Environmental Mastitis

Mastitis-causing bacteria (pathogens) are classified as either contagious or environmental. Contagious pathogens are transmitted from cow to cow, mainly at milking time through milking equipment, the milker’s hands and contaminated wash cloths. The principle contagious pathogens are *Streptococcus agalactiae*, *Staphylococcus aureus* and *Mycoplasma* species. Environmental pathogens enter the teat canal from manure, bedding, soil, plant material and water. Primary environmental pathogens include two types of bacteria: coliform bacteria and species of streptococci other than *Strep. agalactiae*. These are referred to as ‘environmental streptococci’.

The cow’s environment

Housed cows are at greater risk for environmental mastitis than cows on pasture. Bedding is a major source of environmental pathogens. The number of infectious bacteria in bedding depends on its temperature, moisture level and nutrient availability. Low-moisture inorganic materials, such as sand or crushed limestone, are preferable to finely chopped organic materials which retain moisture, such as straw, sawdust and shavings. Coliform numbers are generally low in clean, long straw but environmental streptococcal numbers may be high.

Controlling new infections

Environmental mastitis is controlled by decreasing teat end exposure and increasing the cow’s resistance to mastitis pathogens as follows:

*Teat dipping with germicidal dips* is recommended.

A degree of control over environmental streptococci is exerted, but there is no control of coliform intramammary infection.

*Teat dipping with barrier dips* is reported to reduce new coliform intramammary infections. Their efficacy against environmental streptococci and contagious pathogens appears to be lower than that of germicidal dips.

*Teat dipping in the dry period* to control environmental mastitis, using either germicidal or barrier dips designed for use during lactation, has been unsuccessful. Recent research on persistent barrier dips (2-5 day persistency) applied during the dry period shows considerable promise for controlling environmental infections.

Dry cow therapy of all quarters of all cows significantly reduces new infections by environmental streptococci during the early dry period but not in the week or two before calving. Dry cow therapy does not control coliform infections. Reinforcing antibiotics during the late dry period appears to be of little or no value.

Lactating cow therapy generally produces cure rates of about 50 to 60% for environmental streptococci. Antibiotics approved for lactation therapy are uniformly ineffective against coliforms, but cure rates may appear to be as high as 50% due to the short duration of infections.

Backflushing of the milking unit does not control environmental mastitis.

Malfunctioning milking machines that result in frequent liner slips and teat impacts can increase cases of environmental mastitis.

Udder preparation. Milking of cows with wet udders and teats is likely to increase the incidence of environmental mastitis. Teats should be clean and dry prior to attaching the milking unit.

Predipping teats with a germicidal teat dip reduces new cases of environmental mastitis during lactation. Extreme caution should be taken to ensure that the teat dip is removed from the teats before milking machine attachment to prevent contaminating the milk.

Vaccination of cows during the dry period with an *Escherichia coli* J-5 bacterin will reduce the number and severity of coliform clinical cases during early lactation.

Diets deficient in vitamins A or E, beta-carotene, or the trace minerals selenium, copper and zinc will result in an increased incidence of environmental mastitis.

Environmental management. Herd environments should be as dry and clean as possible. The environment of the dry, springing and maternity cow is as important as that of the lactating cow.

source: http://www.nmconline.org/environmental.htm