

Outbreak Report – Swansea *Campylobacter* Outbreak June 2013

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Purpose and Summary of Document:

The purpose of this report is to outline the investigations and actions taken in relation to an outbreak of *Campylobacter* associated with a commercial food premises in the Swansea area in June 2013.

1 Executive Summary

This report details the investigations and actions of Public Health Wales, seven local authorities and the Food Standards Agency in relation to an outbreak of *Campylobacter* associated with a commercial premises located in the Swansea area.

Initial reports of potentially linked cases of laboratory confirmed cases of *Campylobacter* were received on 4th July 2013, an Incident Control Team meeting was held on 11th July at which point an outbreak was declared. From then on investigations were managed by an Outbreak Control Team (OCT).

Investigations found a total of 14 laboratory confirmed cases of *Campylobacter* infection that had eaten at premises A within the relevant incubation period. Unannounced visits by officers of City & County of Swansea found no significant food safety issues at the premises involved. Food histories of confirmed cases were obtained by seven local authorities and a case control study was undertaken by Public Health Wales to investigate the cause of the outbreak. Food and environmental samples taken by City & County of Swansea found no evidence of *Campylobacter* contamination.

The finding of these investigations is that exposure is likely to have occurred on the 16 and 17 June 2013 at premises A. No source has been identified by epidemiological, microbiological or environmental investigations. The case control study identified some food items that may have been the potential source. Salad items that do not undergo any processing capable of killing *Campylobacter* have the potential to transmit the infection, however the findings of the study are inconclusive.

The OCT recommends that where there is the potential for such foods to be contaminated by *Campylobacter* then the Food Safety Management Systems of Food Business Operators should detail what appropriate control measures are in place to manage this risk. It is also recommended that Appendix 4 "Media Relations" of the Communicable Disease Outbreak Plan for Wales be reviewed.

2 Introduction

On the 4th July 2013 the City & County of Swansea received email notification from Public Health Wales that two separate cases of confirmed *Campylobacter* from Rhondda Cynon Taff CC had both consumed food from premises A in Swansea on the same day. Both cases had been interviewed by officers from Rhondda Cynon Taf CC and their food histories obtained. This prompted officers from City & County of Swansea to visit premises A the following morning in order to undertake a full inspection.

An Incident Control meeting was called by Dr Mac Walapu on 11th July 2013 at which an outbreak was declared. Following this regular Outbreak Control Team (OCT) meetings were held and attended by representatives from Public Health Wales local authorities and the Food Standards Agency.

A request was made by the OCT for local authorities to review cases of *Campylobacter* reported to them in order to find any other cases linked to premises A. Following this a total of 14 laboratory confirmed cases of *Campylobacter* were found to have eaten at the premises within the relevant incubation period.

Investigations were carried out by OCT members. The only link between confirmed cases was a visit to premises A within the relevant incubation period. A decision was made that there appeared to be no ongoing public health risk.

Detailed food histories from cases associated with premises A and a number of their asymptomatic co-diners were taken by local authorities. The findings were tabulated by City & County of Swansea and considered by the OCT.

An initial review suggested that salad items may be implicated as a source of the outbreak, however, incomplete food histories did not allow detailed analysis.

The OCT decided to undertake a case control study to investigate further any association with foods eaten at premises A.

A case control study protocol was developed by Public Health Wales and sent to all relevant local authorities for the identification of relevant cases and controls. A questionnaire detailing all foods on the menu at premises A was then sent to all identified persons.

A total of 67 questionnaires were posted by local authorities, with a request to return them completed by 5 August. 14 were sent to confirmed cases; 3 to probable cases; and, 50 to controls.

The findings of the case control study form part of this report.

3 Investigation

3.1 Case definitions

Case: A microbiologically confirmed case of *Campylobacter* identified by the OCT as meeting the case definition for the outbreak.

Possible case: Anyone who suffered from diarrhoea and / or vomiting, with an onset date compatible with the incubation period for *Campylobacter* and ate at premises A on the 16 or 17 June 2013.

3.1.1 Refined case definitions

Once questionnaires began to be returned as part of the case control study it became clear that definitions needed to be refined as some of those identified as controls reported suffering from gastrointestinal illness.

Confirmed case: Any laboratory confirmed case of *Campylobacter* who ate at premises A on the 16 or 17 June 2013.

Probable case: Anyone who suffered from diarrhoea and nausea, for more than 24 hours, between the 17 and 27 June 2013, and ate at premises A with a confirmed case on the 16 or 17 June 2013.

Possible case: Anyone who suffered from diarrhoea only for up to 24 hours, between the 17 and 27 June 2013, and ate at premises A with a confirmed case on the 16 or 17 June 2013.

Control: Anyone older than 9 years of age who ate at premises A on the 16 or 17 June 2013 with a confirmed case, and has not suffered any gastrointestinal symptoms between the 17 and 27 June 2013.

3.2 Epidemiology

In order to confirm that an outbreak existed, the incidence of *Campylobacter* infection between the general population and those that had dined at premises A (as identified by members of the OCT) was compared as part of the case control study.

All laboratory notifications of *Campylobacter* associated with premises A sent directly to the Mid and West Wales Health Protection Team were received between 17 June and 21 July 2013.

In order to calculate the incidence amongst the general population, the total number of laboratory notifications during this period, from the ABMU, Hywel Dda and Powys Health Board areas was used (minus the number associated with premises A). ONS population estimate for this same geographical area was used as the denominator.

General population *Campylobacter* incidence: 16 per 100,000

The total number of laboratory confirmed *Campylobacter* infections potentially associated with premises A was used to calculate the incidence amongst premises A diners. The total number of diners identified by the company for the 16 and 17 June was used as the denominator.

Premises A diners *Campylobacter* incidence: 778 per 100,000

3.3 Microbiology

Initial results were from stool samples provided by cases following a visit to their GP. Additional stool samples were requested by local authorities during the course of the investigation, from those that had symptoms compatible with *Campylobacter* infection.

Additionally, seven food samples and six environmental swabs were obtained by City & County of Swansea on 9th July 2013 from premises A. The foods sampled were: raw pop chicken, cooked pop chicken, sweet and sour sauce, cooked sweet and sour chicken, cooked rice, steamed chicken and cooked rotisserie chicken.

The swab samples were: grill wash hand basin, grill fridge top, grill fridge handle, grill preparation table, salad preparation table and hallway wash hand basin.

Further food samples totalling seven were taken on 17th July 2013. These were: potato salad, sliced tomatoes, sliced peppers, cress, sliced lettuce, coleslaw and sliced onions.

A further six food samples were taken on 23rd July 2013 consisting of: blue cheese dressing, reduced fat french dressing, mayonnaise, thousand island dressing, tartare sauce and ranch dressing.

3.4 Environmental

An inspection was undertaken by two officers from City & County of Swansea on 5th July 2013. This formed a full food hygiene inspection as

would normally be undertaken routinely. All aspects of the food business were looked at, with particular attention paid to food preparation in each of the areas of the premises. Upon this initial visit, particular attention was also paid to chicken products based on the first 2 food histories obtained.

A revisit was undertaken on 12th August 2013 to gather further information following more cases coming to light and also to follow up minor maintenance works identified during the initial inspection of the premises.

A visit was also carried out by a Specialty Registrar from Public Health Wales on 1st August 2013 by arrangement with the City & County of Swansea and the premises management. This visit was to assist with the case control study so that the results could be considered with an understanding of the preparation and position of food items on display.

4 Control measures

The evidence available to the OCT suggested that exposure of those that became ill occurred on the 16th or 17th June 2013, with no ongoing risk to public health. As visits by City & County of Swansea did not identify any identifiable cause of the outbreak or any significant breaches of food safety legislation then no specific control measures over and above usual practice were required of the premises management.

5 Results

5.1 Epidemiology

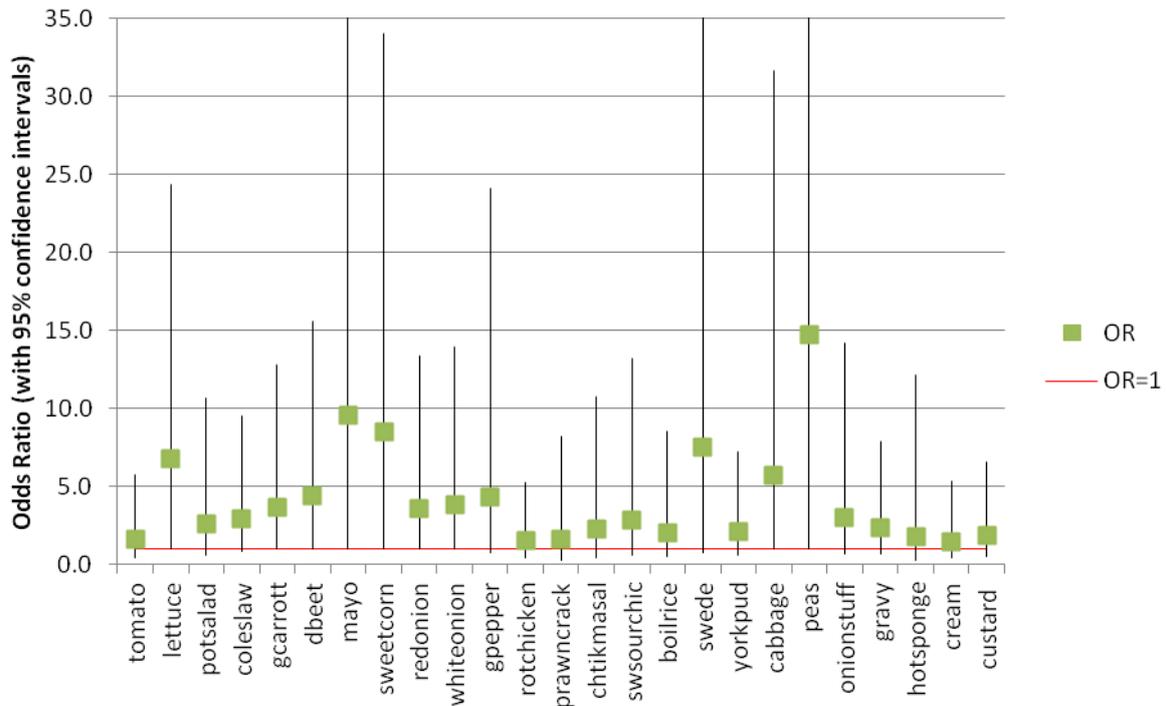
As part of the case control study questionnaires were returned from: 12 confirmed cases; 9 probable cases; and, 30 controls.

1 confirmed case and 2 controls were excluded from the study as they did not eat at premises A on the 16 or 17 June 2013.

3 questionnaires were received from people that could have met the definition of a possible case. However, on review, it was found that their symptoms started outside the probable incubation period for *Campylobacter* (1 to 10 days) and so they were classed as controls for the purposes of this study.

Odds ratios and 95% confidence intervals were recalculated for the 25 foods, comparing confirmed and probable cases with controls. The results are presented in Figure 1 below.

**Figure 1: Odds ratios and 95% confidence intervals
Confirmed / Probable Cases v Controls**



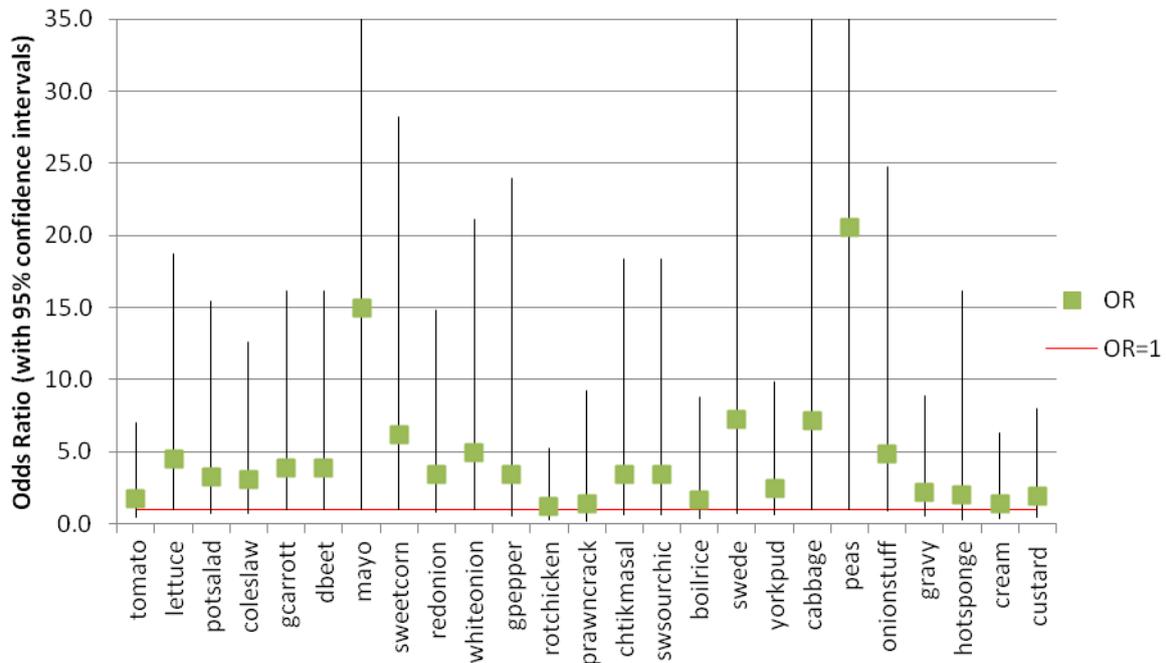
The details of the five foods with the highest odds ratios are produced in Table 1 below.

Table 1

Food	Odds Ratio (95% confidence interval)
Peas	14.8 (1.7-131.4)
Mayonnaise	11.1 (1.1-87.8)
Sweet corn	8.5 (2.1-34.1)
Lettuce	8.0 (2.1-31.1)
Swede	7.5 (0.8-70.3)

A sensitivity analysis of the impact of combining confirmed and probable cases was carried out by excluding the probable cases and re-running the test. The results of this are shown in Figure 2.

**Figure 2: Odds ratios and 95% confidence intervals
Confirmed Cases v Controls**



The 4 of the 5 foods to continue to have the highest odds ratios, although the values change. Lettuce has the 8th highest odds ratio, with cabbage, white onion and onion stuffing now appearing higher (Table 2).

Table2

Food	Odds Ratio (95% confidence interval)
Peas	20.6 (2.1-200.8)
Mayonnaise	15.0 (1.5-148.3)
Swede	7.2 (0.7-77.8)
Cabbage	7.2 (1.2-44.7)
Sweet corn	6.1 (1.3-28.2)
White onion	4.9 (1.1-21.1)
Onion stuffing	4.8 (0.9-24.8)
Lettuce	4.5 (1.1-18.7)

This analysis does not provide a clear indication of the cause of the outbreak.

5.2 Microbiology

In total 14 people were microbiologically confirmed as having been infected with *Campylobacter*.

None of the 20 food samples or 6 environmental swabs returned any unsatisfactory results which would indicate the presence of *Campylobacter*.

5.3 Environmental

No significant issues were identified during the full inspection undertaken at the premises. Maintenance items picked up were swiftly dealt with and a National Food Hygiene Rating Scheme score of 5 out of a possible 5 was given due to the high standards noted.

6 Conclusions

Visits by City and County of Swansea did not identify any significant food safety management failings at the premises. Food samples taken from the premises did not find any *Campylobacter* contamination.

A case control study was carried out, however the power of this study was limited by the relatively small number of cases identified and the considerable number of separate food items available at the premises (89).

The calculated odds ratios do not provide a clear indication as to the cause of the outbreak. As confirmed cases ate at the premises on either the 16 or 17 June the source of the outbreak must have been present on both days if this premises is indeed the source. It is the policy of the company to discard all prepared food not consumed at the end of the day.

The risk of cross contamination is minimised by the use of designated areas for the preparation and display of different food types. Food safety management systems at the premises have been examined by Environmental Health Officers during unannounced routine food law enforcement visits. These visits have not found any inadequacies in the management systems or practices at the premises. Of the foods that appear in both Tables 1 and 2 of Section 6.1 only white onion and lettuce do not go through any processing that is capable of killing *Campylobacter*.

All other foods are either cooked on the premises or received in a pre-prepared condition, for instance canned sweet corn.

Onions are peeled and therefore any contamination of the food is likely to be discarded with outer layers during processing. Lettuce may be considered a plausible cause, however neither of these have the highest odds ratio. If lettuce were to be contaminated with *Campylobacter* in the field then the only processing at the premises is cutting and washing with tap water. This would remove any gross contamination of the lettuce, but not kill any bacteria present. During the visit to the premises two crates of whole lettuce from the same supplier and with the same harvest date were present. This would potentially provide enough product from the same field to be served over the two day period of interest.

7 Recommendations

7.1 Washing of salad items

During investigations it was found that some salad items undergo no processing capable of killing *Campylobacter* prior to consumption.

It is recommended that where there is the potential for such foods to be contaminated by *Campylobacter* then the Food Safety Management Systems of Food Business Operators should detail what appropriate control measures are in place to manage this risk, such as the use of food grade sanitiser to wash salad items.

7.2 Communicable Disease Outbreak Plan for Wales

The OCT discussed the need to issue a press release relating to the outbreak during its meetings.

It is recommended that Appendix 4 "Media Relations" of the Communicable Disease Outbreak Plan for Wales be reviewed to ensure it is clear that the OCT is not obliged to issue a press release where it would not be useful to the investigation and not in the public interest to do so.

8 Appendices

Appendix A - Membership of the Outbreak Control Team

Dr Mac Walapu	CCDC, Public Health Wales
Dr Brendan Mason	Regional Epidemiologist, CDSC, Public Health Wales
Dr Gwen Lowe	CCDC, Public Health Wales
Dr Jörg Hoffmann	CCDC, Public Health Wales
Dr Nidhika Berry	Consultant Medical Microbiologist, Public Health Wales
Sue Morgan	Health Protection Nurse, Public Health Wales
Beverley Gregory	Health Protection Nurse, Public Health Wales
Anna Humphries	Communications Officer, Public Health Wales
Darren Beynon	City and County of Swansea
Lynda Anthony	City and County of Swansea
Lon John	Carmarthenshire CC
Vicky King	Carmarthenshire CC
Ro Westlake	Rhondda Cynon Taff CC
Huw Jones	Neath Port Talbot CC
Heddwyn Evans	Ceredigion CC
Anna Llewellyn	Pembrokeshire CC
Fauzia Malik Stephens	Vale of Glamorgan CC
Richard Smith	Food Standards Agency Wales
Deb Morgan	Food Standards Agency Wales