AN OUNCE OF PREVENTION

Beefing Up your Biosecurity Plan to Prevent Antimicrobial Resistance

FarmSmart Conference 2015
Beef Symposium
January 24, 2015

Dr. Katharine Found
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**My Day Job**

- **Producer 1**
  - Cow-calf
  - 70 cows
  - 65% of calves develop scours within 3 days of birth
  - 50% of affected calves die, despite treatment

- **Producer 2**
  - Background + feeder
  - Purchased 50 stocker calves
    - Source: sales barn and 2 local cow-calf farms
  - 15 developed signs of pneumonia
  - 9 of 15 went down and died, despite treatment

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**E.Coli Diarrhea**

**Mycoplasma Pneumonia**
What’s the Common Link

- Both were using antibiotics to treat
- Both started using antibiotics to prevent
- Both may be contributing to antimicrobial resistance
- Both issues may have been prevented, or reduced, with a biosecurity plan
Antimicrobial Resistance (AMR)

- What is it?
  - The ability of bacterial infections to withstand the effects of drugs that have been successfully used to treat them in the past.

- Antibiotics are one kind of antimicrobials

- Not just a passing fad
  - OMA Policy paper – When Antibiotics Stop Working
  - Antimicrobial Resistance and Use in Canada: A Federal Framework for Action
Antimicrobial Resistance Prevalence

- Prevalence of AMR in humans
  - MRSA
  - VRE
  - Pneumococcal bacteria
  - Extended-spectrum beta lactamase (ESBL)-producing bacteria

- Prevalence of AMR in beef
  - 2009 data as summarized by the OMA:
    - 46% of beef cattle tested carried antibiotic resistant strains of Salmonella
    - 20% of abattoir samples tested contained resistant strains of E.coli
    - 20% of retail beef samples contained resistant strains of E.coli
    - 40% of Campylobacter jejuni isolates were resistant to tetracycline
  - 2012: Salmonella Dublin was the most common serovar recovered and show multidrug resistant patterns
Antimicrobial Resistance
Why Should We Care?

- Public perception
- Animal safety
- Human safety
Agriculture industry must kick dangerous antibiotic habit

JASON TETRO - HEALTH ADVISOR
Special to The Globe and Mail
Published Tuesday, Nov. 11 2014, 3:28 PM EST
Last updated Wednesday, Nov. 12 2014, 3:04 PM EST

How Ottawa can help farmers get over antibiotics

JASON TETRO
HEALTH ADVISOR — Special to The Globe and Mail
Published Thursday, Jan. 08 2015, 2:17 PM EST
Last updated Thursday, Jan. 08 2015, 2:21 PM EST
Canadian View on Animal Agriculture vs. AMR

- Farmers are permitted to use certain antibiotics listed within the Livestock Medicines Act.
- Data for amount and type of antibiotic use is unavailable.
- No surveillance system exists.
- Loop hole clause in Food and Drug Act Regulations:
  - “own use”
  - What is coming in?
  - How much?
  - How are they being used?
- Health Canada currently phasing out label claims for antibiotics used for growth promotion.
AMR and Animal Health

- Just like in human medicine
  - Increased duration of treatment
  - Increased drug costs
  - Increased side effects
  - Increased chance of death

- “Last resort” antibiotics are not available or too expensive for use in food animals

- Very few new antibiotics are coming on to the market

- AMR is inevitable, but it can be delayed
Practices that increase AMR

- Low dose, long duration therapy
- Feed based treatment
  - For growth promotion or prophylaxis
- Extra label use
  - Under dosing
  - Different administration route
  - Expired drugs
What can we do to prevent AMR

- CVMA Antimicrobials Prudent Use Guideline
  - Good relationship with a qualified veterinarian

- Develop treatment protocols
  - Defined by clinical signs/severity
  - Treatment without antibiotics?
  - Avoid extra-label drug use
  - When to seek veterinary involvement

- Proper training on storage and administration of drugs

- Manage, don’t treat disease – update your biosecurity plan
  - Enforcement
Treatment Protocols

- All farms should have them
  - Written (typed!!)
  - Displayed (laminated!!)
  - Followed (by everyone!!)

- Ensures
  - most up to date treatment options
  - Proper antibiotic selection
  - Antibiotics are not being wasted

- Antibiotic stewardship + $$ saving!
Training

- Livestock Medicines Course
  - Similar training offered by your veterinarian

- How/where do you store your medicines?
  - Temperature
  - Moisture
  - Freezing
  - Sunlight

- How much are you administering per site?

- Needles and syringes – clean? New?
Reading the Label

- Prior to administration of any product
- Review:
  - Dose
  - Route
  - How often and how long to administer
- Determine animal’s weight appropriately
- Expiry date
Management vs. Treatment

- An ounce of prevention is worth a pound of cure
  - Avoid bringing in resistant bacteria
  - Prevent resistant bacteria from spreading (on farm, from farm)

- Create a Biosecurity Plan
  - Animal Health management
  - Visitor access management
  - Operation and facility management

- Keep it simple
Common Biosecurity Threats in the Beef Industry

- Bovine Viral Diarrhea (BVD)
- Infection Bovine Rhinotracheitis (IBR)
- Pneumonia (viral and bacterial)
- Calf Scours (viral, bacterial and parasitic)
- Johnes Disease
- Pink Eye
- Footrot
- Warts
- Ringworm
- Etc.....
Biosecurity: Animal Health Management

- Monitor your herd’s health
  - Routine veterinary visits
  - Vaccination program
    - Review annually, update as required
  - Detailed treatment protocols and treatment records
  - Frequent animal examinations
Biosecurity: Animal Health Management

- Isolate sick animals
  - Separate pens
  - Clean and disinfect between uses

- Purchasing new animals
  - Healthy animals only
  - From healthy herds only
  - Isolate all new animals
    - Purchased animals
    - Loner animals (ie. Bulls)
    - Show animals
Biosecurity: Access Management

- Control visitor access
  - Post signs, lock doors
  - Limit who can visit
    - Restrict where they can visit
  - Clean, designated foot ware
  - Frequent and adequate hand washing
Biosecurity: Facility Management

- **Manure management**
  - Clean, dry, well bedded pens
    - Limits amount of bacteria in environment
    - Reduces fly population
  - Lactating cow udders and teats free of manure

- **Facility design**
  - Ventilation
  - Feed and water delivery
  - Stocking density
Final Thoughts

- Antibiotics are necessary for beef production

- No amount of antibiotics can cure poor management

- We are all being held accountable

- Prevention is always the best medicine