# Reference guide for mastitis-causing bacteria

C. S. Petersson-Wolfe¹ and M. Arnold²

¹Virginia Tech Mastitis & Immunology Laboratory & ²University of Kentucky

(Information obtained from NMC Laboratory Handbook on Bovine Mastitis and veterinary consultation for treatment recommendations)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Bacteria</th>
<th>Contagious or Environmental</th>
<th>Source</th>
<th>Spread</th>
<th>Control</th>
<th>Treatment*</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Staphylococcus</em> spp.</td>
<td><em>Staph. aureus</em></td>
<td>Contagious</td>
<td>Infected udders, hands of milkers</td>
<td>Milking time</td>
<td>Post dip, DCT¹, segregation and cull if necessary</td>
<td>Early lactation – 8 days pirlimycin, do not treat chronic infections</td>
</tr>
<tr>
<td></td>
<td>Coagulase (-) staph. &amp; <em>S. hyicus</em></td>
<td>Neither</td>
<td>Skin flora &amp; occasionally environment</td>
<td>Infect teat canal from skin sources</td>
<td>Post dip, DCT</td>
<td>Treat clinical cases (broad spectrum), DCT</td>
</tr>
<tr>
<td><em>Streptococcus</em> spp. and <em>Enterococcus</em> spp.</td>
<td><em>Strep. agalactiae</em></td>
<td>Contagious</td>
<td>Infected udders</td>
<td>Milking time</td>
<td>Milking time hygiene, post dip, DCT</td>
<td>Label recommendations for beta lactam antibiotics</td>
</tr>
<tr>
<td></td>
<td><em>Strep. dysgalactiae</em></td>
<td>Contagious and Environmental</td>
<td>Infected udders and environment</td>
<td>Milking time &amp; environmental contact</td>
<td>Milking time hygiene, pre &amp; post dip, DCT, teat seal</td>
<td>Label recommendations for broad spectrum antibiotics</td>
</tr>
<tr>
<td></td>
<td><em>Strep. uberis</em></td>
<td>Environmental</td>
<td>Environment – early dry period</td>
<td>New IMM² during early dry period</td>
<td>Milking time hygiene, pre &amp; post dip, DCT, teat seal</td>
<td>IMM² Therapy or 4-5d penicillin systemically (5cc/100lbs body weight)** or 5-8 days pirlimycin</td>
</tr>
<tr>
<td></td>
<td>Environmental strep &amp; <em>Enterococcus</em> spp.</td>
<td>Environmental</td>
<td>Environment</td>
<td>Environmental contact</td>
<td>Milking time hygiene, pre &amp; post dip, DCT, teat seal</td>
<td></td>
</tr>
<tr>
<td><strong>Coliform</strong></td>
<td><em>Escherichia coli</em></td>
<td>Environmental</td>
<td>Bedding, manure, soil</td>
<td>Environmental contact</td>
<td>Cows clean &amp; dry, use of sand bedding, pre dip, a J5 vaccine</td>
<td>Do not treat local/mild cases. Systemic cases – 2-3L hypertonic saline IV, followed by oral fluid therapy, NSAID***, injectable antibiotics and IMM cefotiofur</td>
</tr>
<tr>
<td></td>
<td><em>Klebsiella</em> spp.</td>
<td>Environmental</td>
<td>Organic bedding</td>
<td>Environmental contact</td>
<td>Avoid sawdust &amp; recycled manure, pre dip, J5 vaccine</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Enterobacter</em> spp.</td>
<td>Environmental</td>
<td>Bedding, manure, soil</td>
<td>Environmental contact</td>
<td>Cows clean &amp; dry, use of sand bedding, pre dip, a J5 vaccine</td>
<td></td>
</tr>
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<td></td>
<td><em>Serratia</em> spp.</td>
<td>Environmental</td>
<td>Soil and plants</td>
<td>Environmental contact</td>
<td>Cows clean &amp; dry, pre dip (no chlorhexidine products)</td>
<td>Do not respond to IMM treatment</td>
</tr>
<tr>
<td></td>
<td><em>Pseudomonas</em> spp.</td>
<td>Environmental</td>
<td>Water &amp; wet bedding</td>
<td>Environmental contact</td>
<td>No water use in parlor, no cooling ponds, sand bedding, a J5 vaccine</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Proteus</em> spp.</td>
<td>Environmental</td>
<td>Bedding, feed &amp; water</td>
<td>Environmental contact</td>
<td>Not much known, use of sand bedding, a J5 vaccine</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Pasteurella</em> spp.</td>
<td>Probably contagious</td>
<td>Upper respiratory tract of mammals and birds</td>
<td>Unknown – likely cow to cow</td>
<td>Prevent teat injuries, remove affected cows from herd</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td><em>Yeast &amp; mold</em></td>
<td>Environmental</td>
<td>Soil, plants, water</td>
<td>Dirty infusions</td>
<td>Aseptic infusions</td>
<td>No treatment</td>
</tr>
<tr>
<td></td>
<td><em>Corynebacterium</em> bovis &amp; other coryneforms</td>
<td>Contagious</td>
<td>Infected udders</td>
<td>Cow to cow</td>
<td>Post dip</td>
<td>Treat clinical cases and DCT</td>
</tr>
<tr>
<td></td>
<td><em>Prototheca</em></td>
<td>Environmental</td>
<td>Soil, plants, water</td>
<td>Dirty infusions, infected udders</td>
<td>Aseptic infusions, eliminate infected cow</td>
<td>No treatment – cull cow</td>
</tr>
<tr>
<td></td>
<td><em>Bacillus</em> spp.</td>
<td>Environmental</td>
<td>Soil, water, air</td>
<td>Dirty infusions</td>
<td>Aseptic infusions</td>
<td>Broad spectrum antibiotic</td>
</tr>
<tr>
<td></td>
<td><em>Trueperella pyogenes</em></td>
<td>Environmental</td>
<td>Teat injuries</td>
<td>Flies</td>
<td>Fly control</td>
<td>Kill affected quarter or remove from herd</td>
</tr>
<tr>
<td></td>
<td><em>Mycoplasma</em> spp.</td>
<td>Contagious</td>
<td>Infected udders</td>
<td>Milking time</td>
<td>Milking time hygiene, segregation and culling</td>
<td>Remove from the herd</td>
</tr>
</tbody>
</table>

*These are general treatment recommendations – actual recommendations may vary from herd to herd. Please consult your veterinarian.

**Extra label usage; Please consult your veterinarian before starting this protocol and for appropriate milk and meat withdrawal times

***Nonsteroidal anti-inflammatory drugs

¹ – DCT, dry cow therapy; ² – IMI, intramammary infection; ³ – IMM, intramammary