

Veterinary Information Sheet

VTEC O157: essential information for veterinary practitioners

Introduction

Verocytotoxigenic *Escherichia coli* (VTEC) O157 has emerged as an important zoonotic pathogen in recent years and has received considerable media attention. Veterinary surgeons in general practice may receive enquiries from clients, especially those with livestock premises open to the general public. VTEC O157 causes a broad spectrum of human illness ranging from diarrhoea to renal failure (haemolytic uraemic syndrome); the very young and elderly are most at risk. It is important to be aware that it is a fairly common alimentary tract commensal in many animal species but does not cause them any illness.

The main source for human outbreaks is food contaminated with faecal organisms from animals (especially cattle) but zoonotic transmission through contact with infected animals or their environment may account for many sporadic cases and some defined outbreaks. Animal contact has been associated with a number of high profile outbreaks amongst visitors to farms open to the public. In England and Wales, such outbreaks are investigated by the VLA working in collaboration with the Health Protection Agency (HPA); isolates from animal samples taken by the VLA are compared with those from human cases using phagetyping and molecular profiles undertaken at the HPA laboratory, Colindale.

Animal sources of infection

Cattle are thought to be the main reservoir of infection (present in approximately 40% of cattle herds in England and Wales) but VTEC O157 has also been isolated from numerous other species including sheep, goats, pigs, horses, donkeys, farm dogs, llamas, alpacas and wild rabbits (Pritchard and others 2009, Veterinary Record **164**, 545-549). Outbreaks on open farms have been most commonly linked to goats, sheep and cattle.

Identifying animals infected with VTEC O157

Detecting VTEC O157 is complicated and expensive. Since it does not cause illness in animals, such laboratory examinations are not undertaken during routine veterinary disease investigations. Any cultures undertaken by VLA are generally either for surveys, research projects or to support human outbreak investigations.

Is it worth screening animals for VTEC O157?

Ad hoc sampling and culturing for VTEC O157 is not recommended. Excretion is variable and intermittent. Hence, negative faecal samples would not definitively confirm that an animal or a group is not infected. Unless all animals are tested, a statistical sampling approach is required to provide confidence in the results. Infection can be introduced by added animals, wildlife or various contaminated fomites. It can also survive in the environment for several months. Hence, ad hoc sampling with negative findings can lead to a false sense of security and thereby possibly increase the risk for people through complacency. Moreover, the issues concerning what steps would be taken if animals are found to be carriers are complex.

Advice to Farmers

Assume that most farm animals are likely to be infected at some time and adopt sensible hygiene precautions routinely, particularly with farm visitors, including friends and family. Advice for open farms is available at <http://www.hse.gov.uk/pubns/ais23.pdf>. Shedding of VTEC O157 may be reduced if animal enclosures are kept dry and animals remain within defined groups. A leaflet covering this is available from the VLA or from http://www.defra.gov.uk/vla/diseases/dis_ecoli.htm Further information on VTEC O157 is available at http://www.defra.gov.uk/vla/news/new_ecoli.htm or by contacting your local VLA Regional Laboratory. Questions can also be emailed to fbzs@vla.defra.gsi.gov.uk