase likelihood of respiratory disease.
5. Vehicle in barn	• Vehicles, tires, or other items could be contaminated and spreading disease agents.
6. Contaminated facilities	• Facilities that are not cleaned and disinfected regularly for use difficult to clean. Such as wood structures or old barns can harbor disease-causing agents, a habitat of "bad" bugs can contribute to the existence of an animal and cause disease.

Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Great! You learned something from exploring this area.

Select Next to move to Area B.

6 of 6 sources found

Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Freestall Barn and Milking Parlor

Take a look around. Click on the photos and magnifying glasses for more information. You might want to refer to your list of investigative questions for clues. In this area you need to identify seven potential sources of disease transmission. (Hint: Not everything shown is a risk!)

Area B

Exploration Points left: 3

Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

0 Sources Selected

Biosecurity Risk: Freestall and Milking Parlor
Find the 7 potential sources of disease transmission from the options below. When you're done, click on the SUBMIT button below.

1. "I have a small dairy farm of my own but I work here part time."

2. "There's a stack of clean cow pads on the shelf."

3. "We really don't have a place to isolate sick cows."

4. "I'm just checking on these sick cows before I bring in the other cows."

5. "Could you please sign this log?"

Questions SUBMIT

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Biosecurity
Finding Sources of Disease Transmission Risk

Let's Explore the Risks: Million Dollar Quiz
What are the risks for the potential disease transmission sources you've identified in the freestall and milking parlor areas? See if you can select the best answer for each question. If you're having trouble, you have one chance to Ask a Farmer for help, or you can use your 50-50 hints. But use them sparingly. You only have two! Select "Next" to begin the quiz.

Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Million Dollar Quiz Question 1 of 7

Lack of sanitation lets disease agents build up, which makes contact between disease agents and animals more likely. This is a risk of what potential source of disease transmission?

- No isolation or isolation too close to barn
- Incorrect storage of vaccine
- Inadequate cleaning and disinfecting of clothing, equipment, and facilities.
- Separate sick animals from herd

Submit

\$1,000,000
\$750,000
\$350,000
\$100,000
\$75,000
\$35,000
\$10,000
\$0

50-50 50-50 Ask a farmer

Questions NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Here is your Biosecurity Risk Report so far.

Biosecurity Risk Report
Farm Owner: Dave and Debbie Olson Date: Today
Biosecurity Investigator: You Livestock type: Dairy

Sources of Potential Disease Transmission	What is the risk?
Freestall barn and parlor 1. Inadequate cleaning of clothing, equipment, etc. can carry and spread disease agents to susceptible life. 2. Working with sick animals before handling. 3. Not separating sick animals from other animals. 4. Visiting care given (hand sanitizer, etc.) 5. No isolation or too close to barn. 6. Isolated storage of vaccines. 7. Employees always wear layer of antibiotic.	• Clothing, equipment, etc. can carry and spread disease agents to healthy animals. • Workers can carry disease agents from sick animals on their hands and clothing and spread them to healthy animals. • Sick animals can spread disease agents through direct contact and only sick (ill) people (including, including, staff, crew and farm). • Employees often get from farm to farm and can carry disease agents on their hands, clothing, and equipment. • Sick animals that are housed too close to healthy animals spread disease agents by direct and indirect contact. • Temperatures that are too high or too low can facilitate viruses so they don't work. • Medicines left in the cups of vaccines can introduce bacteria that can make animals sick. • Workers may carry diseases from their animals to their longhorn animals.

Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Great! You learned something from exploring this area.

13 of 13 sources found

Select Next to move to Area C.

Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Calf Hutches
Take a look around. Click on the photos and locking glasses for more information. You might want to refer to your list of investigative questions for clues. In this area you need to identify five potential sources of disease transmission. (Hint: Not everything shown is a risk!)

Area C

Exploration Points left: 1


Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

0 Sources Selected

Biosecurity Risk: Calf Hutches
Find the 5 potential sources of disease transmission from the options below. When you're done, click on the SUBMIT button below.



25

Questions SUBMIT

25

Biosecurity
Finding Sources of Disease Transmission Risk

Let's explore the risks: Story Problems
To explore the risks shown in the call hutch area, click on each picture and listen to what each person has to say. Then, see if you can answer the questions based on the information you've been given.



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Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Let's explore the risks: Story Problems
To explore the risks shown in the call hutch area, click on each picture and listen to what each person has to say. Then, see if you can answer the questions based on the information you've been given.

Good Job!
Select "Next" to continue



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Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Here is your Biosecurity Risk Report so far.

Biosecurity Risk Report
Farm Owner: Dave and Debbie Olson Date: Today
Biosecurity Investigator: You Livestock type: Dairy

Sources of Potential Disease Transmission	What is the risk?
Heller bars, old barns, and fairground (1) Fenced barn and pasture (2) Call hutch area: <ol style="list-style-type: none"> 1. Visitors (bring boots and clothes) <ul style="list-style-type: none"> • Can spread disease agents directly • Can carry disease agents on boots and clothes • May have disease agents from property 2. Contaminated feed or water <ul style="list-style-type: none"> • Birds and rodents can contaminate feed or water with urine and feces 3. Wild/domestic animals around barnyard <ul style="list-style-type: none"> • Many diseases are shared between wild and domestic animals with livestock 4. Lack of handwashing facilities <ul style="list-style-type: none"> • Diseases can spread between animals and humans by contaminated hands 5. Calf arrival back up into close bio-security <ul style="list-style-type: none"> • If a biosecurity plan uses multiple farms it may compromise biosecurity from one to another • The call hutch biosecurity area spread disease agents to healthy animals 	

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Questions BACK NEXT

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Biosecurity
Finding Sources of Disease Transmission Risk

Great! You learned something from exploring this area.

19 of 18 sources found

Select Next to move to Area D.



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Questions BACK NEXT

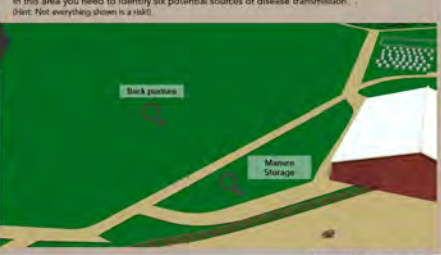
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Biosecurity
Finding Sources of Disease Transmission Risk

Back pastures
Take a look around. Click on photos and magnifying glasses for more information. You might want to refer to your list of investigative questions for clues. In this area you need to identify six potential sources of disease transmission. (Hint: Not everything shown is a risk!)

Area D

Exploration Points left: 2



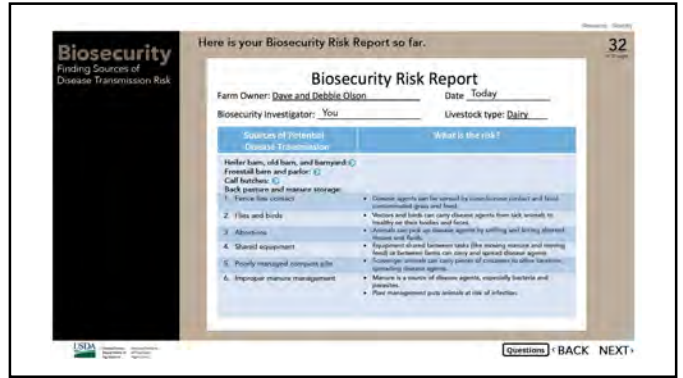
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Questions BACK NEXT

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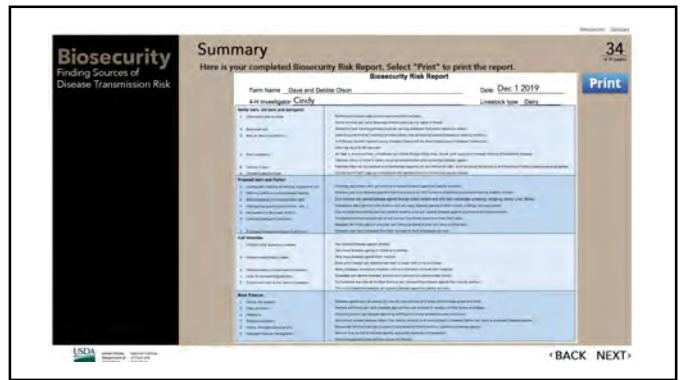
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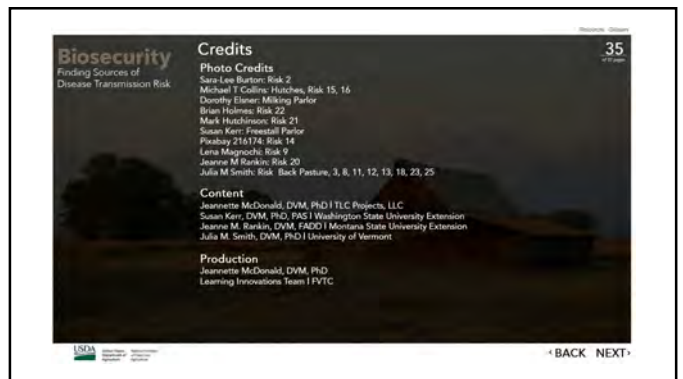
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Biosecurity
Finding Sources of
Disease Transmission Risk

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National Institute of Food and Agriculture

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