

Situational Report			
Outbreak Name	Listeriosis	Country affected	South Africa
Date & Time of report	20 April 2018	Investigation start date	August 2017
Prepared by	National Listeria Incident Management Team (IMT)		

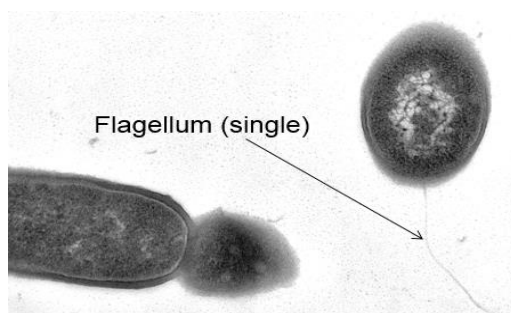


Figure 1 (left). Electron micrograph showing two *Listeria monocytogenes* bacteria, illustrating the single 'flagellum' that makes the organism motile (courtesy Dr Monica Birkhead, NICD)

## 1. HIGHLIGHTS

- A multisectoral incident management team (IMT) has been formed by the National Department of Health (NDoH) to strengthen co-ordination of outbreak response and strengthen health systems to prevent future outbreaks. Funding is being sourced.
- The number of cases of laboratory-confirmed listeriosis reported per week has decreased since the implicated products were recalled on 04 March 2018, with eight additional cases reported this week. Of the eight cases reported this week, one case occurred in October 2017 and was retrospectively reported.
- Since the recall, a total of 50 cases have been reported
  - a. Twenty-four (48%) were among neonates  $\leq 28$  days old
  - b. Three (6%) were among children age 1 month to 14 years old
- As of 17 April 2018, a total of 1 019 laboratory-confirmed listeriosis cases have been reported to NICD since 01 January 2017.

## 2. BACKGROUND

Listeriosis was not notifiable until 15 December 2017. Prior to 2017, an average of 60 to 80 laboratory-confirmed listeriosis cases per year (approximately 1 per week), were reported in South Africa. In July 2017, an increase in laboratory-confirmed cases of listeriosis was reported to National Institute for Communicable Diseases (NICD) which was followed by investigations into the reported increase. On 05 December 2017, the listeriosis outbreak was declared by the Minister of Health, Dr. Aaron Motsoaledi. The source of the outbreak was identified as ready-to-eat processed meat products manufactured at Enterprise Foods' Polokwane production facility. A recall of affected products was initiated on 05 March 2018.

## 3. EMERGENCY MANAGEMENT APPROACH

Emergency response activities that have been conducted by various stakeholders are continuing and intensifying, including surveillance (detection and investigation of cases), risk communication activities, and food safety legislative review and reform. To inform and support these activities, additional activities will be implemented in a phased approach as follows:

- Phase 1: Identification of at-risk food processing plants, development of material and training of staff to support inspections of facilities
- Phase 2: Inspection of at-risk food processing plant and strengthening of district environmental health practitioners
- Phase 3: Reporting and consolidation of health system strengthening activities, and after action review.

## 4. PUBLIC HEALTH ACTION/RESPONSE INTERVENTIONS

### 1. CO-ORDINATION

A multi-sectoral incident management team (IMT) has been strengthened under the leadership of the Department of Health. This development builds on the initial EOC activation in December, and draws upon appropriate experts from key stakeholders, essential to the control of this emergency and with the skills to strengthen the system for future outbreaks of this nature.



An updated Listeriosis Emergency Response Plan (ERP, April 2018) has been developed and approved by the DG NDoH. The aim of the ERP is to intensify response activities to control and end the current listeriosis outbreak and strengthen health systems to prevent future outbreaks. Response activities are being directed by the designated Incident Manager according to the plan which includes a robust monitoring framework for tracking the progress.

A two-day combined meeting of provincial and national stakeholders including health promotion and communications staff, Communicable Disease Co-ordinators and environmental health practitioners, along with NICD and WHO technical experts will be held on 24/25 April to communicate details of the ERP.

A WHO Listeriosis Technical Meeting is taking place in Johannesburg on from 19-21 April 2018 attended by delegates from 16 countries from the SADC region and beyond. The aim of the meeting is to share experiences from South Africa, increase awareness of listeriosis and guide countries to start preparing contingency plans to respond and control listeriosis.

## 2. SURVEILLANCE

### Descriptive epidemiology

- 1 019 cases reported from 01 January 2017 to 17 April 2018. The number of reported cases has decreased since the implicated products were recalled on 04 March 2018 (Figure 1).
- Since week 9 (5 March 2018), cases per week have dropped to fewer than 15/week, with 8 cases reported in week 14. At the height of the outbreak, 30 or more cases were reported weekly.
- Neonates  $\leq 28$  days of age are the most affected age group (on account of increased vulnerability of pregnant women), followed by adults aged 15 – 49 years of age (Figure 2). Most cases have been reported from Gauteng Province (59%, 579/1 019), followed by Western Cape (13%, 127/1 019) and KwaZulu-Natal (7%, 73/1 019) provinces (Table 1).

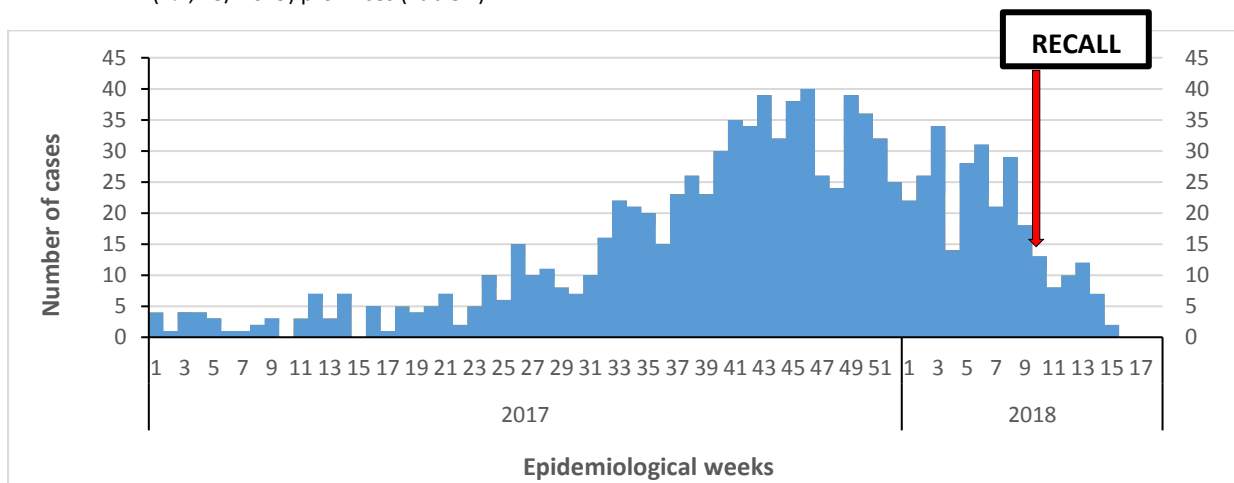


Figure 2: Epidemic curve of laboratory-confirmed listeriosis cases by epidemiological week (numbered weeks of the year, starting with week 1 in January) and date of sample collection, South Africa, 01 January 2017 to 17 April 2018 (n=1 019)

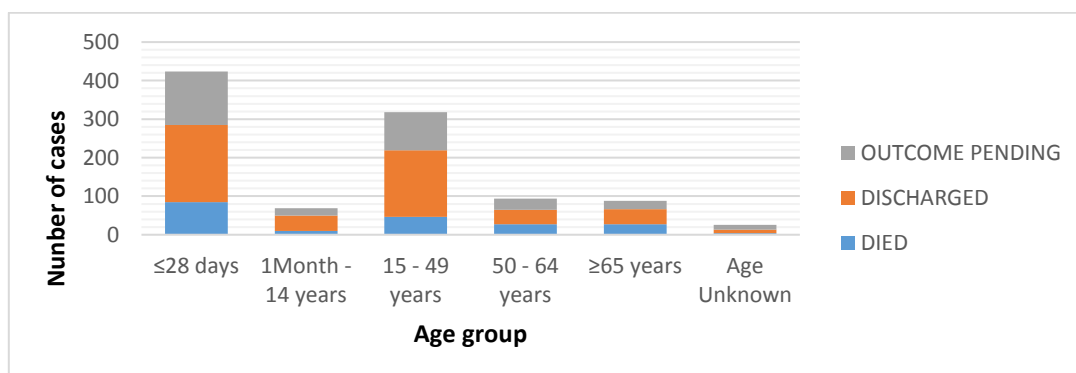


Figure 3: Age distribution and outcome of laboratory-confirmed listeriosis cases, South Africa, 01 January 2017 to 17 April 2018 (n=1 019)

**Table 1. Number of laboratory-confirmed listeriosis cases and deaths by province, where outcome data is available:**

Province	Outcome available (% of total cases in RSA)	Number of deaths (% of those with outcome available)	Total cases (% of cases in all provinces)
Gauteng	370 (62.0)	105 (28.4)	597 (58.6)
Western Cape	113 (89.0)	29 (25.7)	127 (12.5)
KwaZulu-Natal	47 (64.4)	18 (38.3)	73 (7.2)
Mpumalanga	45 (95.7)	11 (24.4)	47 (4.6)
Limpopo	33 (63.5)	7 (21.2)	52 (5.1)
Eastern Cape	30 (56.6)	11 (36.7)	53 (5.2)
Free State	30 (85.7)	8 (26.7)	35 (3.4)
North West	25 (86.2)	7 (28.0)	29 (2.8)
Northern Cape	5 (83.3)	3 (60.0)	6 (0.6)
<b>Total</b>	<b>698 (68.5)</b>	<b>199 (28.5)</b>	<b>1 019 (100)</b>

- Following a recall of implicated products, the number of cases are going down. However, it is anticipated that cases could still be reported for the following reasons:
  - a. The incubation period of listeriosis can be up to 70 days
  - b. The implicated products have a long shelf life and it is possibly that despite the recall some products have not been removed from retail or consumer's homes
  - c. Cross-contamination at retail and in the home can occur
- Analysis by exposure
  - a. Before recall
    - 106 interviews done before the recall
    - 90/106 (84%) of people interviewed reported consuming ready-to-eat processed meat products
    - 88/90 (97%) of people who consumed ready-to-eat processed meat products had consumed polony
  - o Post recall
    - 23 interviews done post recall.
    - 15/23 (65%) of ill people or their proxy reported consuming or handling polony prior to their illness onset

Monitoring for additional cases will continue, and any new cases reported will be interviewed.

### 3. LABORATORY

- NICD:
  - a. Of the 1 019 laboratory-confirmed cases, whole genome sequencing of 442 isolates has been completed to date, with 92% (406/442) identified as Sequence Type 6 (ST6), 8% (36/442) representing 11 other Sequence Types (ST1, ST101, ST2, ST204, ST219, ST224, ST3, ST5, ST54, ST8, and ST876).
  - b. Whole genome sequencing has also been conducted on 411 isolates from food and environmental samples to date. Thirty-eight isolates (9%) have been identified as ST6, and 19 Sequence Types account for the remainder.
  - c. All clinical isolates received at NICD will undergo whole genome sequencing.
- NHLS Public Health Laboratory:
  - a. In addition to standard food microbiology, enumerative microbiology for *Listeria*, aligned with the ISO 11290 methodology, has been introduced in the NHLS Public Health Laboratory at Wits Medical School.
  - b. Additional staffing and equipment requests have been submitted. Both staffing and equipment are required to ensure an adequate laboratory response to this outbreak.
  - c. Training programs have been developed to ensure that food specimens are collected and transported correctly and in accordance with legislative requirements.
  - d. All *Listeria monocytogenes* isolates from food samples are submitted to the NICD for whole genome sequencing.



### 3. ENVIRONMENTAL HEALTH and FOOD SAFETY

- a. A team of environmental health practitioners (EHPs) have been seconded from national, provincial and district authorities and from the South African Medical Health Services (SAMHS) to work full-time in the IMT.
- b. A risk evaluation framework has been drawn up to assist with identification of food processing plants for inspection. Lists of food processing plants have been requested from district municipalities.
- c. A checklist and inspection manual to facilitate inspections of high-risk facilities using the current legislative policy framework for food safety is being drawn up.

### 4. RECALL PROCESS

- a. The National Consumer Commission (NCC) has provided the International Network of Food Safety Authorities (INFOSAN) with required details regarding lists of recalled products and their export destinations.
- b. The Department of Environmental Affairs (DEA) is collating certificates of destruction for recalled products. The volumes of recalled and destroyed product is being calculated.

### 5. TRAINING/CAPACITY BUILDING

- a. A top-up skills training programme for environmental health offices and risk communication specialists has been developed for roll-out to all the provinces. The first training is scheduled for 03-04 May 2018 in Gauteng Province.
- b. A situational analysis of NHLS public health laboratories has been conducted. For the current Listeria outbreak response, the NHLS Public Health Laboratory in Prince Street, Durban has been identified as a second site for Listeria testing. Other NHLS public health laboratories across the country will be capacitated in due course.

### 6. RISK COMMUNICATION, COMMUNITY ENGAGEMENT & SOCIAL MOBILISATION

- a. Information and education material is being reviewed. The five keys to safer food messages have been translated and reviewed, prior to printing and distribution. A Five Keys to Safer Food poster has been shared with provinces to check the relevance and correctness of the language used.
- b. Over 145 health awareness campaigns and education programs have been conducted on listeriosis in the nine Provinces. The target audience includes members of the community, food handlers and various institutions (crèches, clinics, old age homes school learners, schools, hospitals, soup kitchens, restaurants, retail, butcheries, fisherman's accommodation establishments, supermarkets, pension pay points, informal traders, bakeries, tuck shops & taverns) including employees within the various organs of state).
- c. IEC Materials were reprinted in municipalities and uploading on their websites and internal communications systems.

### 7. POLICY GUIDANCE and LEGISLATION

Training materials that outline the current food safety legislative framework including regulations governing the rights and duties of inspectors are being developed to support inspection teams. A technical Sub-Committee has been established to review and propose amendments to RSA food safety and outbreak response legislation.

## 5. CHALLENGES/GAPS

Initial funding to support the ERP has been obtained and authorised through the NDoH. Additional funding has been requested.

## 6. RECOMMENDATIONS & PRIORITY FOLLOW UP ACTIONS

Clinicians are requested to notify cases through the notifiable medical conditions (NMC) surveillance channels. NHLS and private clinical laboratories are requested to continue to send all *Listeria* spp. isolates to NICD to facilitate case monitoring and whole genome sequencing. All "ready to eat" food processing factories are advised to review their processes, to ensure that their package products are safe for distribution and consumption by the public.

## 7. CONCLUSIONS

The formation of a multisectoral incident management team, and development of a listeria emergency response plan will strengthen the response to the listeria outbreak, and contribute to health system strengthening to prevent future outbreaks.