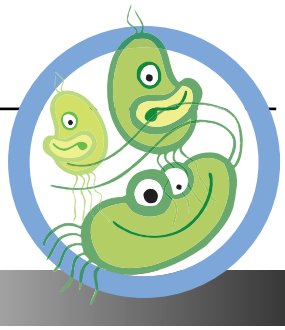
FOOD POISONING

HANDOUT HO 21 MODULE 4

Highfield Case Histories



The salmonella wedding reception

In August 2000, 80 out of 147 guests at a wedding reception in Wakefield became ill following the consumption of roast pork. The causative agent was Salmonella Enteritidis phage type 4. The causes included cross-contamination, preparing the food in a kitchen which was too small, poor hygiene practices (no handwashing facilities and failure to disinfect equipment used for raw and then cooked food) and a failure to implement a food safety management system for outside catering. (The wedding was held on one of the hottest days of the year.) Each partner was fined £9.500 including costs, for selling unfit food and failing to undertake a hazard analysis.

Botulism outbreaks and fish

In 2003, four people in Norway suffered from botulism after consuming homemade rak fish, a semi-fermented fish treated with salt and sugar, and stored at 5-8ºC in a pressurised container for several weeks before being consumed raw. (Temperature >8ºc and for salt concentration <5% of the weight of fish enable the *Cl. botulinum* to germinate and produce toxin.)

Symptoms appeared the day after the meal and included vomiting, abdominal pain, dryness of the mouth, difficulties in swallowing, general lethargy and low energy. Botulism antitoxin was administrated and all patients recovered.

October 2003, three members of the same family in Germany suffered from botulism following the consumption of sea bream caught from the river Elbe. The fish was gutted, salted in brine, pressed and dried in the open air for several days and consumed raw.

Typical incubation periods for botulism are 12-36 hours but can vary between 6 hours and 8 days. The most common symptoms are dry mouth, double vision, constipation, speech difficulties and progressive paralysis including respiratory weakness. At onset, vomiting and diarrhoea may occur. Respiratory problems may require ventilation.

Salmonella and lettuce

368 cases of *Salmonella* Newport infection were confirmed in England and Northern Ireland between 9 September 2004 and 7 October 2004. Fast food premises and take-away restaurants were implicated and the probable food vehicle was lettuce. Most cases occurred in Lincolnshire.

Staphylococcus aureus and an ice cream machine

In October 2004 at a fast food outlet in Ohio USA, 120 cases of Staphylococcus food poisoning appear to have arisen because of consumption of ice cream, shakes and sundaes contaminated by Staphylococcus growing in an ice cream machine because of a mechanical malfunction.

Salmonella and Spanish sausage

In February 2004 the Food Standards Agency issued a food alert when *Salmonella Typhimurium* was found in the Spanish made Sabari Embutidos- chorizo during routine sampling of ready-to-eat dried cured meats by EHOs from Broxtowe and Lambeth District Council. Further samples by EHOs from Rushmore District Council found unsatisfactory levels of E-coli and the presence of *Salmonella* Eimsbuettel.

4 raw eggs and a wedding

In December 2003, following 15 cases of food poisoning, a Nottingham catering company was fined £4700 for failure to comply with food safety requirements, failure to identify points critical to food safety and failure to register with the local authority. The suspect food vehicle was chocolate cheesecake, which tested positive for salmonella, the same type as that found in the faecal specimens submitted by the ill people.

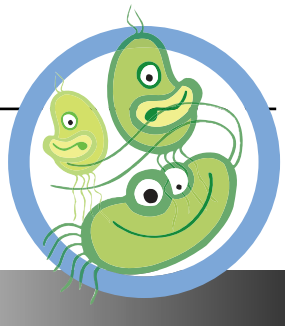
Botulism and home bottled garlic in oil

In September 1999, three members of the same family suffered from botulism following consumption of a meal including garlic in olive oil salad dressing. Garlic cloves from the oil tested positive for botulism toxin type A.

Symptoms included nausea, abdominal pain, vomiting, blurred/double vision, dysphagia (difficulty in swallowing), dysphonia (difficulty in speaking), dyspnea (difficulty in breathing), muscle weakness, dizziness, paralysis and ptosis (drooping of the upper eyelid).

The incubation periods were 2 to 3 days. The cloves from the oil were

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chopped up and added to the salad. The salad dressing was prepared by boiling the jars for 25 minutes and then storing at ambient temperatures. The pH of the dressing was 6.4. Other similar outbreaks have been recorded. Advice for safe preparation includes increasing heating time to destroy spores, inhibiting toxin production by reducing the pH <4.5 (phosphoric or citric acid) and storing under refrigeration. Foods associated with botulism include home-canned foods, commercially processed foods (tuna, smoked fish, mushrooms, soup, garlic in oil & cheese sauce) sautéed onions and leftover baked potatoes.

Non-foodborne salmonella

There have been several recorded incidents of salmonella infection as a result of contact with pets, including frogs and turtles. Two such very unfortunate incidents involved the deaths of babies in contact with lizards. One four-month-old baby died after contracting *Salmonella* Poona from a pet lizard. Two months earlier a three-week-old baby died of meningitis after being infected with salmonella from a water dragon lizard.

Dangerous duck egg

A lady from Rotherham who consumed a fried duck egg contaminated with *Salmonella* Typhimurium died in hospital on 7 May.

Spanish eggs and salmonella

In 2004 the Health Protection Agency raised concern about the high incidence of Salmonella Enteridis arising from consumption of raw or lightly cooked products made with Spanish eggs. It is estimated that there were over 2000 cases in 2003/4. Surveys indicated that 5.6% of Spanish eggs were contaminated with salmonella compared with 1.1% of non-lion quality UK eggs. (None of the 12000 lion quality contained salmonella.) Representations were made to the EC and the Spanish Food Standards Agency.

International outbreak of *Salmonella Oranienburg*

From October 2001 to January 2002 a significant increase in notified cases of persons suffering from *Salmonella Oranienburg* was noticed in Germany, Denmark, Sweden, Belgium and several other countries. The suspect food vehicle was chocolate produced and sold in Germany and exported abroad. 373 notifications of S. Oranienburg were reported in Germany.

A case was defined as a person with a stool specimen positive for S. Oranienburg, who had been reported to the health department between 15 October and 6 December 2001 and who had suffered from at least one of the following: diarrhoea, abdominal pain, nausea, vomiting and/or fever. Each case was matched with two persons from a case control study group.

Criteria for control group:

- Same age as the case
- No gastrointestinal symptoms since 1 October 2001
- No travel history abroad during the incubation period of the matched case.

Controls were selected by adding '2' to the cases telephone number.

A questionnaire was issued to obtain data on symptoms, travel history and consumption of suspect or other chocolate products and some other foods.

Leftovers from chocolate consumed by the cases tested positive for S. Oranienburg on 18 December and this resulted in a recall of all chocolate implicated. Only two reported cases occurred after the product recall.

Molecular sub-typing confirmed that chocolate was the food vehicle and the electronic exchange of PFGE (pulsed field gel electrophoresis) patterns accelerated confirmation that cases were occurring in other countries probably due to the same vehicle. S. Oranienburg was isolated from the German bars of chocolate exported to Sweden, Canada, Finland and Croatia.

Salmonella infections after consumption of contaminated chocolate are periodically notified. The low moisture and high sugar content of chocolate increase the thermal resistance of bacteria and the high fat content protects the salmonella against the stomach acid and accounts for the low infective dose of salmonella in chocolate.

In an unrelated incident S. Oranienburg was isolated from cocoa powder in Melbourne Australia. (The suspect source of Salmonella on chocolate is usually the cocoa beans/powder not milk or food handlers.)

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