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Restaurant-associated campylobacteriosis outbreak likely linked to duck liver pâté

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Outbreak report

Abstract

An outbreak of *Campylobacter jejuni* gastroenteritis was reported to the Hunter New England Public Health Unit in July 2025. Seven cases were identified from 26 people who had attended an event held at a local restaurant. Investigation included case interviews; a site visit to the restaurant in conjunction with local council; and an online survey administered to attendees. Observation of the pâté making process revealed the potential for both undercooking of the raw pâté product and for raw pâté product to be re-introduced to cooked product. New South Wales Food Authority issued a prohibition order requiring the restaurant to remove the item from the menu. Following this action, no further cases of campylobacteriosis associated with the premises have been reported.

Keywords: Australia; foodborne disease; restaurant-associated; campylobacteriosis; outbreaks; pâté

Introduction

While campylobacteriosis is a common enteric disease, foodborne outbreaks caused by *Campylobacter* offer a rare opportunity to identify potential food sources. Most presentations are mild, though it can have serious outcomes in high-risk groups and occasionally causes Guillain-Barré syndrome and reactive arthritis.[1,2] In Australia, case numbers have steadily increased since 2013, with an average of 41,036 cases reported over the last three years.[3] As with many foodborne illnesses, case ascertainment is low.[4]

On 25 July 2025, the Hunter New England Public Health Unit (HNEPHU) was notified of campylobacteriosis in a two-year-old child, and the grandmother of that child, both of whom attended a family event held at a local restaurant. Concurrently, a complaint of foodborne illness was made to the NSW Food Authority by the organiser of the family event, concerning the notified cases and the same restaurant in the Hunter New England (HNE) district. The complaint implicated the pâté de canard (duck liver pâté) served at the event, as the two-year-old had eaten more of this than other menu items. There were several high-risk foods served, including pâté de canard, chicken, seafood dishes, and a bone marrow-based sauce.

An outbreak investigation was undertaken to elicit the aetiology of the outbreak.

Methods

Epidemiological investigation

An initial interview took place with the complainant, who was also the organiser of the event, and parent to the two-year-old with confirmed campylobacteriosis. This interview aimed to elicit as much information as possible about the event, the menu, the attendees and their child's illness. The interviewer (EG) requested a line list of attendees, and photos of the event where possible. Hypothesis generating interviews were then conducted by EG with six of the seven attendees reporting illness; one attendee did not respond to contact. One interviewee was able to provide a photo of the menu, later confirmed by the restaurant. Further samples for laboratory testing were not sought, as it was several weeks post-event and cases had recovered.

An outbreak-related case was defined as an individual who had attended the event on 13 July 2025, who subsequently developed diarrhoea (loose stools, at least three times in 24 hours) or stomach cramps and fever during the ten days after 13 July 2025. This was based on the incubation period for campylobacteriosis, which is reportedly up to 10 days (median 2–5 days). A probable case was defined as a person who attended the event at the restaurant on 13 July and developed stomach cramps during the ten days after 13 July.

A REDCap questionnaire developed by the HNEPHU team elicited demographics, symptom onset and clinical presentation, and the amount and type of food eaten by the attendees was emailed to all attendees at the family event (n = 26). Descriptive epidemiological analysis was performed in R, version 4.1.[5] The mean consumption (by number of servings) was assessed for each menu item by cases and non-cases. This implicated several menu items. We then calculated attack rates and risk differences for the implicated menu items in the cohort attending the event.

Ethics approval was not sought for this investigation as it was conducted under the *NSW Public Health Act 2010*.

Environmental health investigation

On 1 August 2025, an onsite joint investigation was conducted by NSWFA inspectors and HNEPHU in the presence of the restaurant owner. An interview with the owner determined the cooking and food handling processes, suppliers, and cleaning and hygiene procedures at the restaurant. The owner provided a list of all patrons who ate at the restaurant on the date of the event (n ~ 60, including attendees of the family event). The purpose of obtaining this list was to cross-check against notifications of campylobacteriosis received in the same timeframe (defined as four weeks post the event to allow for results of testing to be reported). No environmental samples were taken, as none of the food eaten by attendees remained on the premises.

Results

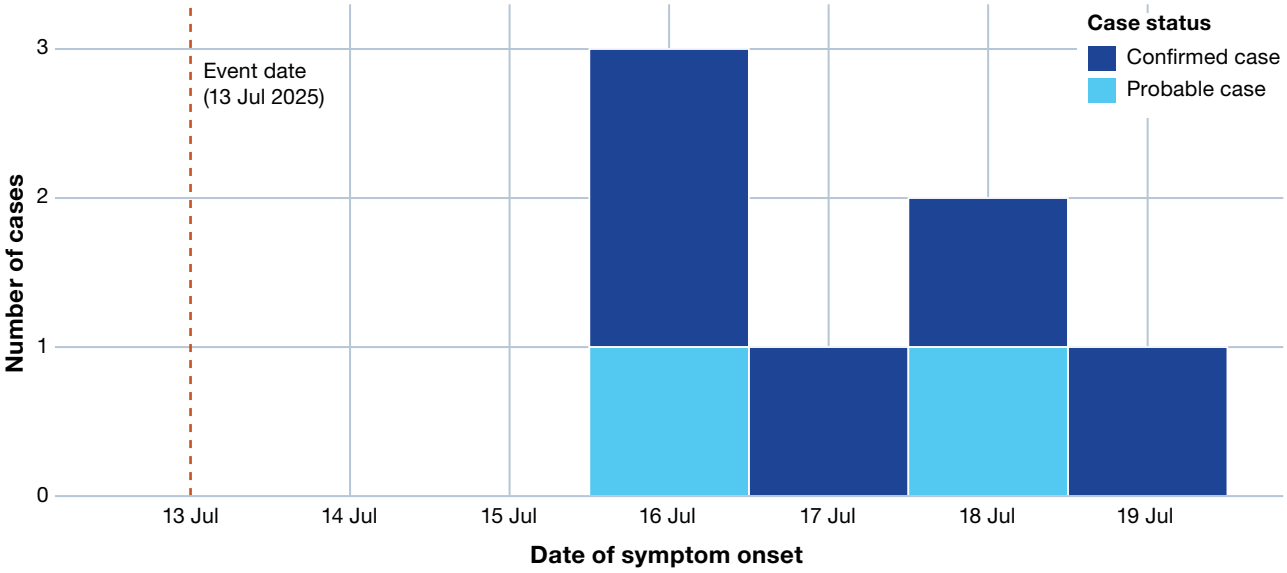
Epidemiological investigation

Five met the confirmed case definition, and two met the probable case definition. No further cases were laboratory confirmed beyond the first two cases notified.

The meal consumed by the party was also consumed by other diners and staff members that day (n ~ 60), with no other illness reported to the proprietor of the restaurant or to the public health unit. A review conducted of 43 campylobacteriosis cases reported to HNEPHU between 13 and 31 July 2025 (based on the plausible incubation period, and cumulative reporting delays) revealed no further cases associated with the restaurant.

The survey response rate of event attendees was 88.5% (n = 23/26), with all cases (n = 7) responding. Epidemiological analysis revealed that the top two food items with the strongest association with illness were pâté de canard and artichoke fritter (Table 1). The artichoke fritter was considered low risk, as it was deep fried. These menu items were consumed by all seven cases. The greatest risk difference in attack rates (46.7%) was for pâté de canard.

Figure 1: Epidemic curve of a restaurant-associated campylobacteriosis outbreak,[a] Hunter New England Local Health District, July 2025



a The orange dashed line indicates the date of the family event.

Table 1: Analysis of the five highest-risk menu items served to attendees of the family event implicated in the restaurant-associated campylobacteriosis outbreak, Hunter New England Local Health District, July 2025

Food item	Exposed			Unexposed			Relative risk	95% CI[b]
	Total	Cases	AR[a] (%)	Total	Cases	AR[a] (%)		
Pâté de canard (duck liver pâté)	15	7	46.7%	8	0	0.0%	—[c]	—[c]
Artichoke fritter	19	7	36.8%	4	0	0.0%	—[c]	—[c]
Mushrooms, sausage, toast	12	6	50.0%	11	1	9.1%	5.5	0.0–38.8
Chicken and chorizo meatballs	14	6	42.9%	8	1	12.5%	3.4	0.5–23.6
Tomato and prosciutto	15	6	40.0%	8	1	12.5%	3.2	0.5–22.2

a AR: attack rate.

b 95% CI: 95% confidence interval.

c This measure is undefined for this food item.

Environmental health investigation

The site visit established cooking processes and timings, and restaurant suppliers. The pâté was typically made on Wednesday and served until Sunday, unless sold out prior. The supplier substituted chicken with duck livers in the outbreak week's delivery. Pâté served to smaller bookings was individually portioned in ramekins and had a gelée (aspic jelly) seal, whereas pâté served to larger groups, including the event in question, was prepared in a large stainless-steel pan and did not include the gelée. All fridges that held high-risk foods were maintaining correct temperatures. The inspection did not reveal anything that could have contributed to the outbreak.

Due to the substitution of duck liver, NSWFA inspectors arranged a further inspection to observe pâté preparation. This visit revealed that the production of pâté did not include verification of final cook temperature with a calibrated thermometer. The paté may have been undercooked as food handlers relied on a Magimix appliance display which indicated a temperature ~6 °C higher than the actual measured core temperature at the final stage of cooking. Additionally, at the conclusion of the cooking process, raw paté was observed under the mixer lid seal, indicating the potential for contamination of cooked product with raw product. Given this, NSWFA issued a prohibition ordering the restaurant to cease making pâté.

Conclusion

In the context of delayed reporting and the absence of environmental microbiological findings, the epidemiological data and problems observed during the pâté preparation strongly suggest the pâté de canard as the likely source, although it could not be definitively proven. Duck and other poultry liver dishes have been implicated in previous outbreaks of campylobacteriosis.[6,7] When conducting routine inspections of premises making pâté or other poultry liver dishes, food safety inspectors should take particular interest in the preparation process.

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