



Situational Report			
Outbreak Name	Listeriosis	Country affected	South Africa
Date & Time of report	27 April 2018	Investigation start date	August 2017
Prepared by	National Listeria Incident Management Team (IMT)		

WHO Country Emergency Preparedness and Readiness Technical Meeting on Listeriosis Outbreak in collaboration with MoH and Partners,
FROM 19-21 APRIL 2018,
JOHANNESBURG, South Africa, Protea Hotel by Marriott O R Tambo Airport



1. HIGHLIGHTS

- Phase 1 of the listeriosis emergency response plan (ERP) to strengthen the response to the listeriosis outbreak has been completed. This includes development of the ERP, obtaining approval for the ERP, communication of the plan with provincial and district stakeholders, development of a risk-assessment tool to identify high-risk food production facilities for inspection, development of training material and checklists to support inspections of facilities, capacitation of NHLS food testing laboratories. These activities build on the response activities conducted before 9 April 2018, which include identification of the source, product recall and risk communication.
- A meeting to orient the provincial communications, environmental health and communicable disease authorities to the ERP was held on 24-25 April at NICD in Johannesburg. Agreement was reached on the role of the provinces and the next steps to implement the ERP.
- The number of cases of laboratory-confirmed listeriosis reported per week has decreased since the implicated products were recalled on 04 March 2018, with five additional cases reported this week (epidemiological week 15).
- As of 24 April 2018, a total of 1 024 laboratory-confirmed listeriosis cases have been reported to NICD since 01 January 2017. Since the recall 7 weeks ago, a total of 55 cases have been reported, whereas for the 7 weeks prior to the recall, 169 cases were reported. All cases that have been identified after the recall are being fully investigated.

2. BACKGROUND

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 04 March 2018.

3. EMERGENCY MANAGEMENT APPROACH

A multi-sectoral incident management team (IMT) that was formed under the leadership of the National Department of Health has commenced with implementation of the updated Listeriosis Emergency Response Plan. The plan was developed by the IMT and approved by the DG, NDoH on 20 April 2018. The aim of the plan is to control and end the current listeriosis outbreak, and to strengthen systems to facilitate prevention and early detection of outbreaks. To inform and support these aims, surveillance and investigation of cases of listeriosis and risk communication activities are ongoing. Additional activities to complement these are being conducted as follows:



- **Phase 1:** Development of the ERP, communication of the plan with provincial and district stakeholders, development of material and training of staff to support inspections of facilities identified as at-risk food processing plants;
- **Phase 2:** Inspection of at-risk food processing plant and strengthening the capacity 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

The IMT continues to meet daily to co-ordinate activities of team members. A summary of the ERP has been shared widely, and is available on the NDoH and NICD websites. The ERP was presented and discussed at a two-day meeting on 24/25 April 2018 of NICD and WHO technical experts, national and provincial stakeholders including health promotion and communications staff, communicable disease co-ordinators and environmental health practitioners.

A WHO Listeriosis Technical Meeting took place in Johannesburg on from 19-21 April 2018 attended by 57 delegates from 16 countries from the SADC region and beyond. The aim of the meeting was to share experiences from South Africa, to increase awareness of listeriosis and to guide countries through the preparation of contingency plans to respond to and control listeriosis. Following the meeting countries have committed to developing preparedness and contingency plans to respond to listeriosis.

2. SURVEILLANCE

Descriptive epidemiology

1 024 cases have been reported from 01 January 2017 to 24 April 2018. The number of reported cases has decreased since the implicated products were recalled on 04 March 2018 (Figure 1). Neonates ≤ 28 days of age are the most affected age group, followed by adults aged 15 – 49 years of age (Figure 2). Most cases have been reported from Gauteng Province (59%, 601/1 024), followed by Western Cape (13%, 128/1 024) and KwaZulu-Natal (7%, 73/1 024) provinces (Table 1).

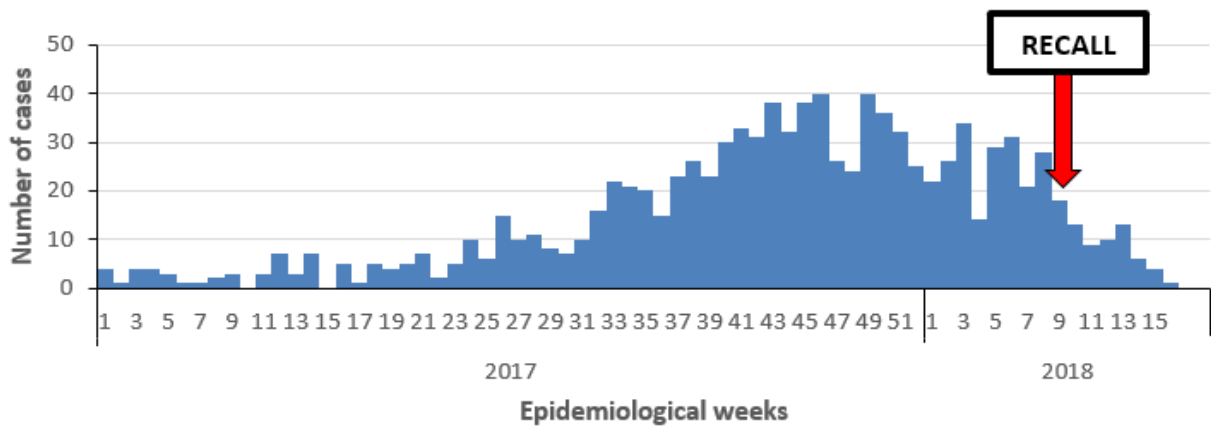


Figure 2: Epidemic curve of laboratory-confirmed listeriosis cases by epidemiological week (numbered weeks of the year, starting with week 1 in January) listed according to date of sample collection, South Africa, 01 January 2017 to 24 April 2018 (n=1 024)

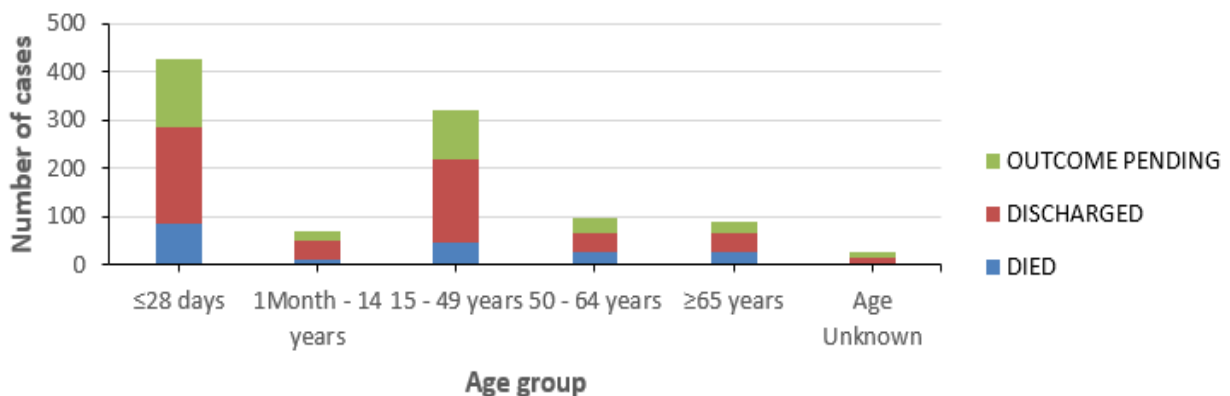


Figure 3: Age distribution and outcome of laboratory-confirmed listeriosis cases, South Africa, 01 January 2017 to 24 April 2018
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2018 (n=1 024)

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

Province	Outcome available (as a % of total cases in RSA)	Number of deaths (% of those with outcome available)	# cases (% of total cases)
Gauteng	372 (61.9)	106 (28.4)	601 (58.6)
Western Cape	113 (88.3)	29 (25.7)	128 (12.5)
KwaZulu-Natal	47 (64.4)	18 (38.3)	73 (7.1)
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)
Total	700 (68.4)	200 (28.6)	1 024

- 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 (01 January 2017 – 04 March 2018)
 - 106 interviews were done on persons who were diagnosed with listeriosis 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
 - b. Post recall (05 March 2018 to date)
 - 27 interviews have been done on persons who were diagnosed with listeriosis after the recall
 - 17/27 (63%) 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. Whole-genome sequencing analysis has been performed on 521 clinical isolates to date. Of these, 85% (443/521) were identified as sequence type (ST) 6. The remaining isolates (15%, 83/521) represented 19 sequence types including, ST1, ST54, ST876, ST2, ST5, ST204, ST219, ST224, ST71, ST101, ST121, ST155, ST3, ST403, ST515, ST7, ST8 and ST88.
 - b. Whole genome sequencing has been performed on 595 food and environmental isolates. Of these, 13% (79/595) were identified as ST6. The remaining isolates (87%, 516/595) represented 26 sequence types, including ST20, ST1, ST121, ST5, ST321, ST9, ST155, ST2, ST3, ST87, ST120, ST378, ST101, ST108, ST2288, ST31, ST7, ST11, ST122, ST14, ST37, ST4, ST54, ST76 and ST88.
 - c. All clinical isolates received at NICD are undergoing whole genome sequencing.
 - d. For the purposes of assessing linkage of *Listeria monocytogenes* strains to the South African outbreak, the NICD has deposited 10 representative ST6 sequences in the public GenBank - NCBI database (<https://www.ncbi.nlm.nih.gov/Traces/study/?acc=SRP142281>). Please contact Dr Juno Thomas (junot@nicd.ac.za) regarding sequencing queries.
- NHLS Public Health Laboratory:
 - a. Further refinements to food microbiology test procedures including enumerative microbiology for *Listeria*, aligned with the ISO 11290 methodology, and PCR have been made.
 - b. Staff from the NHLS KwaZulu-Natal public health laboratory in Prince Street have been trained in enumerative microbiology at the NHLS Public Health Laboratory in Johannesburg from 23-25 April. The



KZN laboratory is expected to commence with enumerative microbiology for *Listeria* from 7 May 2018.

- c. Standard operating procedures for environmental and food specimen collection have been developed. Equipment is being purchased to support Phase 2 testing of high-risk factories.
- 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 full complement of seconded environmental health practitioners have been secured from the South African Military Health Services, as well as provincial and district authorities.
- b. A risk evaluation framework and questionnaire to assist with identification of high-risk food processing plants for inspection was shared with attendees at the stakeholders meeting, 24-25 April 2018. The questionnaire is being distributed to provincial and district environmental health practitioners. Completed risk profiles are requested by 3 May 2018.
- c. A checklist and inspection manual to facilitate inspections of high-risk facilities using the current legislative policy framework for food safety was presented at the stakeholders meeting, 24-25 April 2018.
- d. A team of food safety experts including WHO, national, provincial and district food safety experts will visit Tiger Brands and RCL production facilities during the week of 2-4 May

4. RECALL PROCESS

- a. The National Consumer Commission (NCC) and the Department of Environmental Affairs (DEA) continue to obtain details regarding the recall and destruction of affected food products. Affected products are being warehoused and destroyed at a rate of 80 tons/day.

5. TRAINING/CAPACITY BUILDING

- a. A top-up skills training programme for environmental health offices and risk communication specialists continues to be refined following input from provincial stakeholders at the meeting 24-25 April 2018.

6. RISK COMMUNICATION, COMMUNITY ENGAGEMENT & SOCIAL MOBILISATION

- a. A risk communications media package including five keys to safer food was shared at the meeting on 24-25 April with the provincial focal points for dissemination. Community engagement has started in Gauteng area after training of volunteers on prevention and control. Community visits and health talk around the country are continuing.
- b. Printing of additional IEC materials is ongoing

7. POLICY GUIDANCE and LEGISLATION

- a. Training materials that outline the current food safety legislative framework including regulations governing the rights and duties of inspectors were shared with the provinces at the meeting 24-25 April. 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. Motivation for additional funding is being compiled.

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 packaged products are safe for distribution and consumption by the public.

7. CONCLUSIONS

Phase 1 of the ERP has been completed, including development and sharing of the plan with provincial stakeholders including provincial communications staff, communicable diseases co-ordinators and environmental health practitioners, preparation of training material for district and provincial environmental health practitioners, provision of export volumes and destinations of affected products to INFOSAN. Phase 2 commences during the week of 2 May with visits to Tiger



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Brands and RCL facilities and commencement of training and inspection activities.