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Annual Epidemiological Report

November 2018

Listeriosis in Ireland, 2017

Key Facts

- Fourteen listeriosis cases were notified in 2017
- This included two neonatal and two pregnancy-associated cases, and ten adult/juvenile cases
- Twelve of the fourteen cases had recognised risk factors for listeriosis
- No deaths from listeriosis were reported in 2017
- No clusters of listeriosis were identified
- No source was identified for any specific case
- Referral of isolates for typing at NSSLRL enables detection of clusters and monitoring of trends in the strains that cause listeriosis in Ireland

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Background

Listeriosis is an infection caused by the bacterium *Listeria monocytogenes*. It is usually acquired by eating food contaminated with this bacterium. Anyone can become ill from eating food contaminated with *Listeria monocytogenes*, although the disease affects primarily the following groups of people:

- Pregnant women (and their unborn children)
- Newborns
- Adults with weakened immune systems (e.g. persons with HIV/AIDS, cancer, diabetes)

Older adults Infection in a healthy adult is usually without symptoms or causes a mild flu-like illness. In immunocompromised and older adults the infection can occasionally spread via the bloodstream, to the central nervous system causing meningitis and/or septicaemia, with symptoms such as headache, stiff neck, confusion, and loss of balance or convulsions.

Infected pregnant women may have no symptoms or experience only a mild flu-like illness. However, infection during pregnancy can lead to premature labour, meningitis in the newborn or even miscarriage.

Listeria monocytogenes is widespread in the environment and can be found in soil and water. Vegetables can become contaminated from the soil or from manure used as fertilizer. Animals can carry the bacterium asymptomatically, and meat or dairy products from these animals can be contaminated. Foods may also be contaminated after processing, eg cheese.

Unlike most bacteria, *Listeria* tends to grow at refrigerated temperatures in foods that have been contaminated. The foods most often associated with infection are ready-to-eat refrigerated and processed foods such as: pre-prepared cooked and chilled meals, soft cheeses, cold cuts of meat, pâtés and smoked fish.

A recent international outbreak of invasive *L. monocytogenes* infections has been ongoing in five EU Member States (Austria, Denmark, Finland, Sweden and the United Kingdom) since 2015. As of 15 June 2018, 47 cases had been reported and nine patients have died due to or with the infection (case fatality rate 19%). The outbreak has been linked to frozen corn and possibly to other frozen vegetables.[1]

Methods

Disease notification

Listeriosis is a notifiable disease in Ireland under the Infectious Disease Regulations and cases are notified to the Medical Officer of Health. Notifications are reported using the

Computerised Infectious Disease Reporting system (CIDR) which is described here. Further information on the process of reporting notifiable infectious diseases is available here. The case definition in use in 2017 is available at http://www.hpsc.ie/a-z/gastroenteric/listeriosis/casedefinitions/ Enhanced surveillance is undertaken by Departments of Public Health using the following enhanced surveillance form http://www.hpsc.ie/a-z/gastroenteric/listeriosis/surveillanceforms/

For this report, data on cases notified in 2017 were extracted from CIDR as of 21st August 2018.

Typing of *Listeria* isolates

The National *Salmonella*, *Shigella* and *Listeria* Reference Laboratory (NSSLRL) undertake serotyping, on all *Listeria* isolates referred from primary laboratories. Typically, isolates from around three-quarters of notified cases are referred annually. The NSSLRL has also introduced whole genome sequencing (WGS) for *Listeria* isolates.

Results

Basic epidemiology

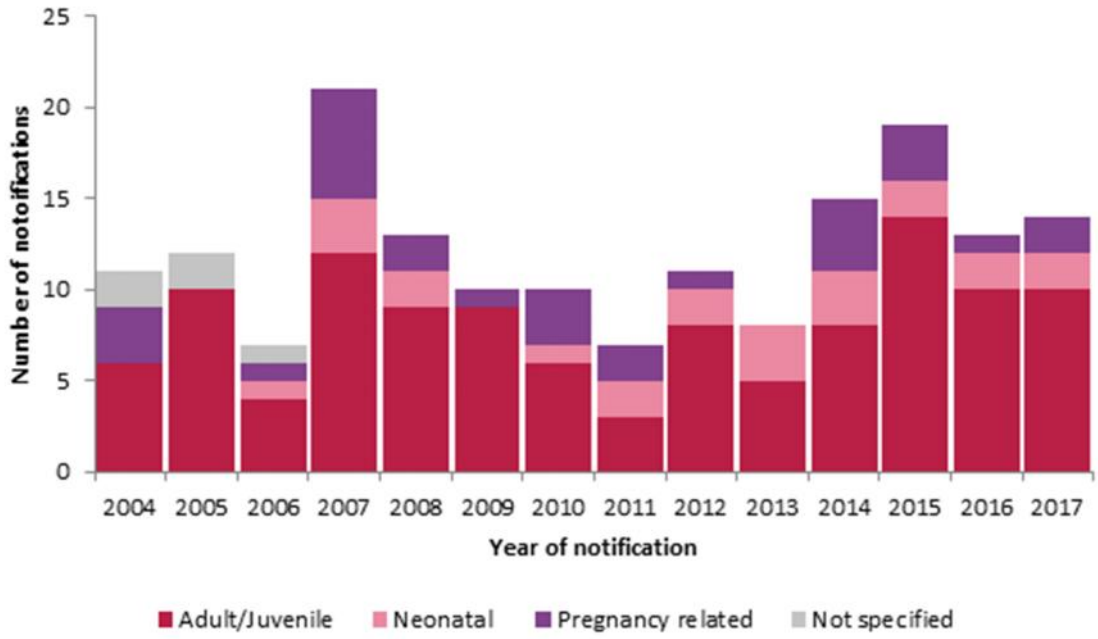
In 2017, 14 cases of listeriosis were notified, an increase of one case compared to 2016. This equates to a crude incidence rate of 0.29 per 100,000 population.

Two neonatal cases and two pregnancy-related cases were reported (Figure 1). The number of adult/juvenile cases reported in 2017 equalled that in 2016 (n=10) (Figure 1).

Seven of the ten adult/juvenile cases were male, cases ranged in age from six to eighty four years and half (n=5) were 65 years of age and older, and seven had underlying disease which may have predisposed them to listeriosis.

Seven adult/juvenile cases had septicaemia, two had meningitis, and one had other symptoms. No deaths were reported due to listeriosis in 2017.

Figure 1. Annual number of notifications of listeriosis by type and year, Ireland 2004-2017



Typing data

Since 2007, NSSLRL has provided a national service for the typing of *Listeria* strains. Isolates from just nine (64%) of the 14 notified cases in 2017 were referred by the primary laboratories for serotyping. In 2017, serotype 1/2a was the most common (n=8) followed by serotype 4b (n=1) (Table 1).

These nine isolates were further distinguished into seven different sequence types by whole genome sequencing, and detailed comparison of sequence data at NSSLRL outruled the likelihood of links between them.

Table 1: Listeriosis notifications by case type and serotype, Ireland, 2017*

Type	Serotype 1/2a	Serotype 4b	Not referred for serotyping	Total
Adult or juvenile	5	1	4	**10**
Pregnancy-related	1	0	1	**2**
Neonatal	2	0	0	**2**
Total	**8**	**1**	**5**	**14**

* Typing data provided by the National Salmonella, Shigella and Listeria Reference Laboratory (NSSLRL)

Discussion

In Ireland, *Listeria* remains a hazard for the elderly, persons with underlying illness, and other vulnerable groups most especially pregnant women and neonates. Occasionally, neonatal losses are reported. In response to a rise in the number of pregnancy-associated cases in Ireland in 2007, [2, 3] especially among woman for whom English was not their first language, *Safe*food produced an advice leaflet outlining the risks to pregnant women from *Listeria* in a range of languages.

WGS of isolates referred to NSSLRL in 2017 revealed no clustering of isolates. Historically, most cases of listeriosis have been considered sporadic on epidemiological grounds. However, a recent study which retrospectively evaluated the potential of using WGS at a European level, concluded that WGS enabled more clusters to be identified, and suggested that fewer than 50% of cases at European level were possibly sporadic. It was concluded that there was a substantial gain to be made by ensuring that all *Listeria* isolates are typed and that data are pooled at an international level.[4]

Public health implications

Referral of human clinical isolates from primary hospital laboratories to the reference facility plays a central role in ruling out links between cases, in monitoring trends in the variants which cause disease, and in identifying potentially linked cases, permitting more targeted investigation of cases.

Between 2007 and 2017, isolates were referred to NSSLRL for 73% of notified cases. We are grateful to the primary hospital laboratories that have referred isolates for typing. However, it would be preferable to receive all clinical isolates as soon as possible after first isolation, to maximise the chance of recognising and solving clusters when they occur.

Further information available on HPSC website

Further information about listeriosis is available at http://www.hpsc.ie/a-z/gastroenteric/listeriosis/

Publications on listeriosis in Ireland available at http://www.hpsc.ie/a-z/gastroenteric/listeriosis/publications/articles/

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