Exposure can also occur from consumption of contaminated food or water or via person to person transmission.

Reports of STEC infection in Scotland increased markedly in the mid 1990's and rates remain high when compared to other UK and European countries. In 2016 the overall rate of STEC in Scotland was 4.6 per 100,000, with the highest incidence in individuals aged under 16 years. In comparison, the 2015 rate for the UK was 2.05 per 1 00 000 and for the EU was 1.27 per 1 00 000.

Serotype O157 continues to be the most frequently identified serotype in Scotland accounting for 75% of culture confirmed cases in 2016. The number of non-O157 infections has increased steadily in recent years, partially explained by changes in diagnostic practices. Among the non-O157 isolates, STEC O26 was the most common accounting for 19% in 2016.

Clinical presentation ranges from asymptomatic infection to mild non-bloody diarrhoea, through bloody diarrhoea and haemorrhagic colitis to haemolytic uraemic syndrome (HUS), thrombotic microangiopathy and, in a small number of cases, death. HUS develops in approximately 10%–15% of *E. coli* O157 cases, with the highest rates in those under 15 years or over 65 years of age, HUS mortality is reported to be between 3% and 5%. Among the 2016 STEC cases in Scotland with enhanced surveillance information, 35% required hospitalisation.

12 IMMUNISATION – ONE OF MEDICINE'S GREATEST SUCCESSES

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10.1136/archdischild-2018-rcpch.470

According to WHO, immunisation is second only to clean water as of benefit to child health. The history of immunisation in UK goes back almost 300 years with the introduction of smallpox inoculation. Almost 100 years later Edward Jenner published his work on smallpox vaccination using cowpox. Pasteur produced vaccines against anthrax and rabies, but these were only seldom used and it wasn't until the first half of the 20th century that the next vaccine (diphtheria) was brought into universal use. Since then, the number of vaccines in the universal programme has risen almost exponentially. In UK, vaccination against 13 diseases in addition to meningococcal A, B, C, W and Y, is offered routinely to all children (HPV to males only).

Worldwide, immunisation is a priority for national governments, the World Health Organisation and Non-Governmental Organisations. All countries have an immunisation programme though financial resources may limit the vaccines that less well-resourced countries can employ. Smallpox has been eradicated and polio is on the retreat with only 21 cases reported in 2017.

While overall, the story of immunisation is a great success, there have been, and continue to be, a number of obstacles have hampered the attainment of its full potential. Different scares (e.g. MMR and autism in UK, mercury and autism in USA and hepatitis B and multiple sclerosis in France) have meant falls in uptake, and, in some countries, vaccination workers have been murdered.

Unfortunately, social media does not only allow information to spread rapidly, but also misinformation. Twitter does not

allow for rational conversation, more name calling and didactic statements which often serve only to further people's views, however misguided. Unfortunately, the credibility of an immunisation programme can be destroyed overnight, while it may take years to build it up again.

Fortunately, the overwhelming majority of parents are in favour of immunisation, however in some countries, immunisations rates are so low that vaccine preventable diseases are still relatively common and avoidable deaths occur. Governments have turned to compulsion in one form or another. This is a highly controversial measure and not one that is envisaged in UK.

13 GROUP B STREPTOCOCCAL (GBS) DISEASE IN UK AND IRISH INFANTS YOUNGER THAN 90 DAYS, 2014–2015

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10.1136/archdischild-2018-rcpch.471

Background Group B *Streptococcus* (GBS) is a leading cause of serious infection in young infants. It is the most common cause of serious bacterial infections (septicaemia, pneumonia) in the first week of life and of meningitis in the first three months of life. We aimed to define the current burden and clinical features of invasive GBS disease in infants younger than 90 days in the UK and the Republic of Ireland (ROI), together with the characteristics of disease-causing isolates. We prospectively collected information on all cases of invasive GBS infections in infants younger than three months in the UK and Ireland over a 13 month period.

Aims To define the current burden of invasive GBS disease in infants younger than 90 days; their clinical presentation; the frequency of risk factors; the mortality and short-term complication rates; the responsible serotypes and sequence types of isolates and their distributions. In addition, to compare these parameters to those of the last national surveillance study.

Methods Prospective, active national surveillance was undertaken from April 2014 to May 2015 through the British Paediatric Surveillance Unit (BPSU), microbiology reference laboratories and national public health agencies. Results were compared with those obtained from surveillance undertaken using the same methodology in 2000–2001. Isolates were characterised by serotyping, multi-locus sequence typing, and antimicrobial susceptibility testing.

Findings Eight hundred and fifty-six cases were identified, an incidence rate of 0.94/1000 live-births. Early onset disease (EOD) represented 60% of cases (0.57/1000) and was higher than in 2000–2001 (0.48/1000). The incidence of late onset disease (LOD) was also higher (0.37/1000 vs. 0.24/1000). The overall case fatality rate (CFR) was 6.2% (n=53), a decline since 2000–2001 (9.7%), reflecting a reduction in EOD CFR (10.6% to 5.2%) but not LOD CFR (8.0% to 7.7%).

The predominant serotypes were III (n=258, 60%) and Ia (n=73, 17%); five serotypes (Ia, Ib, II, III, V) comprised 94% of serotyped isolates.

Interpretation The incidence of invasive infant GBS disease in the UK and Ireland has increased since 2000–2001. The burden of EOD incidence has not declined despite the introduction of national prevention guidelines. New strategies for prevention are required.