

## Dry Cow Therapy

### Selective Treatment Strategy for Reduced Antimicrobial Drug Use

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## Mastitis in Dairy Cattle

- Most economically important disease
- Major indication for antimicrobial drugs
- Widespread
  - Clinical mastitis cases reported in 99.7% of US dairy operations in 2015
  - Intramammary antimicrobials were routinely administered 89.9% of US dairy cows at dry off (USDA, 2018).




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## Mastitis Control Program

Multiple prevention & control strategies:

- ❖ Vaccines against coliforms and *Staphylococcus aureus*
- ❖ Good milking practice
- ❖ **Dry Cow Therapy**
  - Since 1970 - five points of the Mastitis Control



**MASTITIS CONTROL REQUIRES:**

1 Machine checks  
2 Teat sprays  
3 Treating clinical cases  
4 Dry-cow therapy  
5 Controlled culling

**AND GOOD MILKING MANAGEMENT**

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### Dry Cow Therapy Strategies

Aim is to treat subclinical infections at the end of lactation and new infections during the period. Two strategies:

- ❑ Blanket dry cow therapy (BDCT)- Treat all cows at dry-off
- ❑ Selective dry cow therapy (SDCT) – Treat cows with subclinical infection

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### Benefits of SDCT

- ❑ Can decrease antibiotic usage
- ❑ Economic benefits
- ❖ Should be carefully applied in selected herds
  - **BTSCC <250,000 cells/mL**
  - **Good records**
  - **Free of contagious pathogens**

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### Selection criteria



- **Perform individual quarter tests**
  - CMT or SCC
  - Bacterial culture
- **Review history of cow**
  - Previous cases of clinical mastitis
  - Monthly SCC history
- **Algorithm guided selection**
  - Cow factors, record, farm factors

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### Randomized Clinical Trial

|        |           |                      |            |             |
|--------|-----------|----------------------|------------|-------------|
| Groups | 1         | 2                    | 3          | 4           |
|        | <b>AB</b> | <b>ABT &amp; ITS</b> | <b>ITS</b> | <b>NONE</b> |

- Intramammary antibiotic infusion (AB)
- Both (AB+ITS)
- Internal teat sealants (ITS)
- None (control group)

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### Randomized Clinical Trial

|  |            |                     |           |             |
|--|------------|---------------------|-----------|-------------|
|  | 1          | 2                   | 3         | 4           |
|  | <b>IMM</b> | <b>IMM &amp; TS</b> | <b>TS</b> | <b>NONE</b> |

|           |      |      |      |     |
|-----------|------|------|------|-----|
| Mastitis: | 22%  | 18%  | 22%  | 23% |
| OR        | 0.87 | 0.72 | 0.97 | Ref |

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### Randomized Clinical Trial

Risks for mastitis during 150 DIM

| Factors                                 | Odds Ratio |
|---|------------|
| Jersey breed                            | 0.61       |
| Parity at enrollment $\geq 3$           | 1.65       |
| Teat end score $\geq 4$ for 2+ quarters | 2.67       |
| CMT score of 3 for $\geq 1$ quarter     | 1.54       |



<https://www.surepulse.co.nz/case-studies>

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**Lessons learnt**

- ❖ Cows  $\geq$  3rd lactation had higher odds of clinical mastitis, culling by 150 DIM, and new bacterial infection
- ❖ Cows with higher teat end scores or CMT at dry off had higher odds of developing clinical mastitis during the first 150 DIM.
- ❖ Cows with history of clinical mastitis in the enrollment lactation had higher odds of culling up to 150 DIM in the following lactation.
- ❖ Cows enrolled in the summer season had higher odds of culling and lower odds of developing new bacterial infections.

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Thank you

Questions?

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