Assurity Consulting

Independent workplace compliance

White Paper

Food poisoning and food hygiene

March 2024

Food poisoning and food hygiene

Our insight on the 13th March 2024, highlighted the 'high number' of hospital admissions caused by Salmonella infections in England over the last year - Salmonella cases causing increased hospital admissions (assurityconsulting.co.uk).

Reflecting on this and looking a little more broadly, we're looking at food poisoning and food hygiene as our topic for this month's whitepaper.

In this whitepaper:

1. What is food poisoning and what are the symptoms?

Food poisoning, as the name suggests, is caused by eating something that contains harmful bacteria, viruses, or other agents (such as parasites or chemicals), that then makes us ill. It can occur very rapidly after the food has been consumed (within hours), within a few days or even a weeks later.

For most people food poisoning is typically associated with nausea (feeling sick), vomiting (being sick) and/or diarrhoea. These together with stomach ache/abdominal cramps, mild fever, feeling unwell (e.g. tired, aches/chills), loss of appetite and headaches tend to be the most common symptoms.

While an episode of food poisoning is never good, the NHS identifies that "Food poisoning is rarely serious and usually gets better within a week. You can normally treat yourself or your child at home."

Food poisoning - NHS (www.nhs.uk)

However, in severe cases food poisoning can be a very serious, even life threatening, illness leading to very high temperatures, dehydration, affect your vision, speech and movement, and liver and kidney problems.

2. How does food poisoning occur?

Food poisoning is caused when we eat (or drink) something that is contaminated by certain types of bacteria, viruses, or other agents (see examples in the section below). Sometimes these will be naturally occurring in the food already, or becomes contaminated through, storage, handling, or processing.

The Food Standards Agency (FSA) highlights several possible routes this could occur, including where food is:

- Not cooked or reheated thoroughly;
- Not stored correctly – for example, it has not been frozen or chilled;
- Left out for too long;
- Handled by someone who is ill or has not washed their hands; or
- Eaten after its 'use by' date.

The FSA also highlight that "any type of food can cause food poisoning."

Both in a workplace and domestic setting, good food hygiene and food safety practices significantly reduce the risk of your food adversely affecting you.

Food hygiene at home | Food Standards Agency

Food safety | Food Standards Agency

3. Food poisoning organisms

Published by Defra in October 2023 the "United Kingdom Food Security Report 2021: Theme 5: Food Safety and Consumer Confidence" identifies "the four most significant bacterial pathogens that may contaminate food are Campylobacter, non-typhoidal Salmonella, Shiga toxin-producing E. coli O157 (STEC O157), and Listeria monocytogenes."

United Kingdom Food Security Report 2021: Theme 5: Food Safety and Consumer Confidence - GOV.UK (www.gov.uk)

Campylobacter sp. - Is the "most commonly reported bacterial gastrointestinal (GI) pathogen", according to the Defra report. They can be found in various animal species, including cattle, poultry, sheep, cats, and dogs. Causing profuse and often bloody diarrhoea, abdominal pain, high temperature and vomiting, usually within 1 and 5 days after ingestion. Sources of infection can be raw/undercooked poultry, unpasteurised milk and contact with animals.

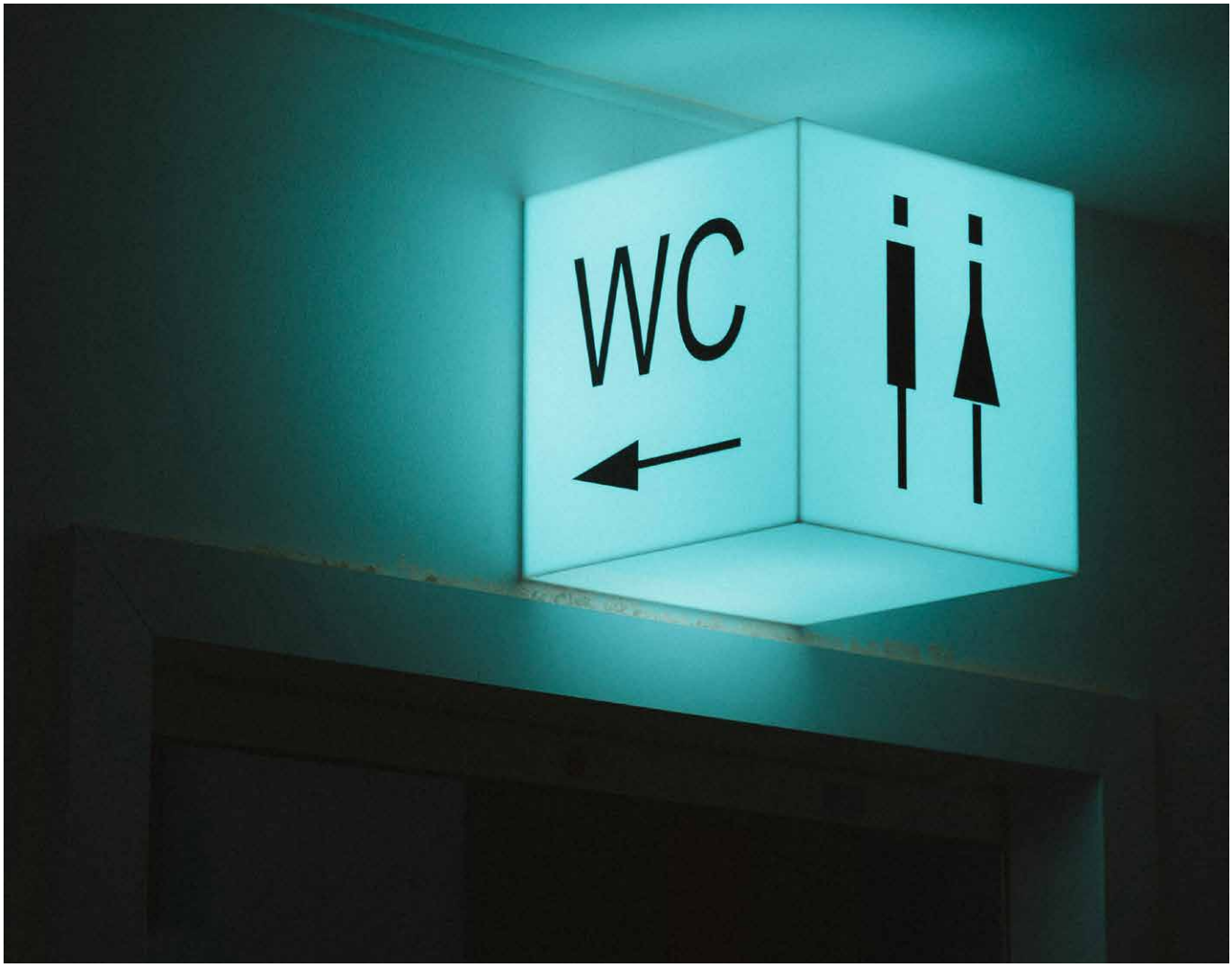
Salmonella - "the second most commonly reported bacterial GI pathogen", according to the Defra report, is a bacteria found in the intestines of animals. Salmonella can cause more serious illness in older adults, infants, and persons with chronic diseases. Onset of symptoms can be between 12 and 72 hours (sometimes longer), from ingestion and include fever, vomiting, diarrhoea, abdominal pain, and headache. Salmonella infections can be caused by raw and undercooked chicken, eggs, unpasteurised milk, and cheese and from animal contact particularly with birds, reptiles, and amphibians.

Escherichia coli (E. coli) - is a bacteria that is commonly found in the lower intestine of warm-blooded organisms. The majority of strains of E.coli are harmless, but some, for example Shiga toxin-producing E. coli O157 (STEC O157) can cause serious food poisoning. Primarily sources of the bacteria include, contaminated raw meat and sometimes raw fruit and vegetables, soft cheeses and milk made from raw/unpasteurised products, contaminated water, and animal/animal faeces contact (sheep, cows and goats). Infectious E.coli strains can cause severe disease, with symptoms of diarrhoea (bloody), abdominal pain and vomiting.

Listeria – For most people Listeria, specifically Listeria monocytogenes, is unlikely to cause any significant illness. However, listeriosis (the disease caused by the bacteria), can be dangerous for pregnant women (as it can lead to miscarriage) and in people with compromised immune systems.

The organism can be found widely in the environment (soil, water, and vegetation) and in animals. Listeria is particularly problematic as a foodborne pathogen insofar as it can survive and multiply at low temperature – so refrigeration has little effect on foods already containing it. This makes several "ready to eat" products such as soft cheeses (especially unpasteurised), pates, vegetables and salads, pre-packed sandwiches/cooked meats, as well as meat and poultry potential risks.

Infection can take days to months to exhibit, with symptoms ranging from, nausea and vomiting, fever, and diarrhoea.



Other food poisoning organisms include:

Norovirus (aka winter vomiting bug) - just under 400,000 cases of norovirus are linked to food each year and according to the FSA, "37% of all foodborne norovirus cases comes from eating out at restaurants and cafes." Usually, it is transmitted via the fecal–oral route (faeces to the mouth) but can also result from eating or drinking contaminated food and water. Symptoms can typically 24 to 48 hours after infection and include, as well as vomiting, nausea, diarrhoea, abdominal pain, and fever.

Cryptosporidium - is a parasite which can be found in the intestines and faeces of infected humans and animals, any food and/or water contaminated by this could act as a vector for the disease. Symptoms include diarrhoea, abdominal cramps, nausea, fever, tiredness, and loss of appetite and these will start to occur 2 to 10 days after infection.

Bacillus cereus (B. cereus) - is widely present in the environment and can also be found in many foods (but is particularly associated with rice). Onset of illness can be rapid (as little ½ hour to an hour after) it can cause nausea/vomiting and abdominal cramps/ diarrhoea within 24 hours.

Clostridium sp. – Several organisms in this group can cause food related diseases, two of the most notable being Clostridium perfringens and Clostridium botulinum. Clostridium perfringens has been identified as the most common clostridial infection. The organism produces heat-resistant spores when food is cooked, but toxins if that food is then poorly temperature controlled (i.e. kept warm). Symptoms include watery diarrhoea and abdominal pain and can start within 24 hours of eating contaminated food. Food linked to C. perfringens food poisoning include meat and poultry and gravy.

Clostridium botulinum is much rarer but can be fatal. Like C. perfringens it produces spores and toxins, but while vomiting, diarrhoea and abdominal pain are symptoms, more seriously C botulinum toxins also affect the nervous system causing initially weakness and paralysis. Symptoms can start within hours and up to 8 days after ingestion. Improperly processed/ preserved/fermented foods, (tinned meats and fish for example) are sources.

Hepatitis A virus (HAV) – Hepatitis A is primarily spread through the ingestion of contaminated food or water, usually from the faeces of an infected person. The disease results in inflammation of the liver and while many cases are mild (and there is a vaccination against it), in can lead to acute liver failure and be fatal. Onset of illness which can include abdominal pain, fatigue, muscle aches, fever and headache can be between 2 weeks and a month after exposure. According to the WHO, Hepatitis A viruses persist in the environment and can withstand food production processes routinely used to inactivate or control bacterial pathogens.

4. Reducing the risk of food poisoning

While most episodes of food poisoning are unpleasant, they are not serious and will resolve by themselves for most people, in some instances however, they can be life threatening.

Taking suitable actions to avoid getting food poisoning in the first place makes good sense. These should include:

Good hygiene practices

- Wash your hands frequently with hot, soapy water and always before handling food or contact with animals.
- Clean surfaces before preparing food on them.
- Wash and clean raw foodstuff before preparing them, especially if they are not going to be cooked (e.g. salads)
- Keep/store raw and cooked foods separately.
- Don't mix or use utensils (chopping boards, knives, spoons, etc.) used on cooked foods that were previously used on raw foods.
- Store/refrigerate food properly before and after cooking.

Cooking and reheating

- Make sure that all food is cooked or reheated appropriately and thoroughly.
- Always cook foods to safe minimum temperatures.
- Don't place hot or warm food in your fridge. Instead, cool cooked food at room temperature and place in the fridge within one to two hours and reheat appropriately when needed.

Storage

- Store perishable foods correctly.
- Refrigerate or freeze items promptly and properly.
- Don't store cooked foods and raw foods together.
- Observe 'use-by dates' and label any opened foods so you are aware of for example the dates they should be used by.
- Don't use canned foods that are damaged.
- Keep storage areas clean to minimise the risk of cross contamination or encourage pests/vermin.
- Dispose of waste foodstuffs appropriately.

Other considerations

- Avoid eating foods that have been left out for too long.
- If you have increased susceptibility, avoid eating high-risk foods such as raw or undercooked eggs, unpasteurised milk/cheese, undercooked meats.
- When eating out check information such as the food hygiene rating of the place you are proposing to eat. Food Hygiene Rating Scheme | Food Standards Agency
- Where you are using outside or contract caterers check to make sure all their staff are appropriately trained and they have suitable food hygiene procedures in place for their goods, storage and cooking, and these are recorded.