The Veterinary Laboratories Agency (VLA) has reported an increase in the incidence of suspected botulism since 2003. Most incidents have affected cattle, but similar disease has also been reported in a smaller number of flocks of sheep. The Department of Agriculture in Northern Ireland (DARDNI) has reported a similar scenario. Incidents have been associated with \textit{C. botulinum} toxin types C or D in gut contents. The animal health and welfare and public health risks arising from this situation need to be minimised.

**Clinical signs**

All ages of cattle are susceptible to botulism and recumbent cattle are the usual first presenting sign. The cattle have a lack of muscle tone leading to progressive paralysis. While reduced tongue tone is a useful clinical sign it is not always present. When large amounts of toxin are ingested, cattle may just be found dead without any prior signs of disease. Most cattle that are unable to rise will die though a small proportion that are mildly affected can survive but lose condition.

**Risk factors for cattle botulism**

An association between use of poultry litter as feed or bedding, which are now illegal and the occurrence of botulism in cattle was suggested in the 1970s and has been reported since in many different countries. DARDNI and the VLA have reported circumstantial evidence to suggest that direct or even apparently indirect access to litter from broiler houses is a factor in most of the recent outbreaks of suspected and confirmed botulism in cattle and sheep. In some cases the litter was stacked or spread...
several hundred meters from cattle that contracted botulism. This suggests that source material may be transported, possibly by foxes or crows, from stored litter on to pasture or into areas where ruminants are housed or held. Consequently litter stored or spread on neighbouring farms may also be a risk.

A large proportion of broiler litter is burned for power generation and it can also be incorporated into arable land as fertilizer. Carcases have to be removed from litter and disposed of, by incineration or rendering, in accordance with the Animal By-Product Regulation, prior to disposal as fertilizer.

Defra recommendations relating to the risks to ruminants arising from broiler litter can be obtained at: http://www.defra.gov.uk/Animalh/diseases/zoonoses/botulism.htm

VLA have produced guidelines for ruminant farmers which aim to control these risks.

- If at all possible do not import litter onto ruminant farms
- If litter is stored or spread on fields (as fertilizer), including on neighbouring premises, move stock away from direct contact and close proximity (less than 500 meters)
- If using litter for fertilizer do not spread on pasture used for grazing or from which forage is conserved and keep stock as far from it as possible
- When using litter as fertilizer on arable fields plough in the litter immediately, minimizing the period when scavenging animals and birds could gain access. Litter containing visible carcase material must not used as fertilizer.
- If storing litter for a period on the farm, this must be secure –
  - the storage facility should prevent access by scavenging birds and animals, including domestic animals such as dogs and cats
  - site the litter store as far as possible from livestock on home and neighbouring farms
  - comply with relevant environmental regulations such as the seasons when nitrogenous fertilizers can be spread and proximity to water courses
  - store litter in a secure enclosure constructed with wooden sleepers, concrete or earth walls
  - secure litter store, once filled, to prevent access by scavengers
- Ensure that machinery used for handling litter is not used for storing, mixing or moving feedstuffs
- Do not use litter as feed or bedding for ruminants
- Adopt good personal hygiene when moving or spreading litter
- Consider vaccination

For veterinary surgeons whose clients are faced with the risk of further outbreaks of botulism in ruminants, such as those with broiler units who dispose of their own litter as fertiliser, or for premises adjacent to broiler units, a bivalent *Clostridium botulinum* types C and D vaccine manufactured by Fort Dodge is available for use in cattle and sheep and can be obtained by applying to the Veterinary Medicines Directorate for a ‘Special Treatment Certificate STC’. As botulism in cattle and sheep in Europe is thought to be caused usually by these two types of *C. botulinum*, it is expected that this vaccine should assist protection against the toxins in broiler carcases/litter, though not the occasional cases which might be due to type B toxin, which are more likely to be associated with access to decomposing plant derived feeds.

Food safety & public health
The Advisory committee on the Microbiological safety of Food (ACMSF), an independent advisory committee advising the Food Standards Agency’s (FSA) has reviewed the risks to public health associated with cattle botulism. The available data suggest the public risks are very low. Accordingly the FSA has suspended the need to withhold meat or milk, from the food chain, from apparently healthy cattle affected by suspected botulism. There is no change in the restrictions on sheep or sheep products in flocks affected by suspected botulism as the ACMSF has as yet not assessed the public health risks arising from sheep botulism.