

# **Drug Use in Dairy Cattle**

## **A Veterinary Perspective**









**Labor**  
Improper  
antimicrobial  
use

**Waste  
Management**  
Dissemination of  
Pathogens

**Intensive  
Shelter**  
Increased  
Exposure  
To Pathogens

**Disease  
Incidence**

**Antimicrobial  
resistance**

```
graph TD; Labor[Improper antimicrobial use] --> Resistance((Antimicrobial resistance)); Waste[Waste Management: Dissemination of Pathogens] --> Resistance; Shelter[Intensive Shelter: Increased Exposure To Pathogens] --> Resistance; Disease[Disease Incidence] --> Resistance;
```

The diagram illustrates four factors contributing to antimicrobial resistance. Each factor is contained within a dark blue box with a white border. The boxes are arranged around a central dark blue oval. Arrows point from each box towards the central oval. The factors are: Labor (Improper antimicrobial use), Waste Management (Dissemination of Pathogens), Intensive Shelter (Increased Exposure To Pathogens), and Disease Incidence. The central oval is labeled Antimicrobial resistance.



# Mastitis.....

biggest infectious disease loss in North American dairy cattle

## —Lost production

- Premature culling
- Lost quality incentives
- Discarded milk
- Death
- Treatment
- Decreased fertility



# Mastitis.....

- Largest cause of antimicrobial drug use in dairy cows





# Antimicrobial Resistance (**AMR**) in Pathogens on Dairy Farms



**Mastitis**



**Enteric**



# Improved Milk Quality



- Drug Residues



- Mastitis



- Somatic Cell Counts
- Bacteria

- Sanitation



# AMR mastitis pathogens: Public health concern?

- Pasteurization

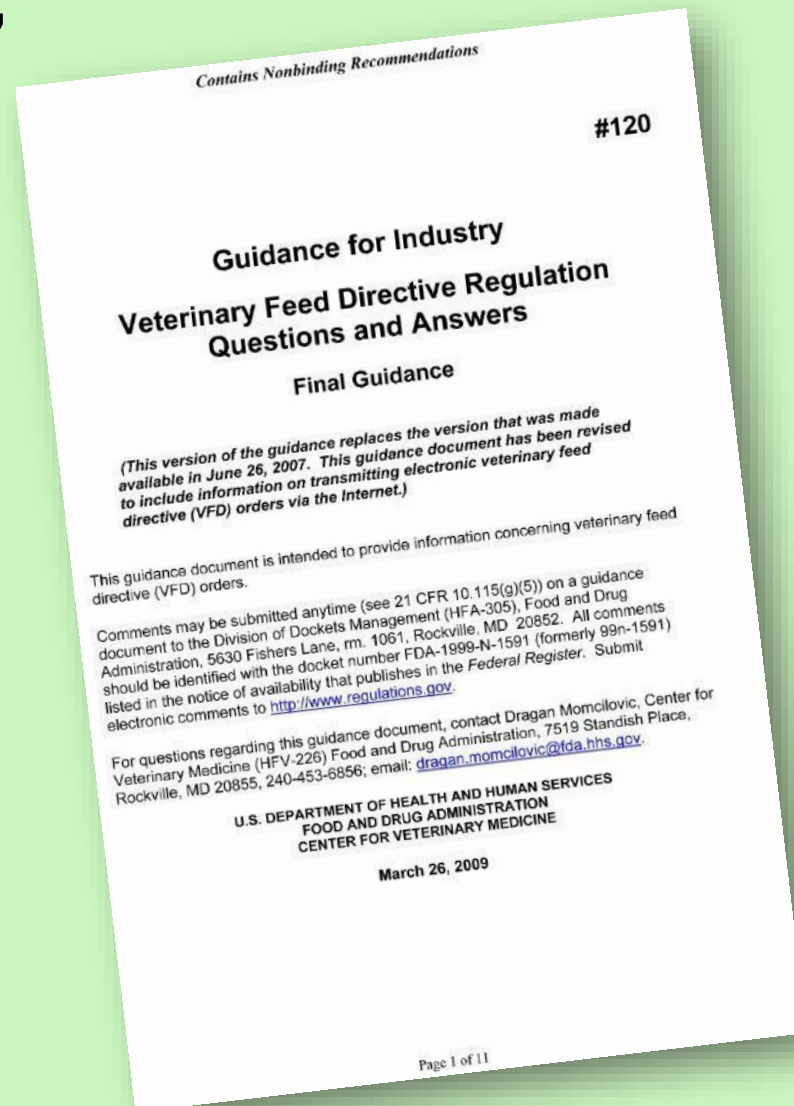


# AMR and Enteric Pathogens - Dairy

- Consumer exposure - meat
- Occupational exposure
- Environmental hazard ?



# FDA Guidance for Industry Document #120 Veterinary Feed Directive – VFD January 1, 2017





# VFD: What Changes?

## Medically Important

- Therapeutic Use Only
- **No Production Use**
  - Enhance growth or feed efficiency
- No ELDU
- Valid VCPR



# Medically Important Antimicrobial Use Food Animals-2017

Species	2016 (kg x 10 <sup>6</sup> )	2017 (kg x 10 <sup>6</sup> )	% Change
Cattle	3.6	2.3	<b>-35</b>
Swine	3.1	2	<b>-35</b>
Poultry	1.3	0.9	<b>-26</b>
All	8.4	5.6	<b>-33</b>

FDA-CVM, December, 2018

U.S. 2017  
IMM < 1% of total

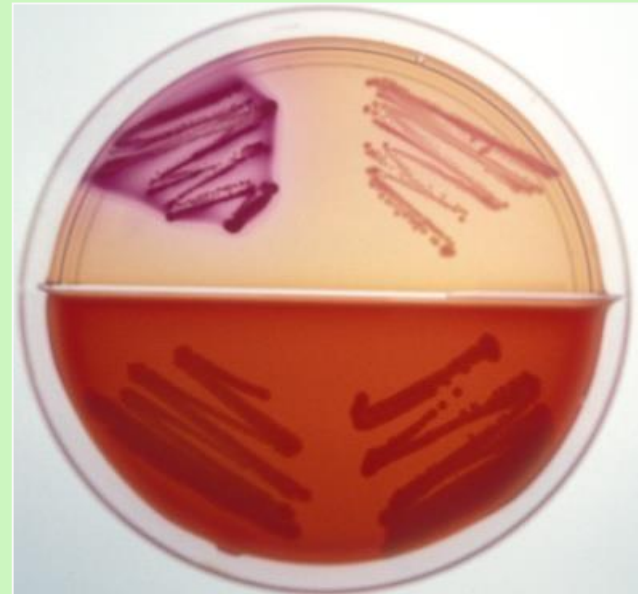


# Milk Bacteriology



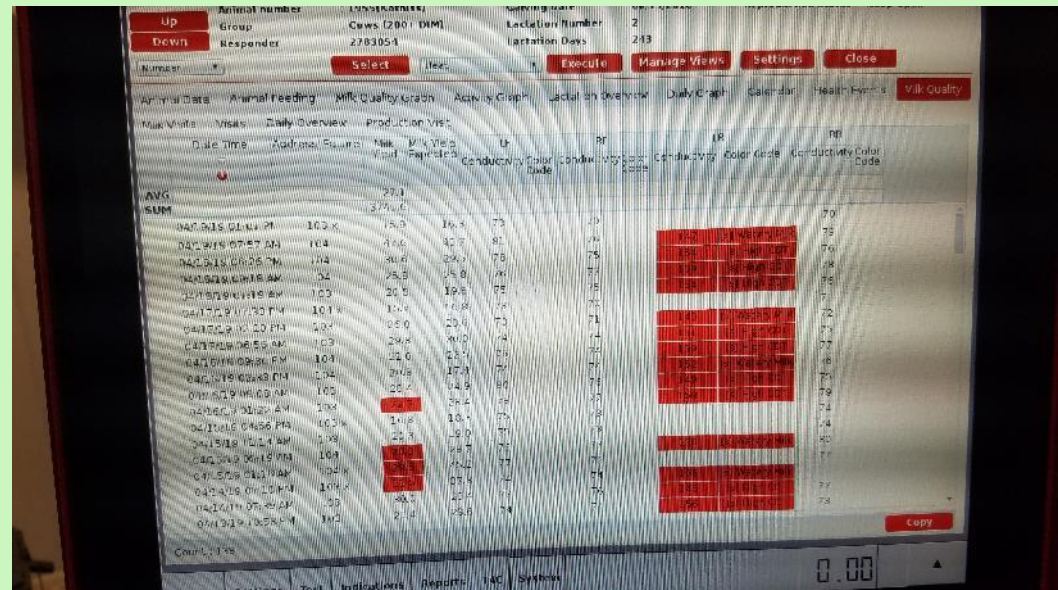


# Veterinary Clinic and On-farm Culture



# Record Keeping

					Milk Withhold	Milk Clear Date	Meat Withhold	Meat Clear Date	Date Said For Beef
1035	3-18	Am	Jeremy	Mastitis	Speckman				
775	3-19	Am	Jermy	Mastitis	Speckman				
1035	3-19	Am	Jeremy	Mastitis	Speckman				
373	3-19	Am	Jeremy	Mastitis	Speckman				
1672	3-19	PM	Dan	Hot Pot	External				
373	3-20	Am	Jeremy	Mastitis	Speckman				
775	3-20	Am	Jeremy	Mastitis	Speckman				
1030	3-20	Am	Jeremy	Mastitis	Speckman				
1072	3-20	PM	Dan	Hot Pot	External				
534	3-21	PM	Rick	D.A.	External				
1072	3-21	PM	Rick	Hot Pot	External				
1035	3-22	Am	Rick	Mastitis	Speckman				
534	3-22	PM	Rick	D.A.	External				
1035	3-23	Am	Jeremy	Mastitis	Speckman				
534	3-23	PM	Rick	D.A.	External				
389	3-27	AM	Jeremy	Mastitis	Speckman				
534	3-27	PM	Dan	UC	Polyflex				













**Antimicrobial Stewardship Starts with  
Animal Husbandry**

**Animal Husbandry Decreases  
Disease Incidence**

**Decreased Disease Incidence  
Reduces Antimicrobial Drug Use**



# Quality Milk Alliance



<http://qualitymilkalliance.com/>





# Pasteurized Milk Ordinance

