Investigation of food poisoning outbreaks

Module 2

Case study
ABC Food Safety Online
Investigation of food poisoning outbreaks

Module 2 – Case Study

Aim

This course aims to assist the reader with the effective investigation of outbreaks of Food Poisoning.

Module Description

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* Please note that this figure is provided to help plan your training. The actual time spent on each section may vary depending on your prior knowledge of the topic area.

User Hints

To complete this module, simply read through the on-screen text, click on the links for further information and make notes in this handbook where appropriate. It is recommended that you place these notes in a ring-binder and print out any additional notes from the course as required.

Remember to click on “next page” to progress through the course whenever it appears in orange text at the bottom right of the screen. If this is not highlighted then click on “next section”.

To leave and return to a course simply bookmark the page that you are using, logout and then click on the bookmark when you are ready to return to the course.

If you would like to undertake some further reading on this topic, click on the “library” button to view links to legislation, codes of practice etc.
The story begins...

September 15th : 3.00pm : London Borough of Fulchester

A telephone call is received from Burntwood District Council. They have been investigating a case of Salmonellosis in their area. The patient visited their GP and then subsequently submitted a faecal sample to Pipps Cross Hospital following an unpleasant episode of diarrhoea and vomiting. The laboratory has confirmed that the patient has been suffering from food poisoning and has identified Salmonella enteritidis in the stool sample. The Environmental Health Officer at Burntwood DC is notifying you because the patient has identified chopped liver produced at the Fulchester Deli, situated in your area, as one of the suspect foods.

The patient purchased the chopped liver from Henri's Deli, Burntwood on 5th September. It was supplied in a small plastic pot without any label or markings. The food was stored in the patient’s refrigerator and consumed two days later. Symptoms consisting of diarrhoea and vomiting started on the morning of 7th September.

An officer from Burntwood DC visited Henri’s Deli and found that the chopped liver was supplied by Fulchester Deli along with egg and onion sandwich mix, fish cakes and meatloaf.

September 15th : 3.30pm : London Borough of Fulchester

A telephone call is received from London Borough of Redchester. They have received two separate notifications of suspected Salmonellosis from residents in their area. One patient had purchased some chopped liver from Fulchester Deli on 10th September and had become ill on the 12th September, the other had purchased some chopped liver on 10th September from Dave’s Deli in Redchester who are supplied by the Fulchester Deli. Both patients had reported diarrhoea and vomiting to their GPs and stool sample results are expected in the next day or two.

Question 1

What do you do now? (Choose two from the following list)

a) Nothing - wait until the stool sample results are received for the Redchester patients.

b) Arrange for an officer to visit the Fulchester Deli.

c) Notify your CCDC of a possible outbreak of Salmonellosis.

d) Telephone the Deli to see if they did supply the chopped liver to the other shops.
September 15th : 4.00pm
You decide to undertake an initial visit to the Fulchester Deli. On arrival you meet with a shop assistant Helen Charles.

You inform Ms Charles that there has been a confirmed case of Salmonellosis and two further suspected cases associated with the consumption of chopped liver from the shop. You ask Ms Charles to describe how the chopped liver is produced and to whom it is supplied. She tells you the following:

"To make the chopped liver, I take some fresh liver, boil it in water for approximately 3 hours and then bake it for a further 3 hours. I then put it through a mincer together with freshly boiled eggs and then place it into shallow stainless steel trays. The liver is cooled at room temperature for approximately 30 minutes before being placed into a walk-in chiller. I then place the liver into two-litre plastic ice-cream containers and send it out to Redchester Deli and Henris Deli. I also sell the liver from the refrigerated cabinet in the shop."

You inspect the premises and make the following observations: The premises are in a good physical condition and appear to be clean and well maintained. There are six chest freezers in the rear preparation room and a walk-in chiller to the rear of the premises. All of the freezers and fridges are working effectively.

Question 2

Based on the information provided to date, would you serve a Hygiene Emergency Prohibition Notice (HEPN) with respect to this business or suggest to Ms Charles that she should voluntarily close the shop? (Choose one)

a) Serve an HEPN.

b) Suggest to Ms Charles that she should voluntarily close the shop.

c) Neither of the above.

Your notes -
A further assessment is deemed appropriate and so you ask Ms Charles some more questions. Here is an excerpt from your conversation:

**Office:** "Who have you supplied chopped liver to in the last 14 days?"
**Ms Charles:** "Only Henri's Deli, Dave's Deli and my own customers who came into the shop."
**Office:** "Have you any of this product on the premises now?"
**Ms Charles:** "Yes, I have made a batch today. It is in my fridge ready for sale tomorrow."
**Office:** "Have any of your own customers complained to you of illness?"
**Ms Charles:** "No, the first that I heard of this problem was when you came to my shop."
**Office:** "Do you supply any other retail outlets or distributors with food?"
**Ms Charles:** "No."

**Question 3**

What action would you take now? (Choose two from the following list)

a) Continue to question Ms Charles about the supply of food from her business?
b) Check documents in order to verify the truthfulness of the answers provided already?
c) Speak with other members of staff on the premises.
d) Return to the office to consider the next course of action.

Your notes:
You decide to check Ms Charles's invoice book and telephone directory. The invoice book contains the following information:

- 5th September: Supply of 2Kg chopped liver to Rose’s Deli Chillford, London E27
- 5th September: Supply 2Kg chopped liver to Henris, Burntwood
- 6th September: Supply of 4Kg chopped liver to Fred’s, Tromford, Hampshire
- 6th September: Supply 25Kg chopped liver, 25 Kg Meat loaf, Chilly Foods Distributor, Redchester
- 6th September: Supply of 10Kg chopped liver, 10 Kg Meatloaf to Russ’s Deli, Benfield, Essex
- 7th September: Supply 6Kg chopped liver Dens Deli, Crowden, Kent
- 10th September: Supply 15Kg chopped liver Drews Distributors, London
- 10th September: Supply 2Kg Chopped liver, 5Kg Meatloaf Daves Deli Redchester
- 12th September: Supply 20Kg chopped liver Chilly Foods Distributor, Redchester

You ask Mr Stott, a member of staff working in the shop, how the meat loaf is prepared. He tells you:

**Mr Stott:** "I take the beef out of the chiller, mince it and then add onion and matzo meal and egg. I then place it into a tin and bake it."

**You ask:** "Is that the same mincer that is used for the cooked chopped liver? Or do you use the mincer for any other foods?"

**Mr Stott:** "Yes, we only have one mincer. We use it for chopped herring (raw fish), Minced egg (cooked) for sandwich fillings and of course for the beef (raw) and chopped liver (cooked)."

**You ask:** "How and when do you clean and disinfect the mincer?"

**Mr Stott:** "We take it apart at the end of the day and wash it in warm soapy water. During the day we rinse it with cold water between uses."

**You ask:** "Do you use any sanitisers or disinfectants?"

**Mr Stott:** "No just hand-warm water"

**You ask:** "Do you mince foods in any particular order during the day?"

**Mr Stott:** "No it depends which food we are producing that day"

Examination of the mincing machine reveals food deposits on the food contact surfaces.

**Question 4**

What action would now be appropriate?

a) Serve an HEPN on the premises? **Yes No**

b) Detain all ready to eat foods on the premises. **Yes No**

c) Return to the office. **Yes No**

d) Confront Ms Charles about the invoice book. **Yes No**
September 16th: 10.00am
Seven residents in your area have contacted your Department this morning to inform you that they have felt unwell after eating food purchased from Fulchester Deli. Redchester DC inform you that their two cases are presumptive Salmonellosis.

On consultation with the CCDC it is decided to convene an Outbreak Control Team (OCT) meeting. An outbreak is confirmed and a case definition is set as:

"any person showing symptoms of diarrhoea and vomiting who purchased food originating from Fulchester Deli between 1st and 16th September"

There are currently ten patients that fall within the scope of the definition. The confirmed case from Burntwood, the two presumptive cases from Redchester and seven suspected cases from Fulchester. The initial hypothesis is that they have been made ill after eating something produced from Fulchester Deli.

A line list comprising of initial information is put together to establish any obvious associations between the cases. An epidemic curve is produced to provide some detail of the likely nature of the outbreak.

Question 5

Using the line list, draw an epidemic curve for this outbreak:
Question 6
What sort of outbreak is this? (Select one)

a) Propagated
b) Continuous common source
c) Point source

Question 7
The OCT decides to produce a questionnaire to investigate the potential source of the outbreak. Would you produce a press release naming Fulchester Deli at this time?

Yes
No

Question 8
When putting together the questionnaire, how would you ask the interviewee if they ate the chopped liver from Fulchester Deli? (Choose one from the following list)

a) What foods did you eat prior to your illness?
b) Did you eat any foods from Fulchester Deli prior to becoming ill?
c) Between 1st and 16th September did you eat any chopped liver? Y/N If yes, was this purchased from: Fulchester Deli? Elsewhere (please specify)

Question 9
What type of epidemiological study would be appropriate on this occasion? (Choose one)

a) Cohort study
b) Retrospective cohort study
c) Case control study
**September 17th : 10.00am**
The results of the case control study indicate that the consumption of chopped liver from Fulchester Deli is highly significantly linked to the occurrence of illness ($p<0.000001$).

Fifteen further cases have been identified, all had eaten foods produced at Fulchester Deli. The deli remains closed bringing the outbreak to an end.

Your notes: