

# An outbreak of *Salmonella* Typhimurium phage type 135a in a child care centre

Bradley J McCall,<sup>1</sup> Robert J Bell,<sup>2</sup> Annette S Neill,<sup>3</sup> Gino R Micalizzi,<sup>4</sup>  
Gregory R Vakaci,<sup>5</sup> Christopher D Towner<sup>6</sup>

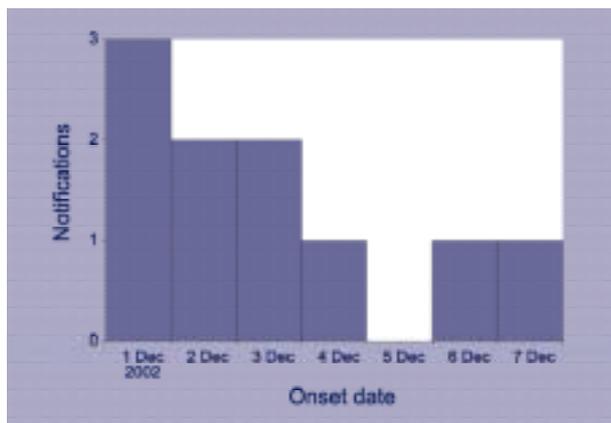
On 12 December 2002, the Brisbane Southside Public Health Unit commenced a cluster investigation of four notifications of *Salmonella* Typhimurium infection amongst children under five years of age within a defined geographical area in south-west Brisbane. Initial investigations found that these children attended the same child-care centre (CCC). An Outbreak Control Team conducted investigations that included surveillance, microbiological testing of suspected cases, inspection and environmental sampling of food preparation facilities and other equipment within the CCC, sampling of food specimens, review of menus and audits of selected food suppliers.

The CCC had 30 full time staff and was licensed for 146 children (71 and 75 children in different wings). In all 350 children aged from six weeks to six years attended per week. Sixteen people associated with the CCC reported symptoms of gastroenteritis between 20 November and 7 December 2002, including four staff, one parent and 11 children attending the CCC. Ten cases of *S. Typhimurium* phage type 135a infection were identified including one parent of a symptomatic CCC attendee. Onset dates of confirmed cases ranged from 1 to 7 December 2002 (Figure). The age range of the CCC attendee cases was one to five years. The cases belonged to different age cohorts in both wings of the CCC.

1. Public Health Physician, Brisbane Southside Public Health Unit
2. OzFoodNet Research Officer, Communicable Diseases Unit, Queensland Health
3. Epidemiologist, Brisbane Southside Public Health Unit
4. Public Health Microbiology, Queensland Health Scientific Services
5. Environmental Health Officer, Brisbane Southside Public Health Unit
6. Senior Environmental Health Officer, Brisbane Southside Public Health Unit

Corresponding author: Dr Brad McCall, Brisbane Southside Public Health Unit, PO Box 333, Archerfield Qld 4108. Telephone: +61 7 3000 9148. Facsimile: +61 7 3000 9130. Email: brad\_mccall@health.qld.gov.au

**Figure. Onset date of *Salmonella* Typhimurium phage type 135a notifications associated with a south-west Brisbane child-care centre, December 2002**



The child cases had attended the CCC on a number of occasions during the week preceding onset of their infection and all had attended the centre on 28 November 2002. All children had consumed lunch and snacks provided by the centre. Three adult staff had been unwell in the period 20 to 26 November 2002 with symptoms of gastrointestinal infection. The food handler who prepared the meals on 28 November 2002 subsequently developed gastroenteric illness on 29 November 2002. All four staff tested negative for *Salmonella* on specimens collected up to three weeks after their illness.

Inspection of the CCC food preparation facilities revealed a number of items of concern including poor temperature control, inadequate refrigeration capacity, poor cleaning procedures and inadequate pest management. Eggs used in the preparation of egg sandwiches on 28 November were purchased from a local butcher, supplied through a vendor who purchased the eggs from a local egg farm. The egg farm did not clean the eggs prior to distribution. Eggs obtained from the CCC tested negative for *Salmonella* spp. However, subsequent drag swabs of the egg farm were positive for *S. Typhimurium* phage type 135a from two of three sheds.

At the time of publication, 135a is not an internationally recognised phage type of *S. Typhimurium*. It is based on a variation of the standard phage pattern for phage type 135, first reported in connection with contaminated orange juice in 1999.<sup>1</sup> During 2001 to 2002, 149 cases of *S. Typhimurium* phage type 135a were detected in Queensland, an average of 6 cases

per month. There were six unrelated cases of *S. Typhimurium* 135a reported in Queensland during December 2002. (personal communication, John Bates, Public Health Microbiology, Queensland Health). Subsequently, outbreaks of *S. Typhimurium* 135 have been reported in connection with the use of inadequately cleaned eggs in aged care and community settings.<sup>2,3</sup> These reports prompted the Outbreak Control Team to audit the egg supply of the CCC.

We suggest that this outbreak of *S. Typhimurium* phage type 135a in a child-care centre may be associated with the introduction of the organism on eggs purchased from a local supplier who did not comply with recommended cleaning procedures for eggs.<sup>4</sup> Cross contamination within the facility is suggested by the occurrence of enteric illness in the sole food handler for the centre. Person-to-person transmission cannot be excluded as a factor in this outbreak as it is documented in the parent of one CCC attendee who did not consume food from the CCC but was the parent of a child case.

Legislation and standards are in place for food safety in child-care centres which are monitored and regulated in Queensland by local government.<sup>5</sup> The Commonwealth Department of Health and Ageing is currently developing food safety program templates for child-care centres and family day care. As yet, these do not specifically mention egg quality. The issue of the safe production of eggs in Queensland is being addressed through the development of a Food Safety Scheme for Eggs.<sup>6</sup>

Eggs purchased for child-care centre use should have been produced under a quality assurance program that guarantees that the eggs have been cleaned and checked for cracks. There is no current legal requirement for eggs to be produced under a quality assurance program, which may make it difficult for people to determine the quality of the eggs they are buying. Food handlers should be aware of this issue when purchasing and preparing eggs, in particular of the importance of confirming that the eggs have come from a quality assured supplier and of washing their hands after handling eggs that may not have been produced under a quality assurance program. However, under no circumstances should uncleaned or cracked eggs be used for children attending child-care centres as this age group is particularly vulnerable to the serious consequences of *Salmonella* infection.

---

## *Acknowledgements*

Russell Stafford, OzFoodNet, Communicable Diseases Unit, Queensland Health

John Bates, Public Health Microbiology, Queensland Health Scientific Services

Staff of the National Enteric Pathogen Surveillance Scheme, Microbiological Diagnostic Unit, University of Melbourne

## *References*

1. Communicable Disease Control Branch, South Australia. Salmonellosis outbreak, South Australia. *Commun Dis Intell* 1999;23:73.
2. Tribe IG, Cowell D, Cameron P, Cameron S. An outbreak of *Salmonella* Typhimurium phage type 135 infection linked to the consumption of raw shell eggs in an aged care facility. *Commun Dis Intell* 2002;26:38–39.
3. Sarna M, Dowse G, Evans G, Guest C. An outbreak of *Salmonella* Typhimurium PT135 gastroenteritis associated with a minimally cooked dessert containing raw eggs. *Commun Dis Intell* 2002;26:32–37.
4. Australian Egg Industry Association, Egg Quality and Safety Information Sheet. Available from: [http://www.aeia.org/marketing/egg\\_quality.html](http://www.aeia.org/marketing/egg_quality.html). Accessed on 3 February 2003.
5. Food Standards Australia New Zealand. Australia New Zealand Food Standards Code Anstat Pty Ltd. 2002.
6. Devine, C. Food Safety Scheme for Eggs – second issues paper. Safe Food Queensland, 2003.