Antibiotic Stewardship Training

Ensuring judicious antibiotic use and mitigating the impact of antibiotic resistance

Developed in partnership with The Ohio State University College of Veterinary Medicine

VEAL QUALITY ASSURANCE CERTIFIED ™

BEEF ®
Funded by Beef Farmers and Ranchers

THE OHIO STATE UNIVERSITY
COLLEGE OF VETERINARY MEDICINE

www.Veal.org

Overview

Program Goal: For farm personnel to accurately identify calves for treatment using veterinary-written treatment protocols which will lead to improvements in responsible antibiotic use.

Program Outline

- Module 1 –Antibiotics and Antibiotic Resistance
- Module 2 –Clinical Evaluations
- Module 3 –Decision-tree Protocols

This training series is a new addition to the Veal Quality Assurance (VQA) program and was developed in partnership with The Ohio State University College of Veterinary Medicine. The VQA program is funded by the Beef Checkoff.

MODULE 2

Clinical Evaluation

Content developed by Greg Habing, DVM, PhD, Martey Masterson, DVM and Jessica Pempek, PhD

Module 2 Overview

- **Goal:** For farm personnel to evaluate and objectively score clinical signs of disease

- **Note:** *There are different scoring systems available.*

By the end of Module 2, you will be able to…

1. Identify sickness behaviors and calves that require further evaluation

2. Conduct a clinical evaluation

3. Categorize normal and abnormal clinical signs of disease

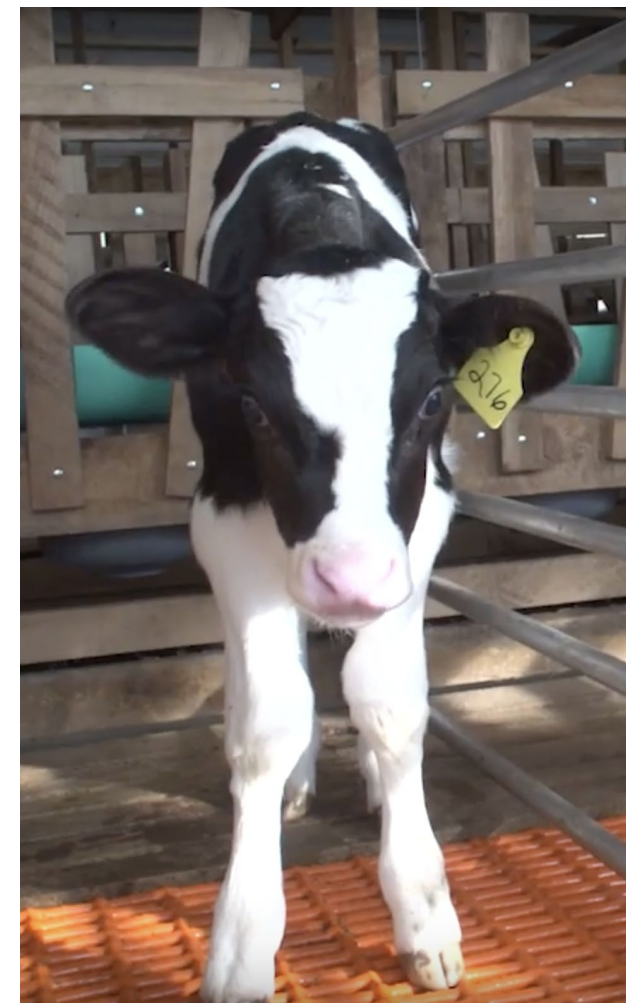4. Describe scenarios when antibiotic, anti-inflammatories, or fluids would improve the health outcome

What does a healthy calf look like?

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Pay attention to:

Attitude
• Bright eyes • Ears forward • Stretch when they get up • Jump and play in pen, curious

Feeding behavior
• Changes in drinking speed and amount

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Understanding normal behavior allows you to:

Be proactive instead of reactive

Recognize subtle changes before clinical signs of disease become obvious

Identify calves that need treatment while not unnecessarily treating calves

What does a sick calf look like?

Visual Observation

While Feeding

- Feeding time is a convenient time to observe calves.

After Feeding

- 1-2 hours after feeding
  - Calves may be so hungry that they do not show behavior that would show later
  - For example, if a calf is standing up and excited to be fed, you may not see increased respiration

Visual Observation

- Lethargic or "dumpy"
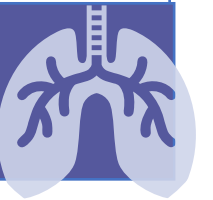- Droopy ears
- Calf does not react to your presence

Attitude

- Does not drink all milk
- Drinks at a slower pace
- Increased time drinking

Feeding Behavior

- Increased respiratory rate and effort, "thumping"
- Not sure? Compare the calf's breathing to other calves

Respiration

If you notice a calf is "dumpy" or depressed, what do you do next?

Clinical Evaluation

FOUR Indicators

Dehydration

Rectal temperature

Diarrhea

Respiratory signs

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Most Common Diseases

Navel Infection

Diarrhea

Respiratory Disease

At Arrival

2 to 14 days after arrival
Peak 8 to 14 days

3 to 8 weeks after arrival
Peak 5 weeks

Clinical Evaluation

FOUR Indicators

Dehydration

Rectal temperature

Diarrhea

Respiratory signs

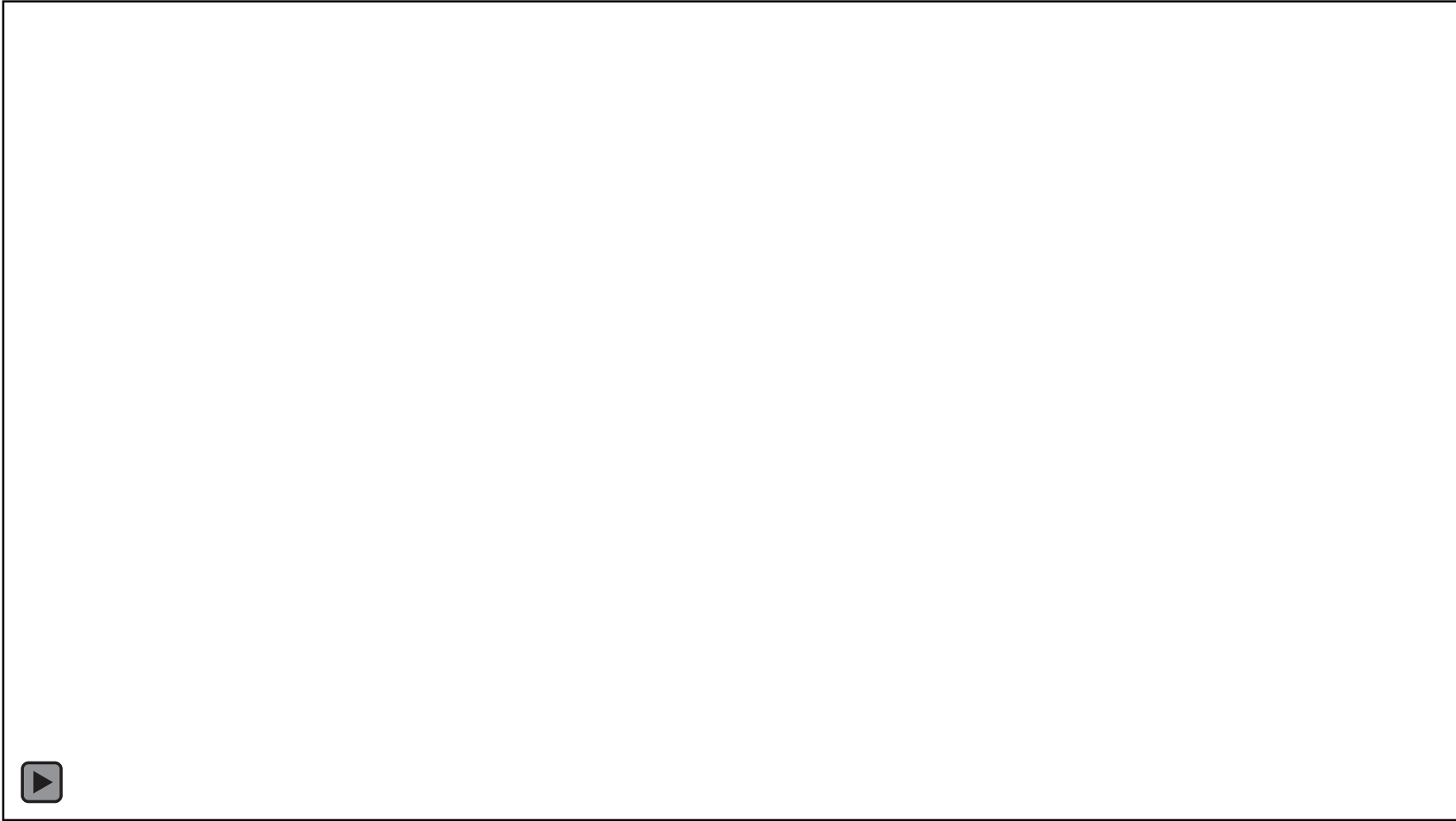VEAL QUALITY ASSURANCE CERTIFIED

Dehydration: Skin Tent

- Pinch a fold of skin on the calf's neck.

- Count the number of seconds it takes to flatten.

- The skin of a hydrated calf will flatten within 2 seconds.

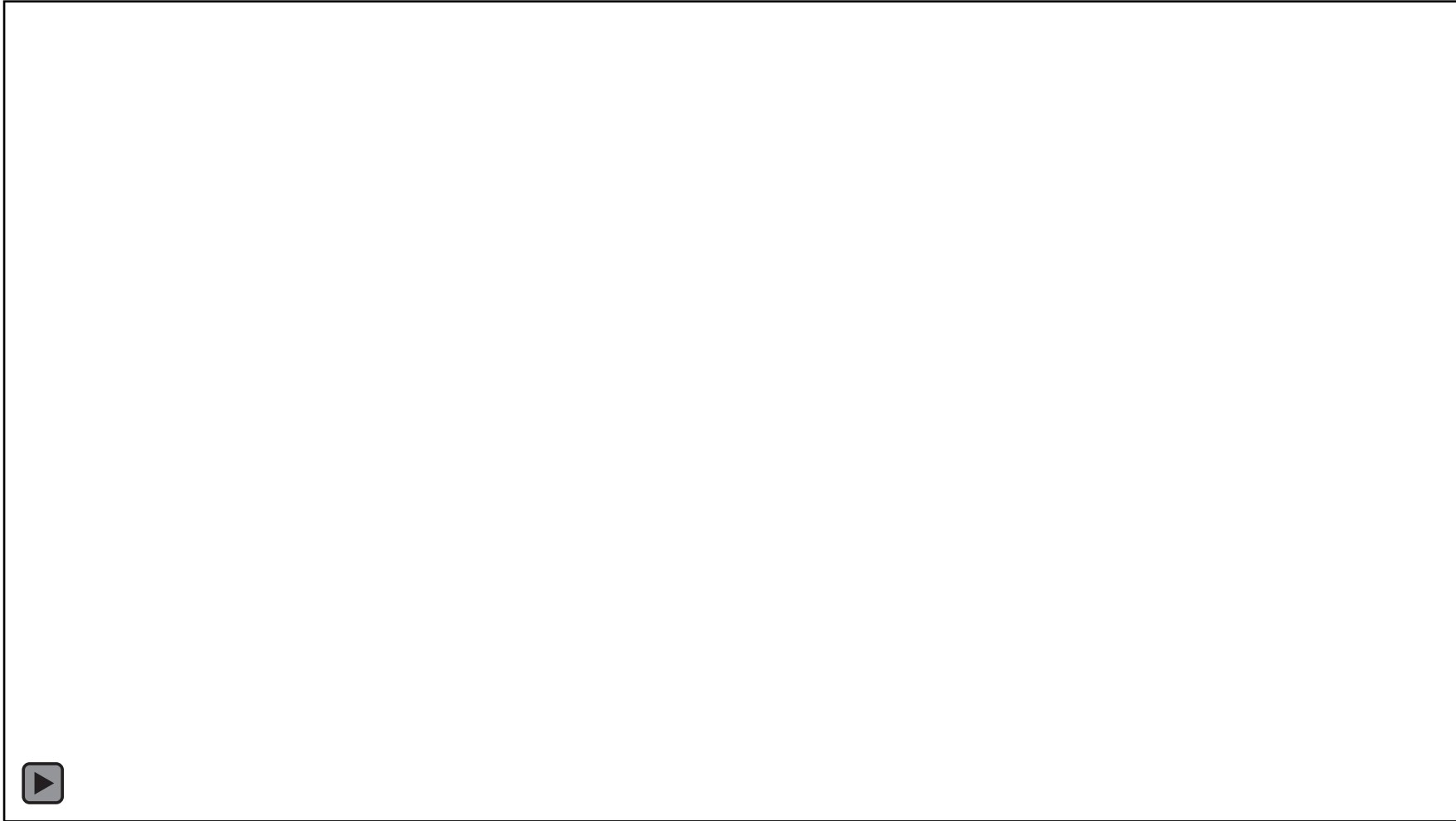- If the skin takes longer to flatten, the calf is dehydrated.
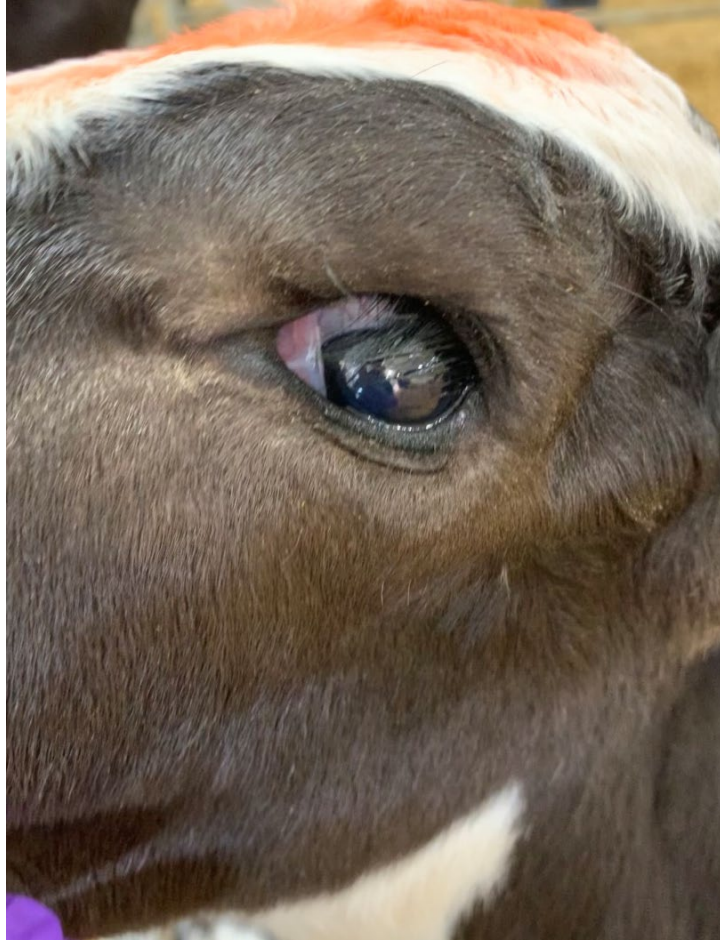
Dehydration: Skin Tent

play video

Dehydration: Skin Tent

Dehydration: Sunken Eyes

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Scoring for Dehydration

Score	Diagnosis	Clinical Signs
0	Normal	Bright, alert, gets up quickly skin flattens <2 seconds
1	Slight dehydration	Slow to get up, droopy ears, skin tents 2 to 4 seconds
2	Moderate dehydration	Sunken eyes, skin tents 5 to 10 seconds
3	Severe dehydration	Down, nonresponsive, very sunken eyes, skin tents >10 seconds

Scoring for Dehydration

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Clinical Evaluation

FOUR Indicators

Dehydration

Rectal temperature
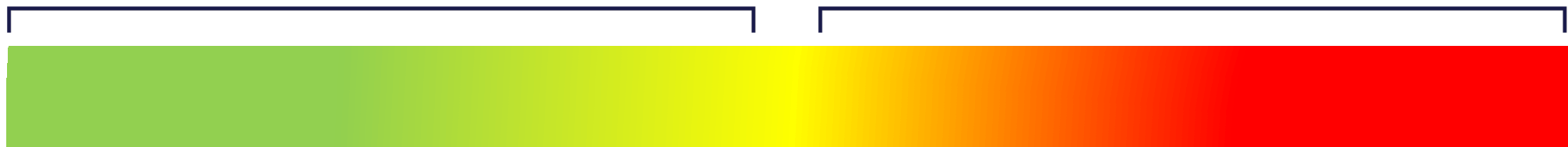
Diarrhea

Respiratory signs

Fever

- Fever is an increase of core body temperature above that normally maintained by the animal.
  - Increase in temperature due to an infection or inflammation, not environmental temperature.
  - Important for fighting infection but can lead to animals going off feed and performance losses.

Normal temp is below 103° F   Fever = 103° F or above

Fever Considerations

- Hot, summer days can increase body temperature.

- **A very healthy calf could have a temperature of 103.5°F.**

Fever = 103° F or above

Rectal Temperature

Rectal Temperature

One time temperature is not enough

Take temperature at the same time over multiple days

If the calf poops mid-reading, *try again*.
Air in the rectum will change the temperature.

Place the thermometer against the anal wall to get the most accurate reading.

Clinical Evaluation

FOUR **Indicators**

Dehydration

Rectal temperature
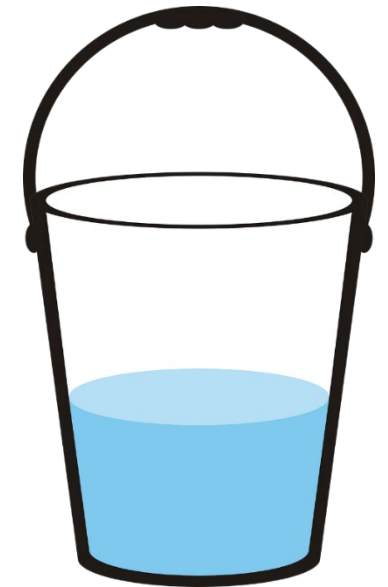
Diarrhea

Respiratory signs

Diarrhea

Can be caused by many different pathogens.
- Viruses, bacteria and protozoa

Calves with diarrhea can become **dehydrated very quickly.**

- **Fluid therapy is critical!**
  - A calf that is only slightly dehydrated is missing ***over a gallon of fluid!***
  - Fluid replacement must match regular needs, fluid deficits, and ongoing losses of fluids because of diarrhea.
  - A calf is also losing important electrolytes, including sodium, potassium. Replacement of those electrolytes is also important.

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Diarrhea

Most cases NOT caused by bacteria

- Viruses

- Protozoa

- Nutrition
  - Poorly mixed replacer
  - Replacer that is the wrong temp
  - Sudden feed changes

In other words, antibiotics may not always help.

A calf with mild diarrhea that is not sick (without dehydration, depression, temperature) **will not benefit from antibiotics.**

Fluids

Fluid therapy is the most important intervention!

- Do not mix milk and electrolytes.
- Feed electrolytes 30 minutes before or 2 hours after milk.
- Mixing milk + electrolytes may make diarrhea worse.

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Scoring for Diarrhea

Score = 0

Feces forms a clump.

Score = 1

Feces is pudding-like or pasty but holds together.

Score = 2

Feces is syrup-like.

Score = 3

Feces is like water.

Scoring for Diarrhea

Score = 0

Feces forms a clump.

Score = 1

Feces is pudding-like or pasty but holds together.

Score = 2

Feces is syrup-like.

Score = 3

Feces is like water.

Scoring for Diarrhea

Does the calf have a fever?
Is the calf dehydrated
or depressed?

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Clinical Evaluation

FOUR Indicators

Dehydration

Rectal temperature

Diarrhea

Respiratory signs

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Impact of Respiratory Disease

Reduced growth

Animal welfare

Reducing stress is ethically the right thing to do and it results in healthy calves that grow and thrive.

Scoring For Respiratory Disease: Eyes

Score = 0   Score = 2   Score = 2   Score = 2

Used with permission

Scoring For Respiratory Disease: Eyes

Score = 0   Score = 2   Score = 2   Score = 2

Scoring For Respiratory Disease: Ears
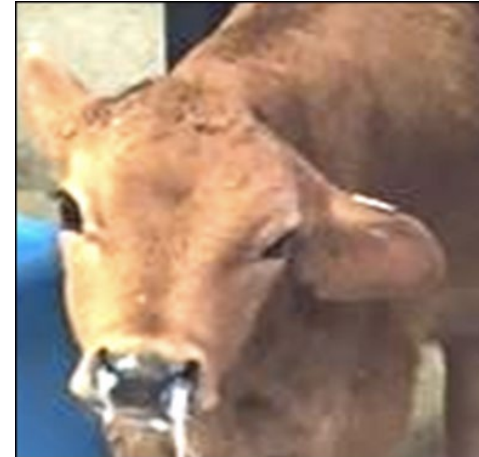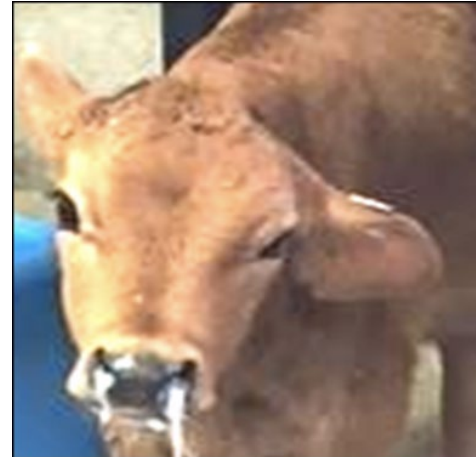
Score = 0

Normal

Score = 5

Slight one-sided droop

Score = 5

Head tilt, one-sided droop

Score = 5

Two-sided droop

Used with permission

Scoring For Respiratory Disease: Ears

Score = 0

Normal

Score = 5

Slight one-sided droop

Score = 5

Head tilt, one-sided droop

Score = 5

Two-sided droop

Used with permission

Scoring For Respiratory Disease: Nose

| Score = 0 | Score = 4 | Score = 4 | Score = 4 |

Used with permission

Scoring For Respiratory Disease: Nose
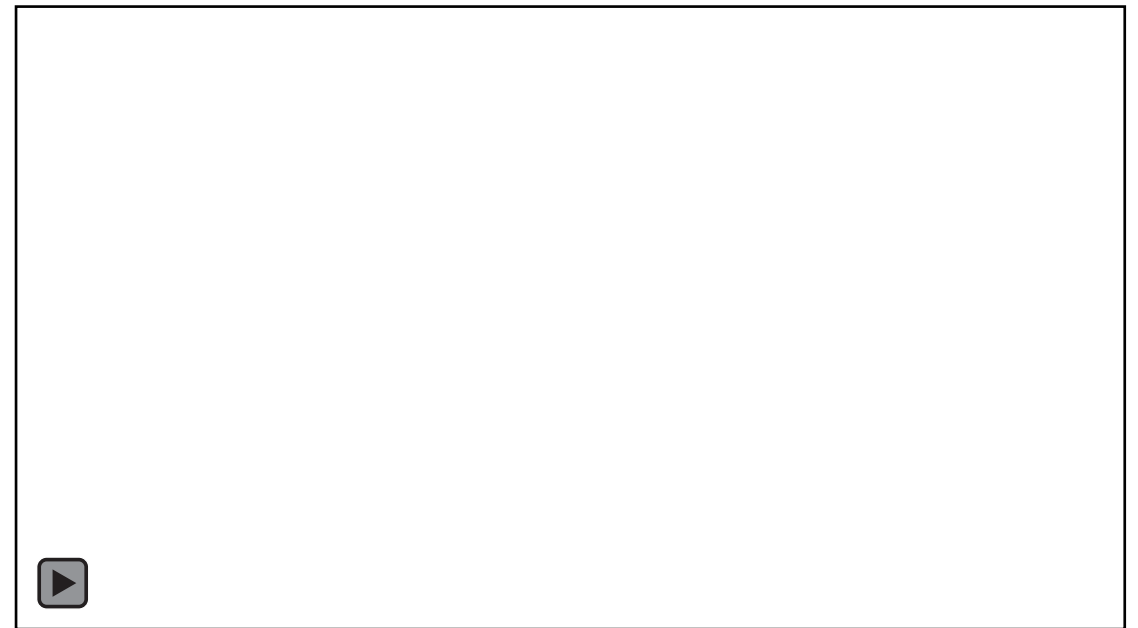
Score = 0   Score = 4   Score = 4   Score = 4

Used with permission

Scoring For Respiratory Disease: Cough and Breathing Rate and Effort

Score	Clinical Signs
0	None
2	Slight, occasional cough
2	Repeated coughing

(play video)
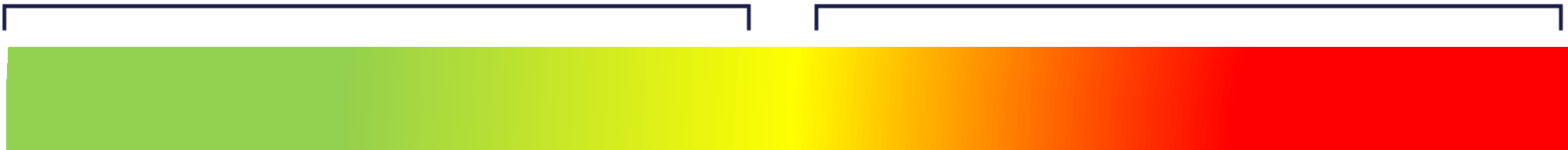
Scoring For Respiratory Disease: **Fever**

Does the calf have a fever?

Normal temp is below 103° F

Fever = 103° F or above

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Benefits of Early Diagnosis Of Disease

- **Better health outcomes**

- **Improved animal welfare**

- **Lower treatment costs**
  - **Bonus if less drugs are used!**

- **Lower production losses**
  - **Bonus for ADG and feed conversion!**

POLL Let's test your knowledge...

For the following scenarios, which clinical signs are **NORMAL**, which are **ABNORMAL**?

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Scenario #1

- Loose stool does not form a pile

- Temperature = 102.5°F

- Eating well and is active

- Skin tent = 4 seconds

NORMAL

ABNORMAL

Scenario #1

- Loose stool does not form a pile
- Temperature = 102.5°F
- Eating well and is active
- Skin tent = 4 seconds

NORMAL

- Temperature = 102.5°F
- Eating well and is active

ABNORMAL

- Loose stool does not form a pile
- Skin tent = 4 seconds

Scenario #2

- Eyes/nose/ears as pictured
- Temperature = 103.0°F
- Slow to rise and drinks half as much milk
- No cough

NORMAL   **ABNORMAL**

Scenario #2

- Eyes/nose/ears as pictured
- Temperature = 103.0°F
- Slow to rise and drinks half as much milk
- No cough

NORMAL

- Eyes/nose discharge as pictured
- No cough

ABNORMAL

- Ear droop/head tilt
- Temperature = 103.0°F
- Slow to rise, drinks half as much milk

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Questions?
Please share them using the Q&A box.

This concludes MODULE 2

MODULE 2

Clinical Evaluation