Salmonella is one of the best known causes of human food poisoning, but it is not the most common cause.

Historically, there have been many well known outbreaks of salmonella food poisoning including those associated with consuming duck eggs in England in the 1950s and in Ireland in 2010, canned meats in the 1960s and poultry products (Salmonella enteritidis) in the 1980-90s. Other outbreaks have implicated unpasteurised milk or cheeses made from such milk, peanut butter, melons and even rattlesnake capsules – a form of green Viagra. Interestingly, other things go in man’s mouth and one outbreak in the USA was linked to smoking contaminated marijuana.

Although salmonella often has its origins on the farm it can get into food by other routes, for example by people handling the food who are carriers of the salmonella bacterium.

One such person was Typhoid Mary who, many years ago, was the first person in the USA to be identified as an asymptomatic carrier of the salmonella serotype associated with typhoid fever. She was a cook and was presumed to have infected some 49 people, three of whom died, over the course of her career in various kitchens to which cases of typhoid were linked.

2013’s top ten of food poisoning outbreaks in the USA included five due to salmonella. These were 35 people who dined at a Mexican restaurant; 84 people who succumbed to Salmonella saint paul from imported cucumbers; 134 from eating chicken; 294 who became sick after dining at a Las Vegas restaurant; and 416 people in another chicken related outbreak.

The salmonella organism

Salmonella is a Gram negative bacillus (Gram’s stain is taken up by the walls of certain bacteria which we refer to as Gram positive. As part of bacterial classification all bacteria are either Gram positive or Gram negative). It is a member of a group of bacteria known as the Enterobacteriaceae.

There are almost 3,000 serotypes or kinds of salmonella, some of which cause food poisoning in man or specific diseases in animals. The names of some salmonella serotypes reflect this, for example S. choleraesuis (cholera or fever causing in pigs). S. abortus equi (the salmonella which causes abortion in horses) or S. pullorum (of fowls).

There are other salmonellas that are named after the first place where they were isolated, for example S. dublin, S. hadar, S. ruiru and S. mbandaka. Interestingly, in the 1950-70s the Hull Public Health Laboratory had some scientists who were interested in salmonella on its staff and they went on salmonella hunts and found several new serotypes, such as S. humber, S. hull and S. drypool. The moral of this story is seek and you will find!

One of the causes of human food poisoning was first found to cause disease in mice, hence its name of S. typhimurium (fever of mice). The most recently discovered salmonella are just named by their antigenic structure – a combination of letter and numbers.

There are strains of salmonella which we call apathogenic which are not associated with disease or food poisoning.

Certain salmonella serotypes, such as S. enteritidis, can be further subdivided into phage types (PTs) and others, for example S. typhimurium, can be divided into definitive types (DTs). This can be important because if a food poisoning outbreak is being linked to your operation and the food poisoning outbreak yields one PT or DT and your operation yields another then you are in the clear.

Some salmonellas, for example certain DTs of S. typhimurium, are associated with resistance against multiple antibiotics.