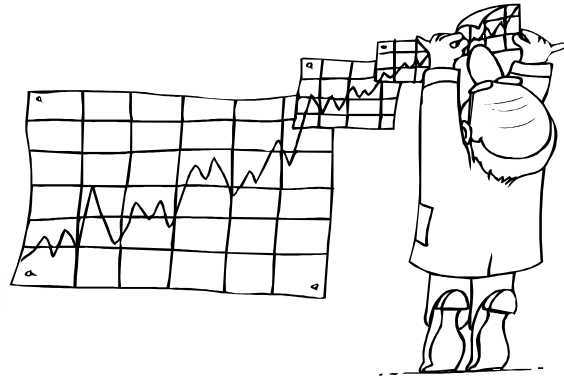




health

Department:
Health
REPUBLIC OF SOUTH AFRICA



STATISTICAL NOTES

January 2008

Welcome to 1st edition of Statistical Notes!

DIARRHOEAL OUTBREAK IN STANDERTON, MPUMALANGA

1. BACKGROUND

An outbreak of diarrhoeal disease was reported in Standerton, Mpumalanga Province. During the week of 6 -14 December 2007. A gradual increase in the number of cases of diarrhoeal disease was detected through weekly surveillance reports in Lekwa sub-district of Standerton. This was the second major diarrhoeal disease outbreak reported in the same province within a two month period.

Daily surveillance reviews were conducted from the 14th December 2007 and all clinics were alerted on the outbreak. Health Care facilities were requested to collect stool specimens from all patients presenting with diarrhoea. Water samples for microbiological testing were collected on 16 December 2007 and sent to the National Health Laboratory Service (NHLS) in Ermelo for testing. The overall public health response was coordinated by members of the Provincial and District Outbreak Response Teams, the District Joint Operational Committee (JOC) and members of the National Outbreak Response Team.

2. INTERVENTIONS

2.1 Surveillance

2.1.1 Distribution of cases by epidemiological week

As on 01st January 2008, a cumulative of 3 173 cases and ten deaths had been reported to the Standerton Department of Health. However, of this cumulative figure, only 1 141 cases appeared on the line lists submitted to the Communicable Disease Control Unit. Under normal circumstances, the weekly average number of diarrhoea cases reported by the public health facilities is 16 as observed from week 39 to week 44 (Figure 1). However, an increase in the number of cases was observed from week 45 with marked upsurge during weeks 49 and 50.

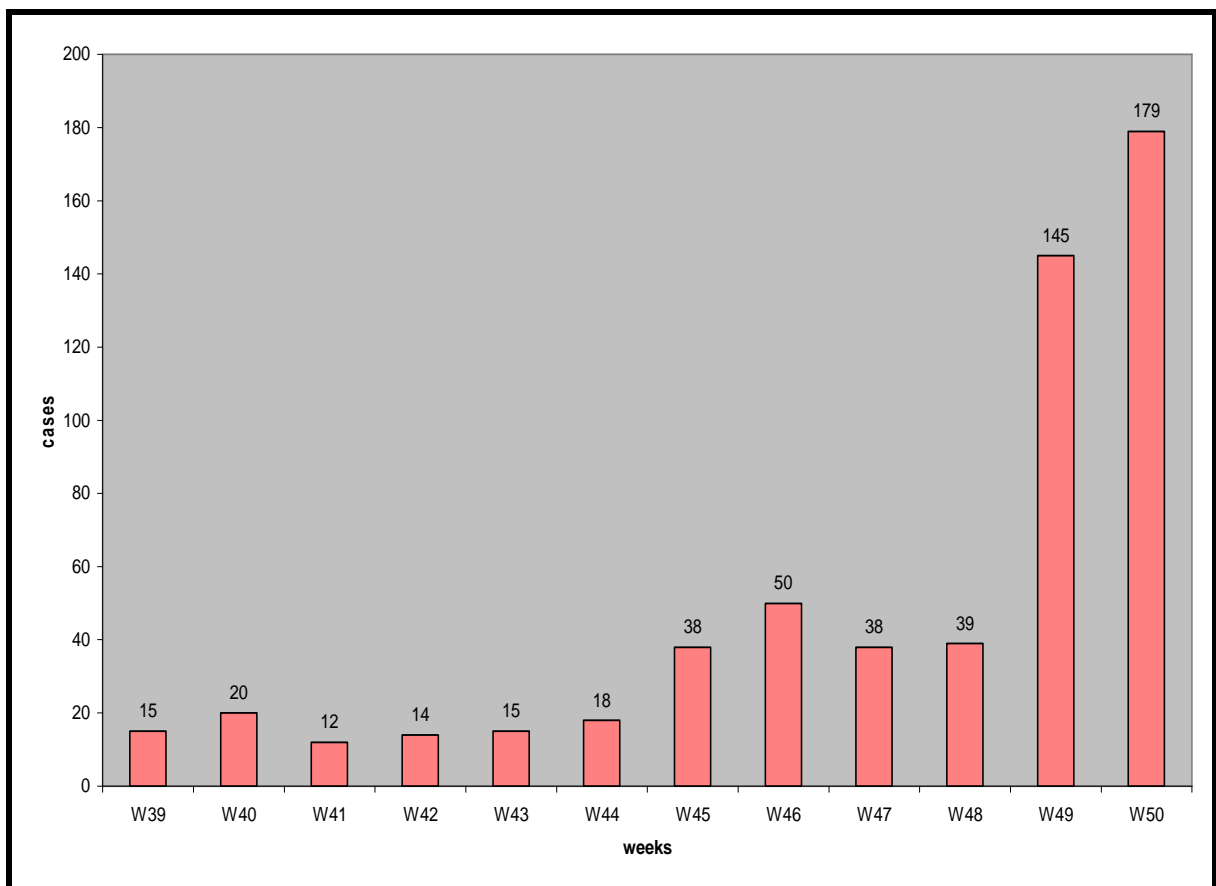


Figure 1: Weekly distribution of diarrhoea cases from the public health facilities in Standerton area between week 39 and week 50, December 2007

Source: Mpumalanga Department of Health and Social Services

2.1.2 Distribution of cases by date of onset

Figure 2 depicts the daily distribution of diarrhoea cases by date of onset. Of the 1 141 cases on the line list only 656 indicated the date of onset. Cases gradually started rising and peaked on the 13 December 2007 and thereafter started declining.

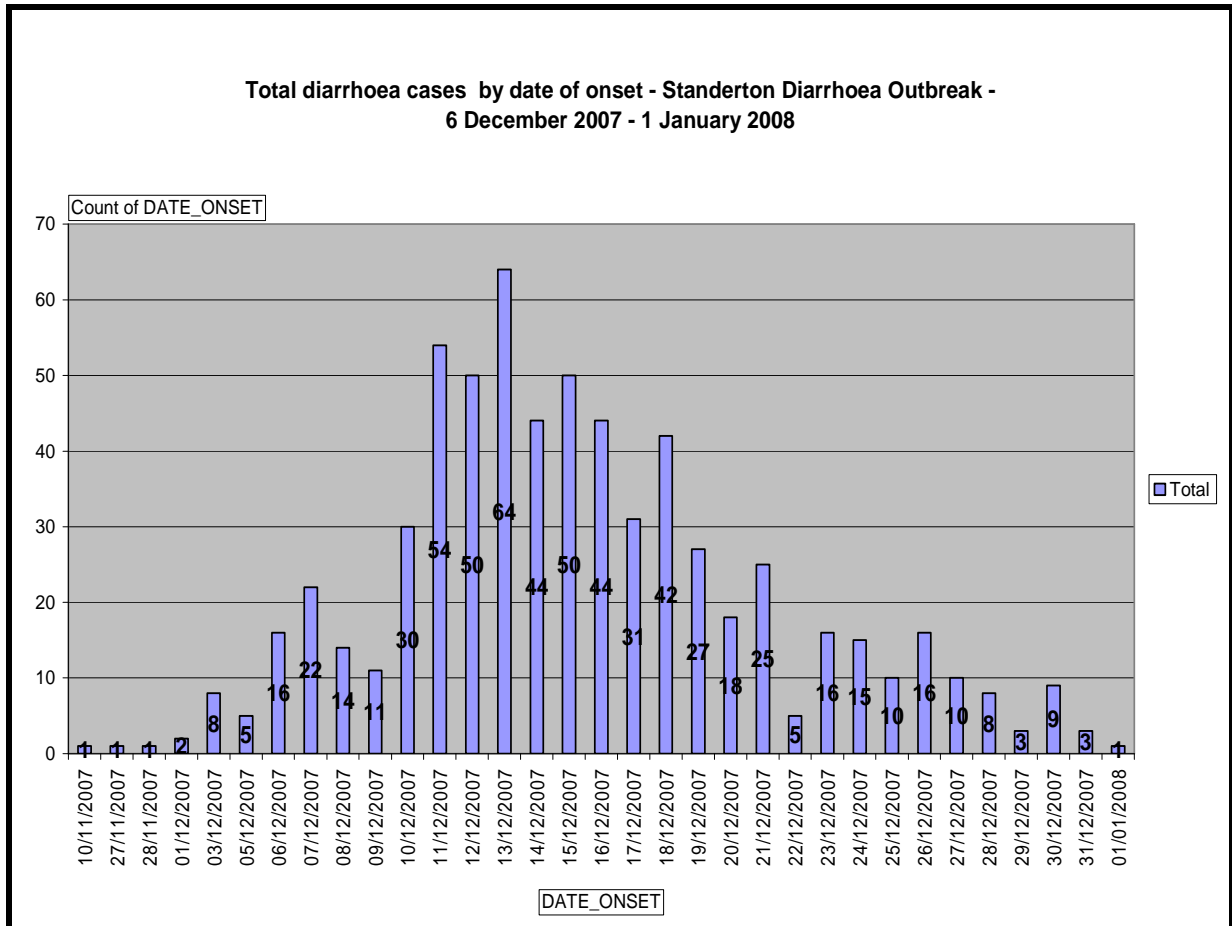


Figure 2: Total diarrhoea cases by date of onset, Standerton, 6 December 2007 to 01 January 2008.

Source: Mpumalanga Department of Health and Social Services

2.1.3 Distribution of cases by sex and age

Of the 1 141 cases reported, (55%) were females and males (45%). Only 497 of the cases indicated the age, (21%) were less than 5 years old.

2.1.4 Distribution of cases by health facility

The distribution of diarrhoea cases seen in public health facilities in Standerton is shown in figure 3. Of the 1 140 cases only 583 indicated the health facility where treatment was offered. Most of the patients (55%) were seen at Standerton Hospital.

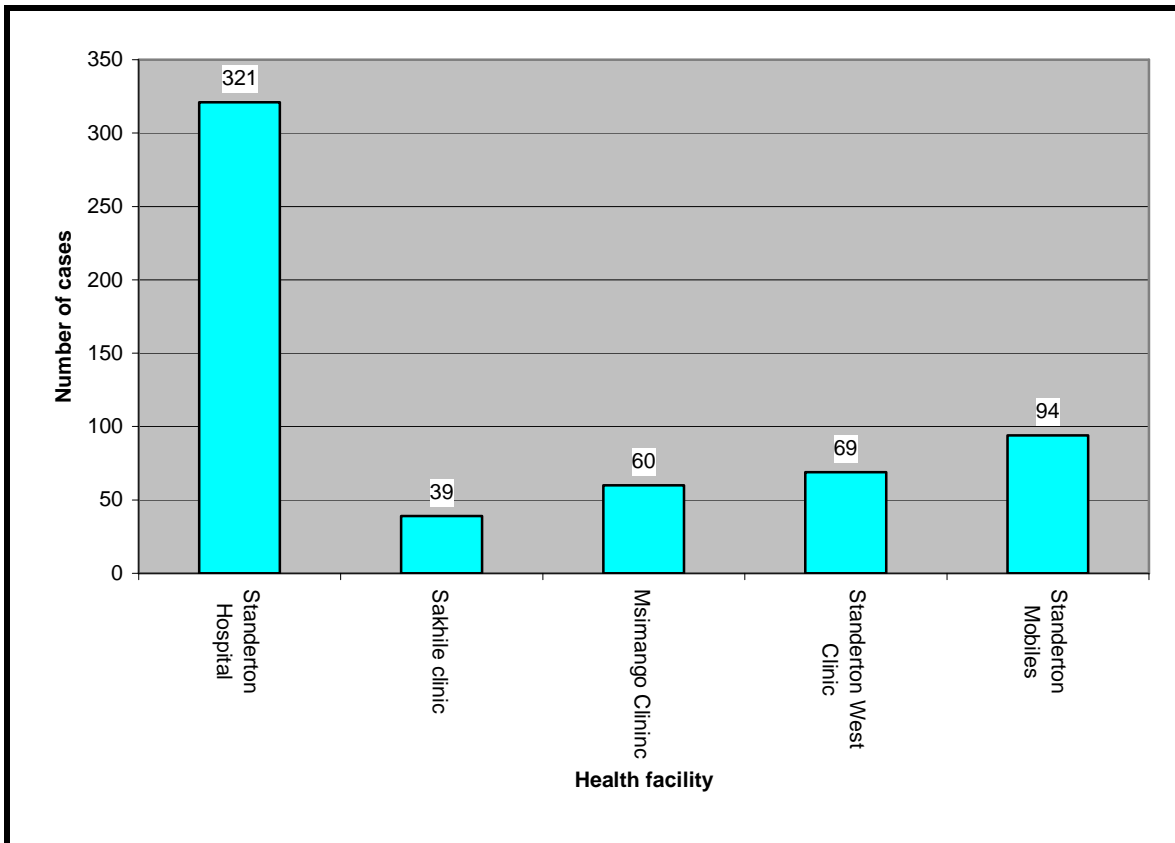


Figure 3: Total number of cases seen by public health facilities in Standerton, December 2007 to 01 January 2008

Source: Mpumalanga Department of Health and Social Services – CDC

2.1.5 Distribution of cases by place of residence

The distribution of cases by residence is illustrated in figure 4 below. Of the total 1 141 cases only 775 had their residential addresses recorded. The most affected area was the Standerton Town area, followed by Sakhile.

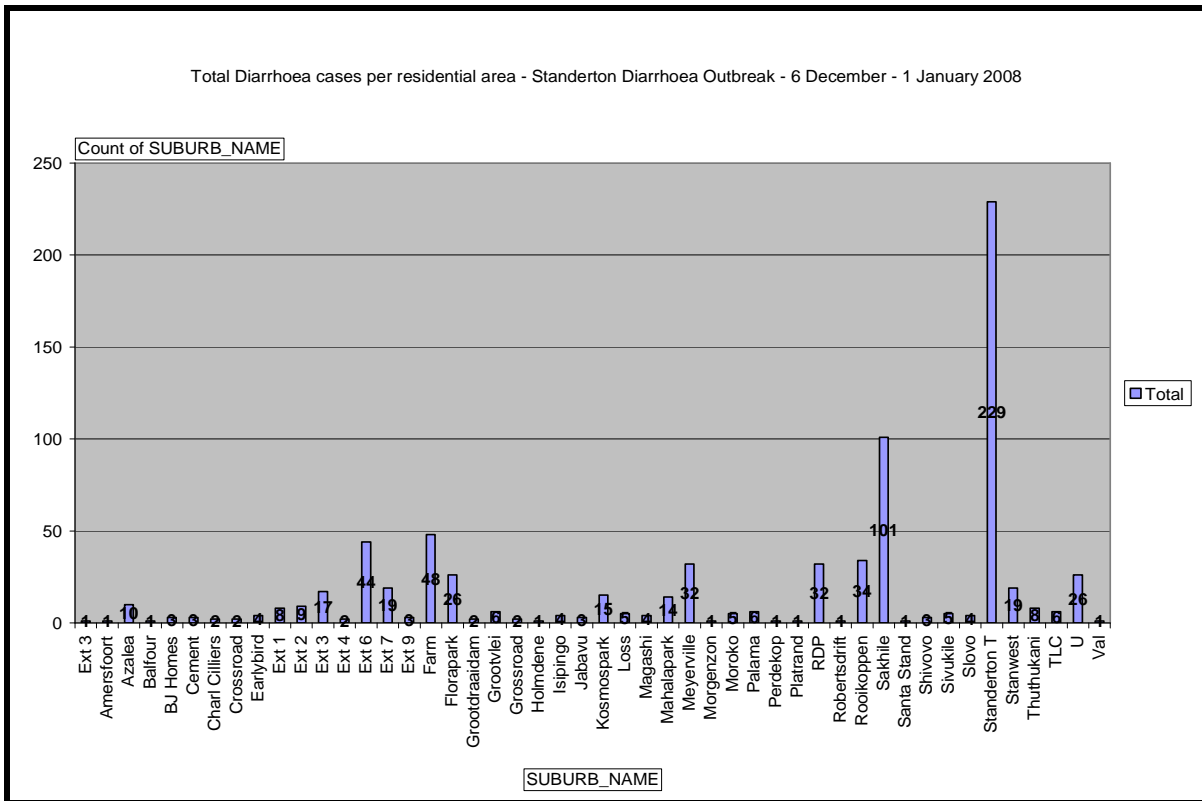


Figure 4: Distribution of diarrhoea cases by place of residence, Standerton 6 December 2007 to 01 January 2008.

Source: Mpumalanga Department of Health and Social Services – CDC

2.2 Case Management

Cases were managed according to the Standard Operational Procedures (SOP). With the exception of 108 cases that were admitted, the rest were managed on outpatient basis. Strict infection control measures were overseen by the hospital Infection Control staff.

Laboratory tests and results

As of December 24th 2007, a total of 71 stool specimens were received by the local National Health Laboratory Service (NHLS) and a private laboratory for bacterial culture, parasite, and enteric virus detection. A diverse group of diarrhoeal pathogens were isolated including *Shigella flexneri* (n=8), *Shigella sonnei* (n=1), *Shigella boydii* (n=1), *Shigella* spp (n=1), *Salmonella* spp (n=4), and rotavirus (n=2).

Review of the deaths that occurred during diarrhoea outbreak from 06 December-21 December 2007

Record review of the deaths that occurred between 06 December and 21 December 2007 was conducted on six of the ten patients that died. A summary of findings is presented below:

- All the deaths occurred within seven days of admission (between the 11th and the 19th of December 2007).
- With the exception of one child (9 months), the rest were adults;
- All cases presented with diarrhoea, plus vomiting
- No stool specimens were collected for laboratory testing
- On review of previous medical history, three of the patients had underlying medical problems; one was on treatment for HIV, another on treatment for meningitis and the third patient was on treatment for PTB. The medical history of the remaining three patients was not available.

Based on the findings above the fact that no stool specimens were collected for laboratory testing, it cannot be concluded that these deaths were solely as a result of this outbreak.

2.3 Environmental Health

The Environmental Health Practitioners worked with the Department of Water Affairs and Forestry and the Department of Agriculture to investigate the cause of this outbreak. Samples were collected from the food outlets, abattoirs, water and sewerage purification plants.

The Lekwa Municipality had been collecting water samples weekly from August 2007 to monitor the water quality. Complaints of diarrhoea from community members during the weekend of the 10th December 2007 prompted the municipality to intensify the monitoring of water quality.

- The Department of Water Affairs and Forestry collected water samples from the storm water drainage; the water was highly contaminated.

- Two water samples collected from the reservoir in Standerton Hospital tested positive for *Escherichia coli*. It was recommended that the water in the reservoir be flushed out and the reservoir treated with chlorine.
- Water samples from the Lekwa purification plants were collected both for residual chlorine and microbial testing. Of the 5 samples collected for residual chlorine testing, 3 complied with the standard requirements. As a general guideline, drinking water should contain 2 to 3 parts per million (ppm) chlorine. One sample collected from the water purification plant tested 1, 5 ppm for residual chlorine. In addition, tests done at areas far away from the purification plant (Rooikoppen, Ext 6 & 7) tested zero ppm. It was therefore recommended that chlorine levels at the plant be increased to 3 ppm for eight hours, and thereafter be reduced to 2 ppm.

2.4 Health Promotion

Public awareness campaigns were conducted in the sub district, targeting the high risk areas as identified in the CDC surveillance report. Training on hygiene and sanitation was provided to councilors, health workers and home-based care workers. The community was advised to seek medical attention immediately on recognition of signs and symptoms.

3. Conclusions

Measures put in place through a multi-sectoral approach so far appear to be contributing towards the control of the diarrhoeal outbreak – cases are reducing. The intensification of control measures at household and community levels, monitoring the environment, ongoing surveillance, active participation of community members and provision of a permanent safe water supply to the Standerton community will enhance the gains made and reduce on the frequency of similar outbreaks in the future.