

# Surveillance report.

## Zoonotic disease in Scotland

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Zoonoses are diseases and infections that are naturally transmissible between vertebrate animals and humans. There are believed to be in excess of 250 zoonotic diseases recognised worldwide, and new diseases continue to be identified. Transmission may occur due to direct occupational, recreational or domestic contact with animals, via indirect contact or due to consumption of contaminated food or water. Some zoonotic agents can cause serious disease in humans but have little or no effect on animals (e.g. shiga toxin-producing producing *E. coli* O157), whereas others cause serious disease in both humans and animals (e.g. rabies).

This report summarises laboratory confirmed cases of selected zoonotic infections reported in Scotland ([Table 1](#)), excluding the main gastro-intestinal pathogens which are covered in detail on separate surveillance reports (<http://www.hps.scot.nhs.uk/giz/surveillance.aspx?databaseid=1>).

**Table 1:** Laboratory reports of selected zoonotic infections in Scotland 2013-2017.

	2013	2014	2015	2016	2017*
Anthrax ( <i>Bacillus anthracis</i> )	1	2	0	0	0
Avian Influenza	0	0	0	0	0
<i>Mycobacterium bovis</i>	2	2	2	1	2
Brucellosis	2	1	0	0	0
Hantavirus	0	1	0	0	0
Hydatid disease ( <i>Echinococcus granulosus</i> )	3	2	1	0	3
Leptospirosis	1	2	3	3	5
Lyme borreliosis ( <i>Borrelia burgdorferi</i> )	176	224	200	170	167
Pasteurellosis	133	173	204	199	179
Psittacosis	5	6	2	3	4
Q fever ( <i>Coxiella burnetii</i> )	2	5	2	1	4
Rabies 'classical'	0	0	0	0	0
Rabies EBLV (European Bat Lyssavirus)	0	0	0	0	0
<i>Streptococcus suis</i>	2	0	0	1	2
Taeniasis	6	3	14	10	3
Toxocariasis	0	0	0	4	3
Toxoplasmosis**	22	23	32	42	36
Trichinellosis	0	1	0	0	0
Yersiniosis (non-pestis)	7	4	5	9	12

\* data for 2017 is provisional.

\*\* Annual figures for Toxoplasma have been revised following data reconciliation with the Scottish Toxoplasma Reference Laboratory.

## Most frequently reported zoonotic organisms

During 2017, reports of Lyme borreliosis, Pasteurellosis and Toxoplasmosis accounted for around 90% of these reports ([Table 1](#)). These are discussed in more detail below.

### Lyme disease

Lyme borreliosis, known as Lyme disease, is caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans and animals through the bite of an infected tick (*Ixodes* species). It is the most common tick-borne infection in humans in the temperate northern hemisphere. The majority of cases in Scotland are indigenously acquired, usually through recreational activities including country or hill walking, running, orienteering or gardening. In 2018, a Scottish Reference Laboratory for Lyme Disease and Tick-borne Infections was commissioned by NHS National Services Scotland, and is based at Raigmore hospital in Inverness. The reference laboratory will provide specialist diagnostic and confirmatory testing services for Lyme disease to all NHS boards in Scotland from 1 October 2018. Following this, all diagnostic laboratories will submit samples to the Reference Laboratory for screening and confirmation, and will result in more complete data on laboratory confirmed cases.

There were 168 laboratory confirmed reports of cases of current infection with *Borrelia burgdorferi* in 2017 in Scotland. These figures only include samples that have been submitted to the Reference Laboratory for confirmatory testing. It is recognised that this is an underestimation of the true incidence as many cases are treated on the basis of symptoms and will not be tested.<sup>1</sup> Others may be diagnosed on the basis of local tests and not submitted to the Reference Laboratory for confirmation. The Scottish Health Protection Network Lyme Disease Group has published information on the NHS Inform website about Outdoor Bugs and Germs (<https://www.nhsinform.scot/healthy-living/outdoor-health/bugs-and-germs/avoiding-bugs-and-germs-outdoors>).

Information on ticks and Lyme disease in Scotland can be found at <https://www.hps.scot.nhs.uk/resourcedocument.aspx?id=6667>

In 2018, the National Institute for Care and Excellence published guidance on the diagnosis and management of Lyme disease. <https://www.nice.org.uk/guidance/ng95>

### Pasteurellosis

Pasteurellosis is a zoonotic bacterial disease with a worldwide distribution. *Pasteurella multocida* is the most commonly reported organism in this group, and is well known as both a common commensal (part of the normal bacterial flora) and pathogen in a variety of animal species. Human infections are usually contracted following exposure to domestic pets such as cats and dogs. The most common manifestation of pasteurellosis in humans is a local wound infection, usually following an animal bite, scratch or licks. Animals do not have to be ill to pass the bacterium to humans, as they can carry the organism without showing symptoms. Broad spectrum antibiotics are usually effective against *Pasteurella* in the setting of simple wound infections. *Pasteurella* species can also cause meningitis, eye and respiratory infections.

There were 179 cases of pasteurellosis reported in 2017; of these, five people had a dual infection with two different types of *Pasteurella*. One hundred and thirty cases (73%) were associated with wound infections; information was not available for all cases although 62%

of wound infection cases reported a dog or cat bite/scratch. Thirty one reports (17%) were associated with respiratory illness. The remainder of reports, for which information was provided, indicated that the majority were obtained from ear or eye swabs, or were isolated from blood cultures.

## Toxoplasmosis

Toxoplasmosis is caused by the protozoan parasite *Toxoplasma gondii*. Cats are the definitive host for the organism although many warm-blooded animal species can be infected as intermediate hosts. Human infection can occur. People most at risk are pregnant women, who can pass congenital toxoplasmosis on to their unborn baby, and people with weakened immune systems. The *T. gondii* parasite is sometimes found in the afterbirth and on newborn lambs after an infected sheep has given birth and there is a small risk during the lambing season of toxoplasmosis infection passing from sheep to humans. Advice for pregnant women to avoid animals that are giving birth is available at <https://www.hps.scot.nhs.uk/resourcedocument.aspx?id=6479>. Advice for pregnant women to reduce the risk of toxoplasmosis infection is available at <https://www.nhsinform.scot/healthy-living/pregnancy-and-baby/pregnancy/your-health-and-wellbeing#>

In 2017 there were 36 laboratory confirmed reports of Toxoplasmosis made to HPS.

## References

1. Journal of Infection (2011) 62: 329 -338. The epidemiology, prevention, investigation and treatment of Lyme borreliosis in United Kingdom patients: A position statement by the British Infection Association

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