

Changing Epidemiology of Listeria Outbreaks and Recalls: A review of ProMED reports from 1996- 2018

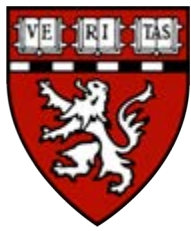
Angel N. Desai, MD , Amylee Anyoha, Lawrence C. Madoff, MD, Britta
Lassmann, MD

Brigham & Women's Hospital, Division of Infectious Diseases, Boston, MA

Tufts University, Boston, MA

University of Massachusetts, Division of Infectious Diseases, Worcester, MA

International Society for Infectious Diseases, Boston, MA



INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES

Background

- *Listeria monocytogenes* is an important cause of foodborne outbreaks worldwide
- Several, recent large-scale outbreaks
- Variety of food sources implicated



Stone/Getty images 2014



INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES

Published Date: 2017-10-25 11:25:23

Subject: PRO/AH/EDR> **Listeriosis** - South Africa: increasing incidence

Archive Number: 20171025.5402225

LISTERIOSIS - SOUTH AFRICA: INCREASING INCIDENCE

A ProMED-mail post

<http://www.promedmail.org>

ProMED-mail is a program of the
International Society for Infectious Diseases

<http://www.isid.org>

Published Date: 2018-04-10 15:11:20

Subject: PRO/AH/EDR> **Listeriosis** - Australia (04): fatal, cantaloupe, international distribution, WHO

Archive Number: 20180410.5736603

LISTERIOSIS - AUSTRALIA (04): FATAL, CANTALOUPE, INTERNATIONAL DISTRIBUTION, WHO RESPONSE

Published Date: 2017-03-12 18:42:17

Subject: PRO/AH/EDR> **Listeriosis** - USA (02): fatal, unpast soft cheese, aged 60 days, recall

Archive Number: 20170312.4896013

LISTERIOSIS - USA (02): FATAL, UNPASTEURIZED SOFT CHEESE, AGED 60 DAYS, RECALL

A ProMED-mail post

<http://www.promedmail.org>

ProMED-mail is a program of the
International Society for Infectious Diseases

<http://www.isid.org>

response, Disease Outbreak News (DONs) [edited]

[listeriosis-australia/en/](http://www.isid.org/listeriosis-australia/en/)

[1]

Date: Thu 9 Mar 2017

Source: CDC Listeria (**Listeriosis**) [edited]

<https://www.cdc.gov/listeria/outbreaks/soft-cheese-03-17/index.html>



**INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES**

Objective

- Identify key epidemiologic trends in global *Listeria* outbreaks
- Use ProMED as source of outbreak information



INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES

Methods

- Keywords “listeria,” and “listeriosis,” were utilized in the ProMED search engine from January 1996-March 2018.
- Report date, countries involved, source, suspected and confirmed case counts, and fatalities were extracted.
- Three investigators independently reviewed the database.
- Number of events and countries involved over time were normalized to the total number of ProMED events each year and compared using a two sided t-test; $p < 0.05$ was considered statistically significant.



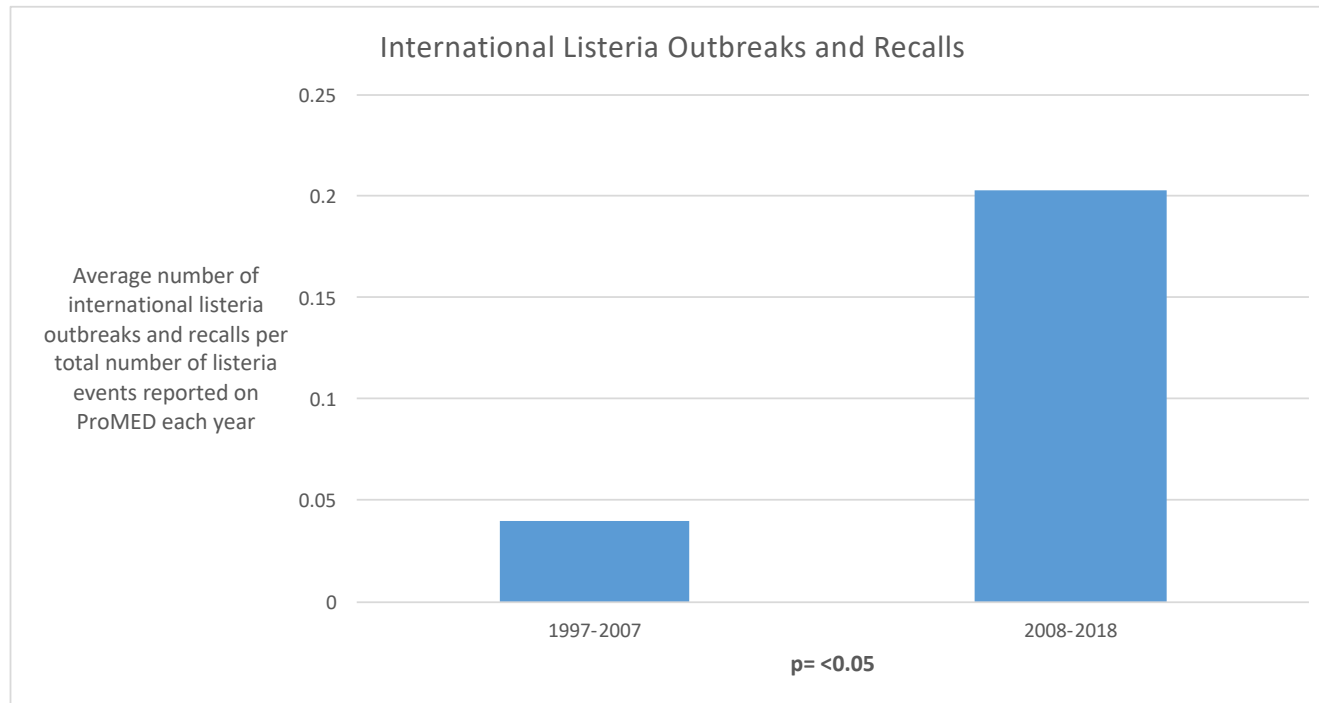
INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES

Results

Table I: Characteristics of Study Population	Report Counts (%)	Notes
120 Events		
Outbreak Events	91 (76%)	
Recalls	29 (24%)	
Identification of food source	105 (87%)	
Hospital-acquired infections	8 (6.6 %)	
“Atypical” food sources	27 (26%)	
Events involving multiple countries	17 (14%)	14/17 (82%) of multi-national events occurred between 2008-2018
Case-Fatality Rate, overall	409/1964 (21%)	
Outbreak events 1998-2007	49	
Outbreak events 2008-2018	71	
Delta		p-value <0.05

Results

Figure I: ProMED Event Reports Stratified by 10-year period



**INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES**

Results

Table II: Outbreak Sources Identified by ProMED Reports

Foods historically associated with Listeria outbreaks
Ready-to-eat deli meats and hot dogs
Refrigerated pâtés and meat spreads
Unpasteurized (raw) milk and dairy products
Soft cheeses such as queso fresco, Feta, Brie, Camembert
Refrigerated smoked seafood

Additional food products associated with Listeria events reported in ProMED
Sprouts, chopped lettuce, chopped celery, packaged salad
Cantaloupe (whole and pre-cut), stone fruits (nectarines, peaches, plums and pluots)
Sliced apples, Caramel apples
Ready made sandwiches, wraps, salads and bakery products; chicken burritos
Asparagus soup Frozen fruits and vegetables, frozen french fried potatoes
Mashed potatoes
Ice cream, Profiteroles

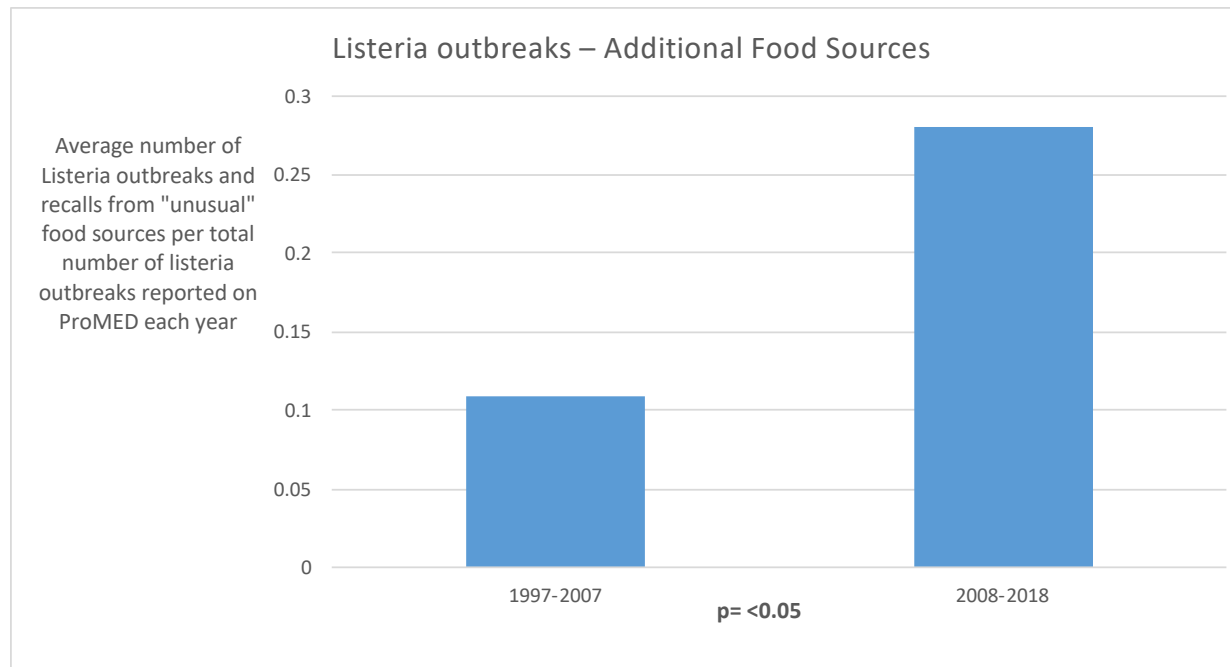
- 26% of outbreaks on ProMED were associated with “atypical” food sources



INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES

Results

Figure I: ProMED Event Reports of additional food sources



Conclusions

- Epidemiology of *Listeria* infections has been changing over time
- More events are being reported
- Variety of implicated food sources
- Changes in food production, distribution, and improved diagnostics may contribute to observed trends
- Open data sharing and communication across borders is critical to ensure timely investigation and recall



INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES

Acknowledgments

- Amylee Anyoha
- Larry Madoff
- Britta Lassmann
- International Society for Infectious Diseases
- ProMED-mail
- Supported in part by NIAID T32 AI 007433



INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES

Questions?



INTERNATIONAL
SOCIETY
FOR INFECTIOUS
DISEASES