

Overview of 2011 Zoonoses Data

In 2011, a total of 21,868 tests were performed on food samples (comprising single and batch¹ samples) for a range of zoonotic bacteria and other microbiological contaminants.

Campylobacteriosis

Humans

- A total of 2,427 cases of campylobacteriosis were notified in 2011 (crude incidence rate² (CIR) of 52.9 cases per 100,000 population); a 46% increase on the 1,661 cases in 2010 (39.2 cases per 100,000 population).
- Ireland's CIR for 2011 was slightly higher than the European average (50.3 cases per 100,000 population).
- Seven outbreaks of campylobacteriosis, with 16 associated cases of illness were reported in 2011. Person-to-person transmission was suspected in three of these outbreaks but the transmission route of the remaining four outbreaks was unknown.

Food

- Of the 1,919 food samples tested in 2011 for *Campylobacter*, 23.6% (n=453) were positive. Most of these positive samples (n=440) were broiler meat.
- *Campylobacter* was detected in two ready-to-eat (RTE) food samples (0.3% of 672 RTE samples); one was broiler meat and the other was poultry meat.
- Most isolates recovered from food in 2011 were unspecified *Campylobacter* species (n=442, 97.6%), while the remainder were identified as *C. jejuni* (n=11, 2.4%).

Animals

- Out of 3,102 animal samples tested for *Campylobacter* in 2011, 14.5% (n=450) were positive.
- A large proportion of broiler samples tested were positive for *Campylobacter* (80.6%, 162 out of 201). *Campylobacter* was also detected in cattle, sheep, pigs and goats.
- A total of 462 isolates were recovered from the 450 positive animal samples and were identified as *C. jejuni* (n=418, 90.5%), *C. coli* (n=43, 9.3%) and *C. lari* (n=1, 0.2%).
- In 2011, 66.7% (76/114) of *C. jejuni* isolates from broiler caeca were resistant to one or more antimicrobial. In 2010, 50% (27/54) of *C. jejuni* isolates from broiler, duck and turkey carcasses were resistant to one or more antimicrobial.
- For *C. coli*, 62.5% (20/32) of isolates from broiler caeca were resistant to one or more antimicrobial in 2011. In 2010, 68.1% (49/72) of *C. coli* isolates from broiler and turkey carcasses were resistant to one or more antimicrobial.

Salmonellosis

Humans

- A total of 311 cases of salmonellosis were notified in Ireland in 2011 (6.8 cases per 100,000 population), which is a slight decrease on the 356 cases notified in 2010 (8.4 cases per 100,000

¹ Batch samples comprise of one or more food samples analysed individually, but reported as one unit. If one food sample within a batch is positive, the batch is recorded as positive.

² The crude incidence rate (CIR) is the rate at which new cases occur in a population in a specific period. CIR's for Ireland were calculated using the 2011 census data (population of Ireland: 4,588,252).

population). Ireland's CIR for 2011 was below the EU average for the same year (20.7 cases per 100,000 population).

- Of 321 *Salmonella* clinical isolates referred for typing in 2011, the most common serotypes were *S. Typhimurium* (n=116, 36.1%) and *S. Enteritidis* (n=58, 18.1%). Almost half (n=153, 47.7%) of clinical isolates were resistant to one or more antibiotic.
- Thirteen outbreaks of salmonellosis (with 49 associated cases of illness) were reported in 2011. Food was a suspected mode of transmission in four outbreaks, person-to-person transmission in three outbreaks, and the transmission mode for the remaining six outbreaks was unknown.

Food

- A total of 9,775 food samples were tested for the presence of *Salmonella* in 2011.
- *Salmonella* was not detected in any RTE meat samples (n=1,949). *Salmonella* was detected in 0.5% of raw meat samples (6 out of 1,117) and in 0.8% (20 out of 2,356) of meat where the RTE status was not specified. Positive meat samples included broiler meat, poultry meat, pork and beef. Species identified included *S. Kentucky*, *S. Typhimurium* monophasic, *S. Schwarzengrund*, *S. Infantis* and *S. Javiana*.
- Three non-meat samples were positive for *Salmonella*; *S. Veneziana* was detected in one RTE sample, while *S. Schwarzengrund* and an unspecified *Salmonella* spp. were detected in two non-meat samples of unspecified status.

Animals

- In 2011, 1.6% (6 out of 387) of breeding and commercial flocks and 0.4% (1 out of 238) animal feed materials tested were positive for *Salmonella*.
- Out of 14,049 other animals tested for *Salmonella*, 5.1% (n=721) were positive. These included samples taken from cattle, sheep, pigs, horses, dogs, birds and goats. Species identified included *S. Dublin* (n=668), *S. Typhimurium* (n=38), *S. enterica* subsp. *diarizonae* (n=5), *S. Mbandaka* (n=4), unspecified *Salmonella* spp. (n=3), *S. enterica* subsp. *arizonae* (n=1), *S. Enteritidis* (n=1) and *S. Newport* (n=1).
- High levels of antimicrobial resistance were recorded in *S. Typhimurium* recovered from:
 - Pigs: 76% to ampicillin, 27% to chloramphenicol, 85% to streptomycin, 89% to sulphonamides, 90% to tetracycline, 18% to trimethoprim, 8% to nalidixic acid, 15% to florfenicol, 3% to gentamycin and 8% to ciprofloxacin.
 - Bovines: 70% to ampicillin, 40% to chloramphenicol, 80% to streptomycin, 80% to sulphonamides, 80% to tetracycline, 7% to trimethoprim and 40% to florfenicol.

Cryptosporidiosis

Humans

- In 2011, 428 cases of cryptosporidiosis were notified in Ireland (9.3 cases per 100,000 population); a 46% increase on the previous year (294 cases, 6.9 cases per 100,000 population).
- Ireland's crude incidence rate for 2011 was much higher than the corresponding EU average (1.95 cases per 100,000 population), however, it is recognised that cryptosporidiosis is subject to under-diagnosis and under-reporting in Europe due to differences in surveillance systems and diagnostic practices across countries, with several countries not presently reporting cryptosporidiosis cases.
- Thirty cryptosporidiosis outbreaks were reported in 2011, with 94 associated illnesses. Food was not a suspected mode of transmission in any of these outbreaks.

VTEC

Humans

- A total of 284 cases of VTEC infection were notified in Ireland in 2011 (6.2 cases per 100,000 population); a 43% increase on the 199 cases reported in 2010 (4.7 cases per 100,000 population). Nineteen (6.7%) VTEC cases developed hemolytic uremic syndrome (HUS).
- Ireland reported the second highest rate in the EU³, second only to Germany (6.8 cases per 100,000 population) which experienced a large outbreak of enteroaggregative VTEC O104:H4 in 2011. The EU CIR for 2011 was 1.9 cases per 100,000 population.
- Of the 273 clinical VTEC isolates referred for subtyping, 73% (n=198) were *E. coli* O157 and 18% (n=49) were *E. coli* O26.
- In 2011, there were 51 VTEC outbreaks, which included 178 cases of illness. No foodborne VTEC outbreaks were reported in 2011, however, the transmission routes were unknown for nearly half of all outbreaks.

Food

- Of 1,538 food samples from retail and processing tested for VTEC, 1.04% (n=16) were positive; 15 were samples of bovine meat, one was a samples from other species or unspecified meat.
- VTEC serotypes identified included *E. coli* O157 (n=4), *E. coli* O6 (n=4), *E. coli* O26 (n=2), *E. coli* O166 (n=1), *E. coli* O149 (n=1), *E. coli* O8 (n=1), *E. coli* O145 (n=1) and *E. coli* O130 (n=1).

Listeriosis

Humans

- Seven cases of listeriosis were notified in Ireland in 2011, three less than in 2010. Ireland's CIR in 2011 (0.2 cases per 100,000 population) was similar to the EU average for the same year (0.3 cases per 100,000 population).
- There were two neonatal cases, two pregnancy-related cases (leading to one miscarriage) and three adult cases. The three adult cases were aged 62-80 years.
- No listeriosis outbreaks were reported in 2011.

Food

- In 2011, a total of 7,640 food samples were tested for *Listeria monocytogenes* by the detection method (presence or absence) and or the enumeration method (bacterial counts, cfu/g). The number of samples tested by both the enumeration and detection method was not known; therefore the results are described separately.
- Of 1,134 meat samples tested for *L. monocytogenes* by the detection method, 13 (1.1%) were positive; all were RTE beef, pork or poultry meat products sampled from retail or processing.
- Of 1,368 meat samples tested for *L. monocytogenes* by the enumeration method, one retail RTE poultry meat product had *L. monocytogenes* above the limit of detection, but less than or equal to 100 cfu/g.
- Of 2,846 other food samples tested for *L. monocytogenes* by the detection method, 86 (3.02%) were positive; six were retail RTE samples of other foods and processed food products, two were raw fish products from processing. The remaining 78 were unspecified retail and processing samples of bakery products, dairy, cheese, fish, fruit and vegetable products, soups, sauces and dressings.

³ In interpreting numbers of human VTEC cases in comparison with other EU Member States, readers should be aware that Ireland has an active approach to VTEC case contact tracing and testing and also its clinical laboratories use PCR-based methods for diagnosis.

- Of 3,794 other food samples tested by the enumeration method for *L. monocytogenes*, one sample categorised under fruit, vegetables and juices contained >100 cfu/g. Four retail samples, including one bakery product and three other foods and processed food products were found to contain *L. monocytogenes* at greater than the limit of detection but less than or equal to 100 cfu/g.

Animals

- A total of 13,823 animal samples were tested for *L. monocytogenes* in 2011, 0.6% (n=81) of which were positive. Positive samples were from cattle (n=72) and sheep (n=9). Species identified included *L. monocytogenes* (n=74), unspecified *Listeria* spp. (n=6) and *L. ivanovii* (n=1).

Tuberculosis

Humans

- There were 413 cases of tuberculosis notified in Ireland in 2011 (9.0 cases per 100,000 population); similar to 2010 when 420 cases of tuberculosis were notified (9.2 cases per 100,000 population). The EU notification rate for 2011 was 14.2 cases per 100,000 population.
- *Mycobacterium tuberculosis* was identified in 92.7% (n=254) of the culture confirmed cases in Ireland.
- Six cases of *Mycobacterium bovis* associated TB were reported in Ireland in 2011 (0.1 cases per 100,000 population); half the number in 2010 (12 cases, 0.3 cases per 100,000 population).

Animals

- The proportion of cattle herds in Ireland with bovine TB has been decreasing since 2008 (5.97%). This trend continued for 2011 (4.2%) compared to 2010 (4.7%).
- Of 2,221 other animals tested for TB, 13.1% (n=290) were positive. These included samples from deer (52.6%, 20 out of 38 samples), poultry (40%, 4 out of 10 samples) and badgers (12.2%, 262 out of 2,140 samples).
- Of the 290 positive animal samples, *M. bovis* was the most prevalent species identified (97.5%, n=283), followed by unspecified spp. (1.7%, n=5) and *M. avium* (0.7%, n=2).

Brucellosis

Humans

- One case of brucellosis in humans was notified in 2011 (0.02 cases per 100,000 population), compared to two cases in 2010. The EU average for 2011 was 0.07 cases per 100,000 population.

Animals

- In 2011, 59,025 bovine herds and 900 goat and sheep herds tested were all negative. The last confirmed case of brucellosis in cattle in Ireland was in 2006.

vCJD, BSE and TSE

Humans

- No new cases of vCJD were notified in 2011. The last case of vCJD was notified in 2006.

Animals

- Three cases of BSE in cattle were reported in 2011, compared with two in 2010.
- In 2011, 0.19% (40 out of 21,096) of sheep tested were positive for scrapie.

Toxoplasmosis

Humans

- There were 32 toxoplasmosis notifications in humans in 2011 (0.7 cases per 100,000 population), slightly fewer than reported in 2010 (36 notifications, 0.8 cases per 100,000 population).
- One congenital case was reported, the remaining 31 cases ranged in age from 1 year to 77 years. The high number of cases in women of childbearing age is most likely due to routine testing for toxoplasmosis during pregnancy.
- The crude incidence rate of congenital toxoplasmosis in 2011 was 0.02 cases per 100,000 population, which was lower than the EU rate of 1.01 cases per 100,000.

Animals

- *Toxoplasma gondii* was detected in 9.7% (103 out of 1,059) of animals tested. All 103 positive samples were from sheep.

Leptospirosis

Humans

- There were 16 notifications of leptospirosis in humans in 2011 (0.35 cases per 100,000 population), one less than in 2010 (17 notifications, 0.37 cases per 100,000 population). The EU rate for 2011 was 0.11 cases per 100,000 population.

Others

Humans

- No human cases of trichinellosis were reported in Ireland in 2011. The EU notification rate for 2011 was 0.05 cases per 100,000 population.
- There were six cases of yersiniosis (0.13 cases per 100,000 population) in 2011, compared to three cases in 2010 (0.07 cases per 100,000 population). The EU notification rate for 2011 was 1.63 cases per 100,000 population.
- No cases of echinococcosis were notified in Ireland in 2011, compared to one case in 2010 (0.02 cases per 100,000 population). The EU notification rate in 2011 was 0.18 cases per 100,000 population.
- Five cases of Q fever were notified in 2011 (0.11 cases per 100,000 population) compared to nine cases in 2010 (0.2 cases per 100,000 population). The EU notification rate in 2011 was 0.19 cases per 100,000 population.

Animals

- Of 13,984 animals tested for *Yersinia* in 2011, 0.03% (n=4) were positive.
- Out of 2,849,758 tests carried out for *Trichiniella* in animals, 0.0001% (n=4) samples from foxes were positive for *Trichinella spiralis*.
- None of the 326 samples from foxes tested for *Echinococcus* were positive.
- *Staphylococcus* was detected in 0.9% (133 of 14,330) animals tested in 2011.
- *Coxiella* (Q fever) was detected in 9.3% (28 out of 302) of animals tested in 2011. All 28 positives were from cattle and were identified as *Coxiella burnetii*.