

3 FOOD- AND WATER-BORNE DISEASES

Food-borne disease outbreak, North West Province

In October 2014, a suspected outbreak of foodborne disease affecting learners from a local school in Koster (Bojanala district, North West Province) was reported. The North West Provincial Department of Health initiated an investigation in collaboration with the South African Field Epidemiology and Laboratory Training Programme (SA-FELTP), in order to determine the possible source of the infection, the extent and magnitude of the outbreak, and guide control and preventive measures.

Approximately 279 learners fell ill after eating a meal prepared by the school feeding scheme on 24 October 2014. A total of 174 cases presented to various local healthcare facilities from 24-27 October 2014; nine required hospital admission. All recovered uneventfully and were discharged home. One additional case, a 4-year-old child, died at home before being taken to hospital. Presenting symptoms included diarrhoea (in some cases dysentery), nausea, vomiting, fever, and abdominal cramps. A total of eleven stool specimens was

An epidemic curve of cases by date of onset of illness is shown in Figure 1. It illustrates a sharp rise in the number of cases from 24 October followed by a sudden drop in case numbers on 27 October, suggesting a common point source of infection. The food was consumed at 12:00 on 24 October 2014; the index cases reported symptoms a few hours later. The last cases presented on 27 October 2014. These timelines indicate a maximum incubation period of 72 hours which correlates with the incubation period for non-typhoidal *Salmonella* spp. (6 to 72 hours) which was isolated in all stool specimens tested, and from food samples (samp and beans).

The school has two full-time food handlers who maintain the catering service of the school feeding scheme. On 24 October 2014 one of the food handlers reported sick and a friend was requested to assist in her absence. Samp, beans and apples were served for lunch. The substitute food handler took the leftover food home and served her family of five. All family members became ill after consuming the meal and presented to the hospital with symptoms similar to those reported by the

cases from the school. One of her children, a 4-year-old, died at home.

The laboratory results and the results of the epidemiological investigation strongly suggest contamination of the food served at the school on 24 October 2014 as the source of infection and cause of the outbreak. Such foodborne disease outbreaks can be prevented by adherence to basic food safety guidelines, including:

- Washing hands with soap and water before handling food, during food preparation and after using the toilet.
- Keeping food preparation areas and equipment properly sanitized and free of insects, pests and animals.
- Separation of raw (poultry, meat and seafood) and cooked foods by using separate utensils and equipment for raw foods and separate raw food containers for storage.
- Cooking food to a temperature of at least 70° C and reheat cooked food thoroughly.
- Storage of food at safe temperatures. Do not leave cooked food at room temperature for >2 hours. Promptly refrigerate all perishable food (<5° C if possible). Keep cooked food hot (60° C) prior to serving.
- Using safe water for cooking and washing vegetables and utensils.

Source: Division of Public Health Surveillance and Response, SA-FELTP, and Centre for Enteric Diseases, NICD-NHLS; Rustenburg Hospital, Charlotte Maxeke Academic Hospital and Johannesburg Infection Control, NHLS; Provincial and District Department of Health Communicable Disease Control, North West Province

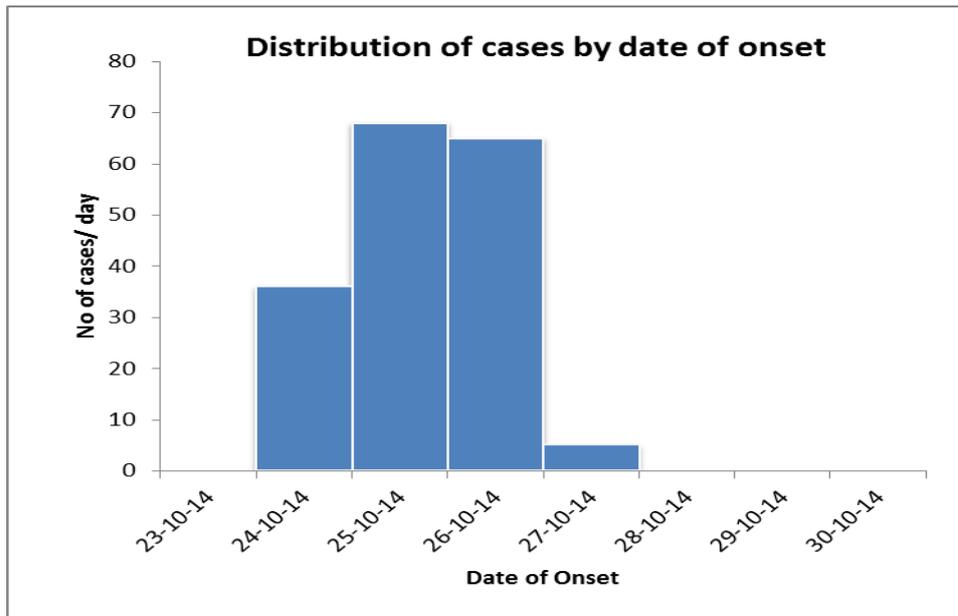


Figure 1. Epidemic curve of cases by date of onset, *Salmonella* Heidelberg foodborne disease outbreak, Koster, October 2014