ENVIRONMENTAL MASTITIS: CAUSES AND PREVALENCE

Over the last 30 years the overall incidence of clinical mastitis has decreased from over 100 cases/100 cows/year to approximately 40 cases/100 cows/year. This is almost entirely because of the reduction of contagious mastitis as a result of the implementation of the 5-point plan. However, over the same period the incidence of environmental mastitis has remained unchanged and is therefore a much greater percentage of total infections.

**CAUSES**

**The most common causes**

- **E.coli** - associated with faecal contamination of teats (faeces typically contain $10^6$ E.coli/gram), pathogens are then carried into the udder at milking time. Infection can also establish during the dry period with clinical symptoms appearing soon after calving.

- **Strep.uberis** - particularly associated with wet straw bedding (up to 1 million organisms per gram of straw bedding), but is also carried on the animal's skin. Infection occurs during lactation and the dry period. Strep.uberis is of increasing importance in UK.

**The less common pathogens**

- **Klebsiella** - often from damp stored sawdust

- **Pseudomonas aeruginosa** - contaminated water

- **Bacillus cereus** - infected brewers grains

- **Bacillus licheniformis** - waste silage

**ROUTE OF INFECTION**

- The pathogens that cause environmental mastitis are able to live and multiply outside the cow’s body in the cow’s environment.

- These pathogens can be found in large numbers in faeces, slurry, bedding material, soil, feed and water.

- Typically they contaminate the cow’s teats between milkings as a result of direct contact between the cow’s udder and the source of infection.

- Once established in the udder, the pathogens can be spread between cows during milking similarly to contagious mastitis pathogens.

- Many environmental pathogens that contaminate the outside of the teat or the teat canal between milkings gain access to the inside of the udder during milking due to reverse flow of milk.
ASSOCIATED COSTS

Direct losses:
- Discarded milk
- Treatment costs, vet fees
- Reduced yield for remainder of current and possibly subsequent lactations
- SCC penalties
- Bactoscan penalties

Indirect losses:
- Extra labour for treating infected cows
- Increased culling
- Potential loss of cows with high production potential

A survey of 1998 DAISY data indicated;
- An average mastitis incidence of 43 cases of clinical mastitis per 100 cows/year
- 90% of cases were mild cases being treated by the farmer
- 9.8% of cases were severe requiring veterinary attention
- 0.2% of cases were fatal
- Consequential loss of milk yield was between 5% and 15%
- Total cost associated with a clinical case was between £113.20 and £332.70 (£1418 for a fatal case)

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<thead>
<tr>
<th></th>
<th>Target rates</th>
<th>Upper limit</th>
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<tbody>
<tr>
<td>Mastitis rate</td>
<td>30 cases/100 cows/year</td>
<td>35 cases/100 cows/year</td>
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<tr>
<td>% herd infected</td>
<td>20%</td>
<td>25%</td>
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<tr>
<td>Recurrence rate</td>
<td>10%</td>
<td>20%</td>
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<tr>
<td>Milking tubes/cow</td>
<td>1.4 tubes/cow/year</td>
<td>2.5 tubes/cow/year</td>
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<tr>
<td>Milking tubes/case</td>
<td>4.5 tubes/case</td>
<td>6 tubes/case</td>
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<tr>
<td>Dry cow mastitis</td>
<td>1%</td>
<td>2.5%</td>
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MORE INFORMATION

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