

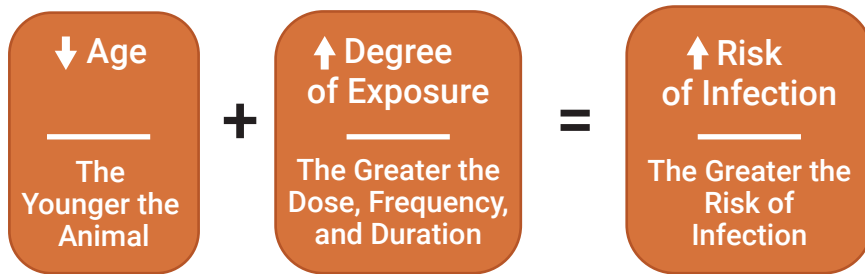


What Influences Risk of Infection?

by Whitney Hull and Julie Smith, DVM, PhD

An animal's age at exposure to MAP (*Mycobacterium avium* subspecies *paratuberculosis*), combined with the dose of infective material, are important factors in determining the risk of developing disease later in life. An animal that encounters MAP does not necessarily develop Johne's disease.

Calves are the most susceptible to infection and can go on to develop the most severe disease. As animals get older, the likelihood of becoming infected with MAP decreases. Larger doses of the organism ingested, increased frequency and duration of exposure, and greater density of animals all increase the risk that an animal will become infected.¹⁶

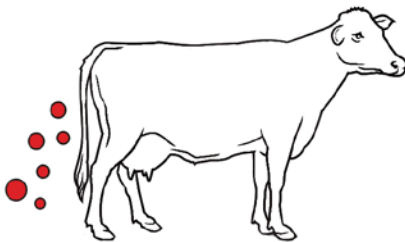


One Infected Animal, a Heavily Infected Herd?

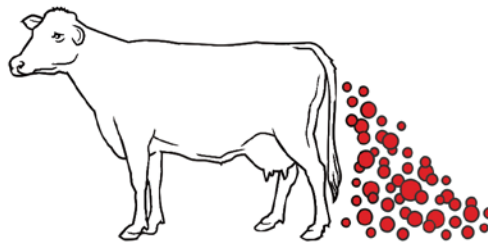
The amount of MAP shed from one cow can range from only hundreds to over billions of bacteria per day. Cows shedding over 10,000 colony forming units (CFU) of MAP per gram of manure are considered "super shedders." Cows with clinical signs are typically shedding well over this amount.

While a herd may only have a few "super shedders" at one time, these animals can shed billions of bacteria into the environment and increase exposure risk of other animals in the herd.⁶

Very Low Shedder



Super Shedder



An infected herd usually has more low shedders than heavy shedders or super shedders. Infected animals should be culled before they become super shedders.

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Johne's Disease Facts

Young calves are at the highest risk of MAP infection, but adult cattle can be infected, too.

Why are newborn calves so susceptible?

During the first 24 hours of life when passive transfer of immunity occurs, MAP can also cross the gut lining.

MAP initiates infection in specialized gut immune tissue called Peyer's patches.¹⁹



During passive transfer, antibodies as well as bacteria can enter a newborn's blood system.



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