



Animal &  
Plant Health  
Agency

## Information note

# Salmonella: New strain in sheep

November 2018

APHA has a responsibility under the Zoonoses Order, 1989, (ZO) for the investigation of *Salmonella* incidents.

APHA has recently been investigating two incidents of *Salmonella* in sheep with associated human cases.

Scanning surveillance activities in 2017 identified a potentially new strain of *Salmonella* Typhimurium following post-mortem examination of sheep in a flock where a high level of mortality had occurred. In 2018 a second incident was identified by APHA with the same *Salmonella* Typhimurium strain. Clinical signs in both flocks included depression, diarrhoea and death.

This new strain of *Salmonella* Typhimurium is different to previous outbreak strains in UK in that it does not usually conform to a recognised phage type (RDNC) or is untypable (UNTY). It is also sensitive to all antibiotics in the APHA anti-microbial resistance (AMR) surveillance panel. Public Health England (PHE) has classified this outbreak cluster as *Salmonella* Typhimurium t5. 3225 on the basis of whole genome sequencing (WGS). Isolates within this cluster vary by a maximum of 5 single nucleotide polymorphism mutations (SNPs), which is considered to be a reliable threshold for identification of isolates that are epidemiologically related within the context of a human disease outbreak.

Examination of the genetic relationship (phylogeny) of this strains to others on record at PHE suggests that this strain is unusual in the UK and the relatively low level of genetic diversity is suggestive of a recently emerged source of contamination.

Human cases of *Salmonella* Typhimurium have been linked to consumption of lamb and mutton. The current outbreak started in July 2017 and 283 cases have been reported to date (up to 19 October 2018). However, a number of control measures were put into place which were followed by a significant decline in cases in the latter part of last year.

Infection in humans is thought to be associated with eating sheep meat, including not cooking meat properly, not washing hands thoroughly after handling raw meat, or through cross-contamination of other foods, surfaces and utensils in the kitchen.

FSA have issued advice on cooking raw meat:

<https://www.food.gov.uk/news-alerts/news/advice-on-cooking-raw-meat-following-rise-in-salmonella-typhimurium>

In both sheep flocks, there were high levels of mortality in groups of cull ewes that had been purchased from various livestock markets for fattening prior to onward consignment for slaughter.

Veterinarians have a vital role to play in surveillance and to look out for cases of high mortality in ewes or sheep flocks (or cattle herds) with a high level of diarrhoea. Human illness may also be associated, but the absence of human cases is not a reason to not report such cases. APHA provides a ZO2 sample submission form when cases of Salmonella are identified and it is vital that the information requested on this form is returned to APHA to enable a risk assessment to be undertaken.

APHA Veterinary Investigation Officers are always happy to discuss cases with you and help with investigation of incidents which may be due to emerging threats. Post-mortem examination (PME) services are available at APHA Veterinary Investigation Centres and at PME facilities operated by partners working on our behalf. Together, we provide a surveillance network across England and Wales. In Scotland Surveillance is provided by SRUC Veterinary Services (SRUC-VS) and in Northern Ireland by Agri-Food and Bioscience Institute (AFBI)

Information about the APHA, SRUC- VS and AFBI veterinary laboratory networks in the UK:

APHA in England & Wales: <http://apha.defra.gov.uk/vet-gateway/surveillance/diagnostic/index.htm>

SRUC-VS in Scotland: [https://www.sruc.ac.uk/info/120144/farm\\_animal\\_diagnostics](https://www.sruc.ac.uk/info/120144/farm_animal_diagnostics)

AFBI in Northern Ireland: <https://www.afbini.gov.uk/articles/animal-disease-diagnostic-services#toc-1>