# Foodborne disease

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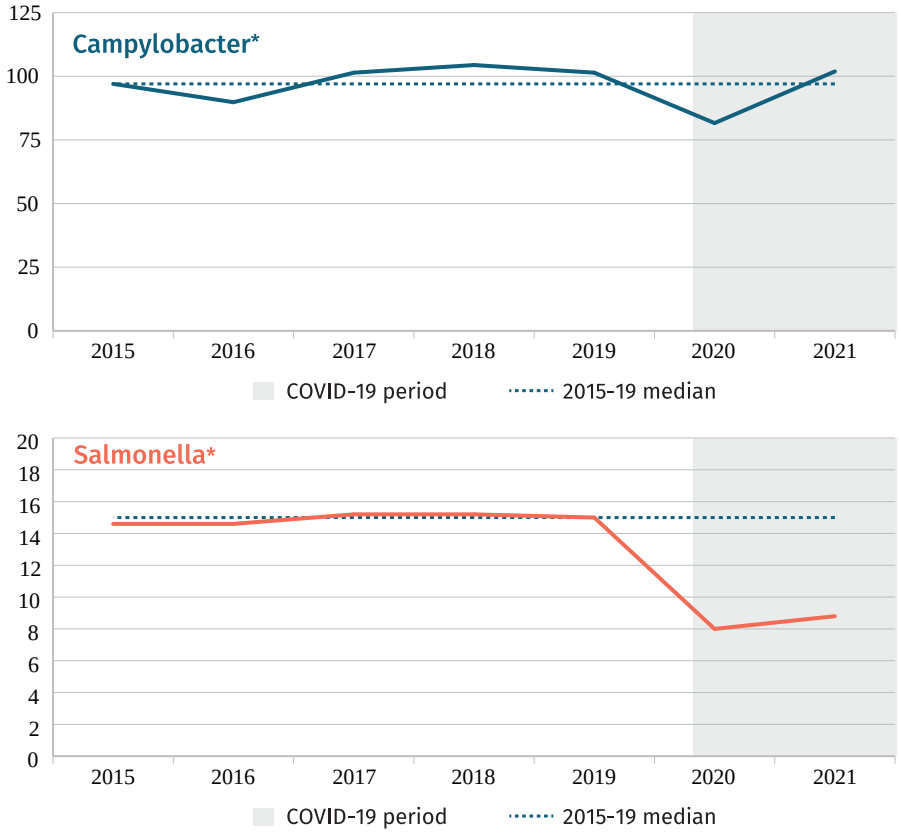
A key aim of the FSA is to ensure that food is safe. This includes working with food producers to reduce likelihood of foodborne hazards in their products, which
ultimately reduces the burden of foodborne disease and safeguards the public's health. We have developed a Foodborne Disease Framework to bring together data and surveillance information on the thirteen foodborne pathogens8 with the most detrimental effect on society. The framework is informed by a Multi-Criteria Decision Analysis tool, developed by the FSA which ranks pathogens by their most detrimental effect on society, for example cost to society and the level of public concern.

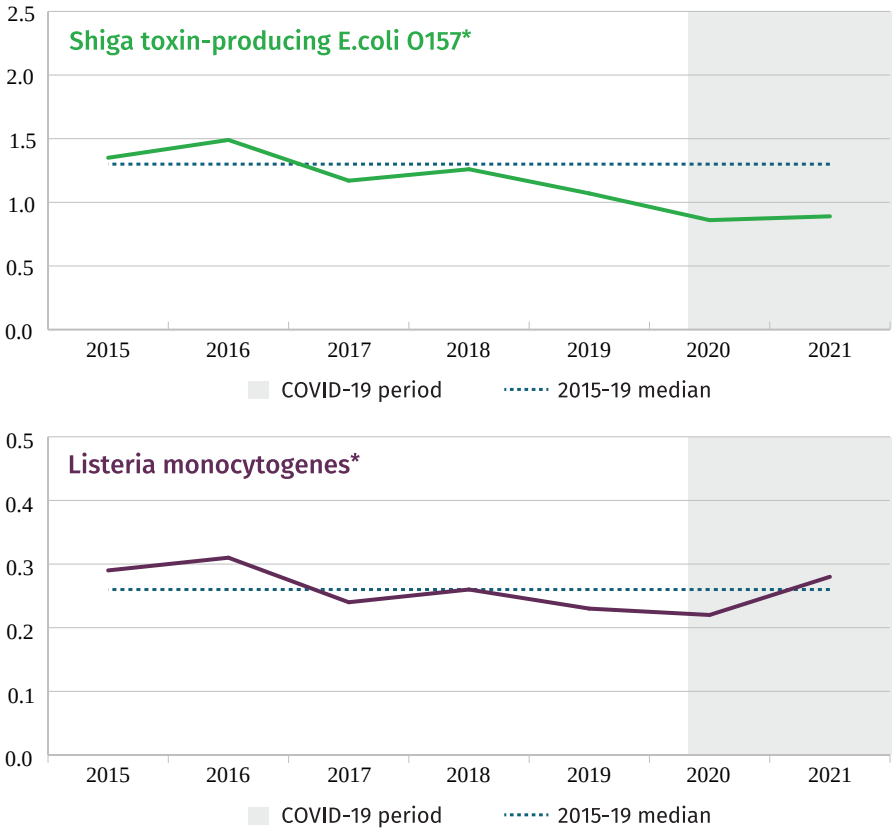
## Objectives in 2021/22

- support people to reduce the risk of getting foodborne disease, and help them to avoid waste, by working to raise awareness of date labels.
- progressing key research priorities and contributing to ongoing research.

### Trends of gastrointestinal (GI) pathogen reporting

The graphs show confirmed cases from all sources, not only from foodborne transmission, as the cause of illness can be difficult to prove in any single case.
Cases are per 100,000 population and are UK laboratory confirmed.






* Data are derived from multiple live reporting systems managed by The UK Health Security Agency, Public Health Wales, Public Health Scotland and Public Health Agency Northern Ireland. Data are provisional and may change. Rates per 100,000 population are calculated using ONS mid-year population estimates (2020 estimates used for 2021 as 2021 estimates not yet available). Trends over time should be interpreted with caution, particularly over the 'COVID-19' period (2020-2021) due to many factors which impacted pathogen reporting.

In 2020, there was a substantial reduction in reporting of gastrointestinal pathogens to national surveillance, coinciding with the COVID-19 pandemic. Similar declines were also observed in other countries. In 2021 cases of Campylobacter reported in the UK returned to pre-COVID-19 levels, however cases of Salmonella and Shiga toxin producing E.coli O157 (STEC O157) remained notably lower than pre-pandemic levels for reasons which are uncertain at present.

The drivers of this change are likely to be multifactorial, vary by pathogen and linked to many different societal and behavioural changes that occurred during the COVID-19 pandemic. The overall picture is complex and differs throughout 2020 and 2021:

**Underreporting of GI infections** – Some of the reduction will be linked changes in health care seeking behaviour, with fewer people visiting general practitioners and hospitals as well as reduced samples taken for testing and changes in laboratory testing practices, likely leading to an increased underreporting of GI infections. Individuals with more severe illness would be more likely to seek care and have a sample submitted to the laboratory than those with milder symptoms of illness.

**Implementation of enhanced hygiene measures and social distancing** – Some of the observed reduction may represent a decrease in incidence for some pathogens due to control measures implemented to reduce the spread of COVID-19 such as better hand washing and social distancing.

**Food related behaviours** – The overall impact of some changes in behaviours seen during COVID-19 are unclear, especially in the context of how consumers accessed food during

lockdown. Catered events such as weddings, family gatherings and other mass events were not permitted to take place or occurred on a much smaller scale during COVID-19 restrictions, reducing outbreaks of foodborne disease associated with these types of events compared to the pre-pandemic years. Other behaviour changes such as a change in the proportion of food cooked in the home or purchased from takeaways and restaurants may also have had an impact although the direction is less clear.

**Other non-pharmaceutical interventions** – Reduced international travel throughout 2020 and 2021 likely contributed to lower numbers of *Salmonella* and STEC O157 cases.

Ultimately the net effect of all these changes is unknown. The UK Health Security Agency (UKHSA) recently published two papers on the impact of the COVID-19 pandemic on GI pathogen reporting in England (footnote 1) (footnote 2). While these acknowledge that increased under reporting is a key contributor to the drop, they also suggest that for pathogens where transmission is primarily person to person, such as norovirus, there may have also been a reduction in disease incidence due to changes in contact patterns and/or improved hygiene.

## Ongoing research and evidence

We have undertaken further work to better understand the reasons for the changes and continue to identify opportunities most beneficial to public health and reducing the burden of foodborne disease:

**A series of surveys of Intestinal Infectious Disease during COVID-19** – Enabling us to estimate the level of self-reported Infectious Intestinal Disease (IID) and underreporting during COVID-19 period. The surveys will also be used to test whether certain behaviours such as increased handwashing can be associated with lower likelihood of IID.

**Analysing hospital episode statistics by week for the main pathogens –** as hospital admissions are likely to capture the more severe cases, we would expect them to be less affected by underreporting, so closer to a true picture of trends.

**Working with UKHSA and the other surveillance providers** – We are liaising with the UK public health agencies to triangulate data from the two projects above with other surveillance data.

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1. Love et al (April 2021). The impact of the COVID-19 pandemic on gastrointestinal infection trends in England, February to July 2020.

2. Ondrikova et al (august 2021). Differential impact of the COVID-19 pandemic on laboratory reporting of norovirus and Campylobacter in England: A modelling approach],