Selective Dry Cow Therapy

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Mastitis Control: Historically

- 5- point plan
- Identification and treatment of clinical cases
- Post- milking teat disinfection
- Culling of chronically affected cows
- Routine maintenance of milking machine
- Routine whole herd antibiotic dry cow therapy

Success story

- AHI CellCheck
- Vets, advisors, industry
- Most importantly: the farmer
- 60% herds annual average SCC<200000

- Many cows now uninfected at drying off
- Is whole herd antibiotic dry cow therapy required??
AMR

- Antimicrobial Resistance
- “resistance of a microorganism to an antimicrobial drug that was originally effective for treatment of infections caused by it”
AMR: What does it mean for you?

- AMR in 2050: 10 million
- Tetanus: 60,000
- Road traffic accidents: 1.2 million
- Measles: 130,000
- Diarrhoeal disease: 1.4 million
- Cholera: 100,000 – 120,000
- Cancer: 8.2 million
- Diabetes: 1.5 million

AMR now: 700,000 (low estimate)
Selective/ Blanket Dry Cow Therapy

- **Blanket treatment** = treating ALL quarters of ALL cows with DCT
- **Selective treatment**
  - Infected cows = antibiotic + teat seal
  - Uninfected cows = teat seal only

**SDCT Cons**
- Risk of mastitis breakdown if
  - Cows not properly selected
  - If teat seal not administered hygienically

**SDCT Pros**
- Responsible antimicrobial use
- Reduce cost
- Less stress over withdrawals post calving?

SDCT: Requires appropriate on farm mastitis control!
Milk recording

- After year round teat disinfection
  - Next most important tool
- Cheap: <20€ per cow per year
- Prompt identification of problem cows

Allows identification of cows suitable for SDCT

California Mastitis Test (CMT)

- Milk recording identifies the cow
- CMT to identify which ¼ is affected

SDCT: CMT all cows not getting antibiotics at drying-off
SDCT Selection Criteria

1. Herd Selection
   a. Bulk Tank SCC consistently <200,000 cells/ml
   b. Milk recording: ideally monthly
   c. Records of clinical cases and outcomes
   d. <2% clinical case rate in the last 3 months of lactation

2. Cow selection
   a. SCC consistently <200,000
   b. No clinical case throughout the lactation

For added ‘security’: CMT
Ensure that there’s no high SCC quarter

Accurate herd & animal selection critical!!!!
Work in consultation with your vet
Dry Off- Procedure

• Not during milking! - Mark cows for treatments- prevents mistakes
• One person approx. 20 cows per hour
• Wash out parlor between batches
• Gloves
• Disinfect all teats **thoroughly**
• Cotton wool soaked in meth/wipes
• Concentrate on teat end- Disinfect FAR to NEAR
• Administer teat seal- NEAR to FAR
• Teat seal administered last
• Squeeze base as you administer & do NOT massage
• Teat dip or spray immediately after treatment
• Avoid lying down post treatment

**Leave in warm room for easier administration!**

• Away from parlour so noises etc. don’t stimulate milk production
• Monitor for mastitis
Selective Dry Cow Therapy Trial

- Selective Dry Cow Therapy Study
  - Moorepark Research Herd (2017)
  - Curtins Research Herd (2017)

Cows were deemed eligible if
  - SCC had not exceeded 200,000 etc.
  - Moorepark: 36% herd eligible
  - Curtins: 46%
  - Clonakilty: 56%
Materials and Methods

Randomly assigned

- Treatment 1 (Teat Seal only) or
- Treatment 2 (Teat Seal plus long acting antibiotic)

To determine SCC and bacteria: quarter sampling

- Weekly milk recording
- Drying off (pre-treatment)
- Post-calving
- Two weeks post-calving
- Mid-lactation

<table>
<thead>
<tr>
<th>Number</th>
<th>Records</th>
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</thead>
<tbody>
<tr>
<td>Teat Seal</td>
<td>TS + Antibiotic</td>
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<tr>
<td>184</td>
<td>180</td>
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</table>
Results

Unadjusted SCC from data sets

Median (& Mean) SCC by Treatment

<table>
<thead>
<tr>
<th></th>
<th>3 weeks</th>
<th>120 DIM</th>
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<tbody>
<tr>
<td>TS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCC 30,000</td>
<td>27,000</td>
<td>19,000</td>
</tr>
<tr>
<td>(101,281)</td>
<td>(73,027)</td>
<td>(70,374)</td>
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<tr>
<td>AB+ TS</td>
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<tr>
<td></td>
<td></td>
<td>17,000</td>
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<td></td>
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<td>(46,673)</td>
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Caution: Raw SCC transformed for analysis

Selected cows: SCC <150 or <100

Statistical significance remained

However

Practical terms: relatively small
Cows SCC < 200,000

Teat Seal

Teat Seal + Antibiotic

Percentage of Cows

Days in Milk

<35  35 - 60  60 - 90  90 - 120

<35  35 - 60  60 - 90  90 - 120

SCC < 200

SCC > 200

Agriculture and Food Development Authority
Conclusions

- >80% maintained SCC<200,000
- Herds maintained a bulk tank SCC <200,000
  - Exception of one herd in one month recording SCC=243,000
- Positive indicator reduced antimicrobial use possible
- Further research planned
  - Strike optimum balance between udder health and limit AMR
Heifer mastitis

- Teat seal
- Not a silver bullet
- Often multifactorial
- Interventions include
  - Housing heifers in a clean environment
  - Minimising stress - calve separately, parlour training
  - Optimising udder health to minimise infection pressure from older cows to younger heifers
Teat sealing heifers

- Need to administer 4-6 weeks before expected calving date
- Prevents infection
- Squeeze base as you administer & do NOT massage
- Administer a new tube to each quarter
- BUT must be carried out with
  - excellent hygiene
  - good facilities
  - good help and plenty of patience !!!
  - otherwise potential for disaster – damaged teats, severe mastitis
- Need to familiarize the heifers with the milking parlor/AI race before the date of infusion.
- ONLY consider on farms where heifer mastitis is an issue (i.e. >15%)
Conclusion

- Responsible antibiotic use is essential!
- Generally positive indicator that reduced antimicrobial use is possible in Irish mastitis control programmes

Take home message
- Invest time in disinfecting teats at drying-off