

Pulpy kidney (enterotoxaemia) is a disease that can cause the death of sheep, cattle and goats. It often results in the death of animals otherwise considered to be in good condition, and is often difficult to diagnose.

What is pulpy kidney?

Pulpy kidney ("Enterotoxaemia") is a disease caused by the toxin of *Clostridium perfringens* Type D absorbed from the intestinal tract. (There are five types of this bacterium known to affect food animals. They are classified as types A, B, C, D or E according to the toxins they produce). Type D is the only one of importance in Australia. Pulpy kidney generally presents as sudden death. Occasionally excitement, incoordination and convulsions may be observed prior to death.

What causes the disease?

The bacteria that cause pulpy kidney normally exist, in small numbers, in the gut of healthy animals. The disease develops when bacterial numbers increase dramatically, and when the environment in the intestine favours toxin production. *C.perfringens* Type D bacteria may survive in the intestinal passage in the duodenum where they can multiply and produce toxin.

Normally, the movement of material through the intestine keeps the bacterial population and toxin levels low and therefore, safe. However, factors that alter the environment in the intestine may then allow the multiplication of bacteria and higher levels of toxin production.

Why is pulpy kidney hard to diagnose?

Post-mortem signs are not specifically diagnostic for the disease; bloat, for instance, is often confused with pulpy kidney. Also, gut contents must be examined for toxin within a few hours of death. Toxin may only have been produced in a short section of the intestine, which can be up to 30 metres long. Finally, the toxin is unstable and may be difficult to identify using laboratory tests. Isolation of *C.perfringens* bacteria from the gut is rare and, if found in small numbers, may not be regarded as abnormal.

What factors lead to pulpy kidney?

Predisposing factors contributing to pulpy kidney include a gut environment suitable for bacterial growth in the intestine and a slowing in the movement of material through the intestinal tract. This can be caused by increased feed intake, new or better pasture, dramatic change in diet, or grain based diets. Pulpy kidney is most likely to occur during periods of greatest pasture growth and feed availability.

Can pulpy kidney be controlled or prevented?

The first defence against pulpy kidney is to avoid those situations that predispose the animal to bacterial growth and toxin production. However, many of these situations are otherwise normal or even essential management actions (e.g. grain feeding, moving stock to better pasture).

In combination with appropriate management strategies, vaccination will reduce losses due to pulpy kidney. Given that it is often the best, fastest growing animals that will die, vaccination is definitely worthwhile.

Pfizer's Ultravac® 7in1, Ultravac® 5in1, Glanvac® 6 range and Glanvac® 3 range provide protection against pulpy kidney and other clostridial diseases. Ultravac® 7in1 will also provide protection against leptospirosis in cattle and Glanvac® will control cheesy gland in sheep. Additionally Glanvac® is formulated with selenium and/or vitamin B12 to enable trace element supplementation, if required.

What vaccination programs are recommended?

For previously unvaccinated cattle, sheep and goats, 2 doses of the preferred vaccine, 4–6 weeks apart, is necessary for initial immunity. Depending on the species, a follow-up booster is required for ongoing protection. Calves may need to be boosted as soon as 3 months after the initial course, 6 months for goats, and annually for sheep. Vaccination is aimed at reducing the risk on a whole herd basis and booster vaccination is most appropriately timed just prior to the high-risk period vaccination of cows before calving, and ewes prior to lambing will result in good passive protection being passed on to the young animals. This passive protection lasts for 6–8 weeks.

For complete directions refer to the product label. Consult your veterinarian or animal health consultant for advice on specific vaccination programs.

What are the correct dose rates?

Glanvac® 1mL for sheep/1mL for goats*

Ultravac® 5in1 1mL for sheep/2mL for cattle

Ultravac® 7in1 2.5mL for cattle

Glanvac® 3, Glanvac® 6 & Glanvac® 6B12 are registered for goats.