# Appendix 2: Foodborne Disease Investigations in South Australia, 2023—2024

Epidemiological investigations into foodborne disease outbreaks within South Australia (SA) are coordinated by the Disease Surveillance and Investigation Section (DSIS) and OzFoodNet staff who are based within the Communicable Disease Control Branch (CDCB) of SA Health. OzFoodNet is a national network that conducts enhanced foodborne disease surveillance.

OzFoodNet and other CDCB staff work in collaboration with a range of stakeholders when investigating outbreaks. SA Pathology conducts microbiological and molecular testing of isolates from humans, food, and environmental samples. Local government environmental health officers (EHOs) and the SA Health Food Safety and Regulation Branch (FSRB), provide food technology and environmental investigation expertise and perform environmental and food premises investigations. Primary Industries and Regions SA (PIRSA) staff assist with traceback investigations and implement control measures with primary producers where appropriate.

CDCB staff conduct interviews with cases to obtain food histories when clusters of suspected foodborne disease are detected. This information is used to identify frequently consumed food items and can sometimes lead to further investigations. When further investigations are required, it is often in the form of analytical studies that aim to demonstrate a statistical association between illness and the consumption of a particular food item, eating at a particular premises, or an environmental exposure. When a food and/or premises are suspected on epidemiological grounds, laboratory evidence, for example, microbiological testing of food and environmental samples is undertaken to support the observed epidemiological associations.

Often, despite efforts to identify a specific food vehicle or source of an outbreak, none can be identified. An implicated food item may no longer be available or suitable for microbiological testing, making it impossible to provide definitive laboratory evidence for the source of an outbreak. Cases may also have difficulty in remembering foods consumed or premises visited if an appreciable time has passed between the exposure and the interview.

## Outbreak Investigations

A summary of outbreaks investigated from 1 July 2023 to 30 June 2024 and their settings are presented in Table 1. During the reporting period, SA Health investigated two outbreaks of gastrointestinal illness that were known or suspected to be foodborne and for which a common source was identified. The settings for the outbreaks included one commercial eatery and one aged care facility.

This summary does not include outbreaks that were suspected to be person-to-person transmission, animal-to-person transmission, or from an environmental source (including swimming pools). All investigation data are subject to change, as this is the nature of clusters and outbreaks.

*An **outbreak** is defined as an event where two or more people experience a similar illness after eating a common meal or food and epidemiological and/or microbiological evidence indicates the meal or food as the source of the illness.*

**S. Typhimurium MLVA 03-15-08-10-550 – Restaurant**

Five cases of S. Typhimurium (STm) multi-locus variable tandem repeat analysis (MLVA) 03-15-08-10-550 ate at a common restaurant between the 4 and 9 of October 2023. Cases ate different meals including chicken parmigiana, chicken salad and salt and pepper squid salad. EHOs inspected the venue and identified several concerns around temperature control, lack of skills and knowledge of food handling and cross contamination issues. An improvement notice was issued to the premises. Environmental swabs were taken with no *Salmonella* detected.

**S. Typhimurium MLVA 03-26-13-12-523 – Aged Care Facility**

A total of 26 residents and 3 staff were identified with STm (MLVAs 03-26-13-12-523, 03-26-14-12-523 and 03-28-13-12-523) infection in an aged care facility. Onset dates ranged from 13 February to 24 March 2024.

A high proportion of confirmed cases in residents consumed eggs or egg-based meals (72%). The protracted onsets and other exposure information were indicative of multiple modes of transmission including both foodborne and person-to-person transmission, and the outbreak was unlikely to have been caused by a single meal or event at the facility. All food and environmental samples and swabs collected from the aged care facility were *Salmonella* not detected.

Several site visits by local EHOs were conducted. A number of kitchen practices were identified that could facilitate cross contamination. The FSRB provided recommendations on how to clean and sanitise in the kitchen, and to ensure complete separation of equipment and surfaces for raw eggs and ready to eat foods. A site visit was also conducted by an infection control practitioner and additional advice about cleaning of surfaces, laundering and handwashing was provided to the facility.

**Table 1: Summary of foodborne disease investigations in South Australia during the period 1 July 2023 to 30 June 2024**

| No. | Month, Year | Organism* | Setting | No. ill | No. laboratory confirmed | Evidence |
|---|---|---|---|---|---|---|
| 1 | Oct 2023 | *Salmonella* Typhimurium MLVA 03-15-08-10-550 | Restaurant | 5 | 5 | D |
| 2 | Feb 2024 | *Salmonella* Typhimurium MLVA 03-26-13-12-523 | Aged care Facility | 29 | 3 | D |

No. = Number; D = Descriptive evidence (i.e. information obtained from interviewing cases and/or inspections of premises); M = Microbiological evidence of pathogen in food vehicle MLVA = Multi-locus variable number tandem repeat analysis

## Cluster Investigations

A summary of cluster investigations from 1 July 2023 to 30 June 2024 are listed in Table 2. During the reporting period, four *Salmonella* clusters, and one Shiga toxin producing *Escherichia coli* (STEC) cluster were investigated. All clusters were general increases in specific infections in the community without a common source identified and only descriptive evidence was available for all of the investigations.

*A **cluster** is defined as an increase in a specific infection in terms of time, person or place, where the source and mode of transmission remains unknown.*

**Table 2: Summary of cluster investigations in South Australia during the period 1 July 2023 to 30 June 2024**

| No. | Month, Year | Organism | Number ill |
|---|---|---|---|
| 1 | September, 2023 | Shiga toxin producing *Escherichia coli* O26 | 8 |
| 2 | January, 2024 | *Salmonella* Typhimurium MLVA 04-09-00-00-463 | 14 |
| 3 | January, 2024 | *Salmonella* Typhimurium MLVA 03-15-08-10-550 | 19 |
| 4 | February, 2024 | *Salmonella* Typhimurium MLVA 03-13-12-10-523 | 6 |
| 5 | April, 2024 | *Salmonella* Typhimurium MLVA 04-09-00-00-463 | 5 |

MLVA= multi-locus variable tandem repeat analysis.

## Multijurisdictional Outbreak Investigations

During the reporting period from 1 July 2023 to 30 June 2024, there were four multi-jurisdictional outbreak investigations (MJOIs) that included South Australian cases but were led by another jurisdiction. The diseases investigated as part of these MJOIs included Listeriosis, Shigellosis, Hepatitis E virus infection, and Salmonellosis. The number of SA cases ranged from one to 14 cases, per MJOI. During these MJOIs, SA OzFoodNet and CDCB conducted enhanced surveillance and epidemiological investigations of local cases; provided data and summary reports to the coordinating epidemiologists; coordinated local laboratory and food authorities; and ensured all relevant SA stakeholders were updated with the progress of the MJOI.

*A multi-jurisdictional outbreak investigation (MJOI) is an outbreak where multiple states are affected. This includes, but is not limited to:*

- *an increase in cases, or related outbreaks, in more than one state or territory;*
- *an outbreak in one state or territory related to a food product produced in another state or territory; or*