Outbreak of Gastroenteritis

Aberdeen Restaurant
May 2010

Report of the Outbreak Control Team

Dr Helen Howie, NHS Grampian
Elaine Davies, Aberdeen City Council

On behalf of the Outbreak Control Team
Acknowledgement

Dr Howie, Chairman of the Outbreak Control Team (OCT) would like to express her thanks to the following for all the help and assistance received during the management of the outbreak and compiling the final report:

- All members of the Outbreak Control Team
- Environmental Health Staff, Aberdeen City Council
- Health Protection Team, NHS Grampian

Members of the Outbreak Control Team

NHS Grampian
Dr Helen Howie, Consultant in Public Health Medicine, Chair
Fiona Browning, Health Protection Nurse Specialist
John Miller, Corporate Communications

Aberdeen City Council
Andrea Carson, Principal Environmental Health Officer (AC)
Elaine Davies, Environmental Health Officer (ED)
Alex Venters, Senior Authorised Officer

In attendance:
Christine Milligan, Secretary Health Protection Team

Observer
Susan Webb, Deputy Director of Public Health (SW)
1. Introduction

NHS Grampian’s Public Health on call service received a call from a member of the public at 18:30 on Wednesday 12 May 2010 reporting gastrointestinal illness amongst a group of oil workers who had eaten at an Aberdeen Restaurant on Tuesday 11 May 2010. The informant reported that 17 individuals were ill out of a party of 20. The group comprised onshore and offshore staff from Bluewater Services (UK) Limited. Public Health contacted the Environmental Health Services at Aberdeen City Council and they inspected the restaurant that evening.

On Thursday 13 May it became apparent that only 13 staff had been at the restaurant. Telephone interviews were conducted with 12 out of the 13 staff and 7 reported symptoms.

An Outbreak Control Team was convened on Thursday 13 May 2010 and epidemiological, microbiological and environmental investigations were undertaken.

2. Environmental Investigations and results

Environmental Health Officers from Aberdeen City Council visited the premises on Wednesday 12 May and following the lunchtime service on Thursday 13 May to investigate matters relating to food safety and to ascertain more details relating to the meal eaten by the group in question.

There were an estimated 60 covers on the evening of Tuesday 11 May and no other diners have reported illness.

2.1 Summary of menu

The group in question were said to have eaten a meal comprising the following

- Poppadums and dips
- Mixed platter starter and Mixed kebab starter
- Sirloin Steak
- Lamb Rhyani, Lamb Madras, Lamb Roshuni and Lamb Rogan Josh
- Chicken Sardari, Chicken Korma, Chicken Karahi and Chilli Chicken Tikka
- Murgh Tikka Makhani
- King Prawn Bhuna
- Various rice and various naan

2.2 Summary of observations relating to food safety.

In terms of compliance with Regulation (EC) 852/2004 on the Hygiene of Foodstuffs the following matters were found to be unsatisfactory:

♦ Matters critical to food safety had not been fully identified, and were not adequately controlled, monitored and recorded where appropriate. Notably:-

- Monitoring and recording of temperatures critical to food safety was insufficient and inaccurate. Cooking temperatures were not monitored or
recorded accurately or in a meaningful way. There was no check that chilled foods were stored at the temperature indicated by the digital readout. Hot holding temperatures were not monitored or recorded. Cooling times were too long and were not monitored or recorded, and ambient storage times were too long.

- The pakora sauce was regularly topped up in the coffee machine which kept it warm, as opposed to replacing it when finished with a new batch.
- There was no documented food safety policy.

♦ Hand washing was not carried out as frequently as would be expected in a busy kitchen. This was possibly not helped by the hand drier which was considered a deterrent as it was very noisy and took a long time to dry hands properly.

♦ Arrangements were not satisfactory for excluding staff from work following gastrointestinal illness.

♦ Staff training was inadequate. There was only one member of kitchen staff with training to REHIS Elementary level and for him to supervise the others is not considered feasible.

2.3 Action taken

The above matters were detailed as requiring attention in the visit report left on 13 May 2010. It was also recommended that booking records be kept for future reference as these are helpful in such investigations.

The management of the premises took matters very seriously and gave full co-operation to ensuring that matters critical to food safety were implemented immediately.

A full inspection of the premises was subsequently completed on 17 May 2010 and all matters for attention from visits between 12 -17 May 2010 were detailed in a letter to the proprietor dated 25 May 2010.

Revisits have been undertaken at regular intervals since then.

2.4 Current position

There is currently a food safety management system in place, the hand driers have been replaced by disposable paper towels, repairs found during the full premises inspection have been carried out, and all staff are due to be trained on 30 August 2010.
3. Epidemiological investigation and results

3.1 Data Collection

On Thursday 13 May Bluewater Services provided a list of those staff who had attended the restaurant and the Health Protection Team interviewed them using the NHS Grampian outbreak specific investigation form. Arrangements were made for faecal sample pots to be sent to all those who had experienced symptoms.

3.2 Case definitions

A possible outbreak case was defined as an individual who experienced nausea and/or stomach cramps occurring 1-12 hours after eating food served at the restaurant on Tuesday 11 May 2010. This is a sensitive case definition and could include individuals with mild symptoms that could be attributed to other causes.

A probable outbreak case was defined as an individual who experienced vomiting and/or diarrhoea occurring 1-12 hours after eating food served at the restaurant on Tuesday 11 May 2010.

Confirmed outbreak case was defined as a possible or probable case with microbiological confirmation.

3.3 Descriptive epidemiology

Twelve people were interviewed using the NHS outbreak specific surveillance form. From these detailed interviews it was established that:

- All were male
- Age range was 30-64 years old
- 7 individuals reported symptoms
- Incubation period was 6 -11 hours after meal
- Duration of illness 3 - 34 hours
- No serious illness reported
- 6 probable outbreak cases - 5 reported diarrhoea only and 1 reported vomiting only
- 1 possible outbreak case - nausea
- No illness was reported amongst staff at the restaurant.

The food histories were reviewed and showed that poppadums and various dips were provided before the meal and 9 had shared the mixed starter platter. The 13 guests all ordered separate main courses (steak, lamb, chicken and prawn) served with varieties of rice and naan bread. The review did not suggest any one food as a likely vehicle of infection.
4. **Microbiological investigation and results**

Food samples were taken of chicken korma, tandoori chicken, tandoori prawn, and yoghurt/mint dip and submitted for microbiological examination.

However, these were not the same batches of food as were consumed by the group reporting illness.

No pathogens were isolated from the food samples. However, the tandoori prawns and tandoori chicken had high Total Aerobic Colony Counts which is indicative of poor temperature/shelf life control. This was discussed with the manager on 11 June 2010.

Three human faecal samples were submitted and no pathogens were isolated.

5. **Control Measures**

When interviewed the individuals who had been ill were all advised to remain off work until 48 hours symptom free and provided with advice on hand hygiene.

No exclusions were required.

Control measures were put in place at the premises as described in Section 2.

6. **Discussion**

The only common link identified between the symptomatic guests was the meal at the restaurant. The Outbreak Control Team considered various causes based on the food consumed, the incubation time and the symptoms and these are outlined below.

6.1 **Norovirus**

Norovirus is highly infectious and has an incubation period between 4-48 hours. Symptoms include abdominal cramps, nausea, vomiting and diarrhoea. Other symptoms may include muscle aches, headache and fever. The symptoms usually resolve in 12-60 hours. The symptoms and incubation period described by the guests were not consistent norovirus infection.

6.2 **Clostridium perfringens**

*Klostridium perfringens* food poisoning is commonly associated with meats, meat products, poultry and gravy. If the food is slowly cooled, inappropriately stored or inadequately reheated it is possible for the spores to germinate and the organism to multiply rapidly. When these organisms are swallowed in large numbers some reach the intestine where they, in turn, form spores and release an enterotoxin which causes the illness.
The symptoms of *Clostridium perfringens* food poisoning include abdominal cramps and diarrhoea that begin approximately 7-22 hours after consumption of food contaminated with *Clostridium perfringens*. The symptoms and the incubation period could fit with those described in this outbreak.

### 6.3 Bacillus cereus

Spores of Bacillus cereus are found in many foods including a wide variety of cereals, pulses, vegetables, spices, and pasteurized fresh and powdered milk. Infection is acquired by ingestion of the organism or toxin. Bacillus cereus can result in either of two different syndromes dependant on which toxin is present.

Spores may germinate in food and produce toxins. This commonly occurs following inadequate refrigeration and/or inadequate subsequent reheating of foods that have already been cooked.

Ingestion of this toxin usually results in vomiting within 1-5 hours. Rice is the most common food to be associated with this toxin. Only one of those affected report vomiting and the restaurant preparation and storages or rice was good.

Other Bacillus cereus strains can produce toxins after ingestion of food contaminated with spores. This commonly results in a diarrhoeal illness within 10-15 hours. The symptoms reported would be consistent with this syndrome.

### 6.4 Diarrhetic shellfish poisoning

Shellfish can cause diarrhetic shellfish poisoning as a result of algal toxins. Commonly symptoms begin 30 minutes to 12 hours after eating the contaminated shellfish. Symptoms can include diarrhoea, nausea, vomiting and abdominal pain. The short incubation period and symptoms experienced by the guests fitted could be consistent with diarrhetic shellfish poisoning.

### 7. Conclusion

The symptoms and incubation time suggest that the most likely cause of the illness in the guests was a food borne toxin or toxin producing bacteria, most likely *Clostridium perfringens*. The batch cooking of chicken and lamb, storage at ambient temperature plus inadequate reheating would facilitate the germination of spores and multiplication of the organism. Therefore, this was our working hypothesis but there was no microbiological evidence to support this hypothesis, nor was there any supporting evidence from the review of the food eaten.