Zoonotic Diseases Series 6: Salmonellosis (Nontyphoidal)

**INFECTIOUS AGENT:** Salmonella enterica subspecies enterica is a gram-negative, rod-shaped bacillus. More than 2,500 Salmonella serotypes have been identified, but only a small proportion are commonly associated with human illness. Nontyphoidal salmonellosis refers to illnesses caused by all serotypes of Salmonella except for Typhi, Paratyphi A, Paratyphi B (tartrate negative), and Paratyphi C.

**TRANSMISSION:** Usually through the consumption of food or water contaminated with animal feces. Transmission can also occur through direct contact with infected animals or their environment and directly between humans.

**EPIDEMIOLOGY:** Nontyphoidal salmonellae are one of the leading causes of bacterial diarrhea worldwide; they are estimated to cause approximately 153 million cases of gastroenteritis and 57,000 deaths globally each year. The risk of Salmonella infection among travelers returning to the United States varies by region of the world visited; the highest risk is among those who visited Africa (incidence of 25.8 cases per 100,000 air travelers), Latin America and the Caribbean (7.1 cases per 100,000), and Asia (5.8 cases per 100,000). A systematic review of travelers’ diarrhea studies found that Salmonella (including typhoidal serotypes) was detected in <5% of patients who had traveled to Latin America, the Caribbean, and South Asia and in 5%–15% of patients who had traveled to Africa or Southeast Asia. Salmonella infection and carriage has been reported among internationally adopted children.

**CLINICAL PRESENTATION:** Gastroenteritis is the most common clinical presentation of nontyphoidal Salmonella infection. The incubation period is typically 6–72 hours; although atypical, illness has been documented even 16 days after exposure. Illness is commonly manifested as acute diarrhea, abdominal pain, fever, and vomiting. The illness usually lasts 4–7 days, and most people recover without treatment. Approximately 8% of people develop bacteremia or focal infection (such as meningitis, osteomyelitis, or septic arthritis). Serotypes more frequently associated with invasive infection include Dublin, Choleraesuis, and Typhimurium variant ST313 (currently only found in sub-Saharan Africa and Brazil). Rates of invasive infections and death are generally higher among infants, older adults, and people with immunosuppressive conditions (including HIV), hemoglobinopathies, and malignant neoplasms. Infection with antibiotic-resistant organisms has been associated with a higher risk of bloodstream infection and hospitalization.

A syndromic surveillance system is good for early detection of and response to public health events.

Sentinel surveillance occurs when selected health facilities (sentinel sites) form a network that reports on certain health conditions on a regular basis, for example, weekly. Reporting is mandatory whether or not there are cases to report.

Jamaica's sentinel surveillance system concentrates on visits to sentinel sites for health events and syndromes of national importance which are reported weekly (see pages 2 - 4). There are seventy-eight (78) reporting sentinel sites (hospitals and health centres) across Jamaica.
FEVER AND NEUROLOGICAL
Temperature of >38°C /100.4°F (or recent history of fever) in a previously healthy person with or without headache and vomiting. The person must also have meningeal irritation, convulsions, altered consciousness, altered sensory manifestations or paralysis (except AFP).

FEVER AND HAEMORRHAGIC
Temperature of >38°C /100.4°F (or recent history of fever) in a previously healthy person presenting with at least one haemorrhagic (bleeding) manifestation with or without jaundice.

FEVER AND JAUNDICE
Temperature of >38°C /100.4°F (or recent history of fever) in a previously healthy person presenting with jaundice.

The epidemic threshold is used to confirm the emergence of an epidemic in order to implement control measures. It is calculated using the mean reported cases per week plus 2 standard deviations.
NOTIFICATIONS - All clinical sites

INVESTIGATION REPORTS - Detailed Follow up for all Class One Events

HOSPITAL ACTIVE SURVEILLANCE - 30 sites. Actively pursued

SENTINEL REPORT - 78 sites. Automatic reporting
## CLASS ONE NOTIFIABLE EVENTS

<table>
<thead>
<tr>
<th>Class One Events</th>
<th>Confirmed YTD(\alpha)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CURRENT YEAR 2020</strong></td>
<td><strong>PREVIOUS YEAR 2019</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CLASS 1 EVENTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accidental Poisoning</td>
<td>55(^\beta)</td>
<td>65</td>
</tr>
<tr>
<td>Cholera</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Dengue Hemorrhagic Fever(^\gamma)</td>
<td>See Dengue page below</td>
<td>See Dengue page below</td>
</tr>
<tr>
<td>Hansen’s Disease (Leprosy)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>3</td>
<td>23</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Malaria (Imported)</td>
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<td>0</td>
</tr>
<tr>
<td>Meningitis (Clinically confirmed)</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td><strong>EXOTIC/UNUSUAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plague</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Meningococcal Meningitis</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neonatal Tetanus</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Typhoid Fever</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Meningitis H/Flu</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>HIGH MORBIDITY/ MORTALITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFP/Polio</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Congenital Rubella Syndrome</td>
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<td>0</td>
</tr>
<tr>
<td>Congenital Syphilis</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fever and Rash</td>
<td>Measles</td>
<td>0</td>
</tr>
<tr>
<td>Rubella</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Maternal Deaths(^\delta)</td>
<td>37</td>
<td>64</td>
</tr>
<tr>
<td>Ophthalmia Neonatorum</td>
<td>23</td>
<td>222</td>
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<td>Pertussis-like syndrome</td>
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<td>Rheumatic Fever</td>
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</tr>
<tr>
<td>Tetanus</td>
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<td>0</td>
</tr>
<tr>
<td>Tuberculosis</td>
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<td>54</td>
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<tr>
<td>Yellow Fever</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chikungunya(^\epsilon)</td>
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<td>7</td>
</tr>
<tr>
<td>Zika Virus(^\theta)</td>
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</tr>
</tbody>
</table>

AFP Field Guides from WHO indicate that for an effective surveillance system, detection rates for AFP should be 1/100,000 population under 15 years old (6 to 7) cases annually.

Pertussis-like syndrome and Tetanus are clinically confirmed classifications.

\(\gamma\) Dengue Hemorrhagic Fever data include Dengue related deaths;

\(\delta\) Figures include all deaths associated with pregnancy reported for the period.

\(\epsilon\) CHIKV IgM positive cases

\(\theta\) Zika PCR positive cases

\(\beta\) Updates made to prior weeks in 2020.

\(\alpha\) Figures are cumulative totals for all epidemiological weeks year to date.

**NA- Not Available**
NATIONAL SURVEILLANCE UNIT
INFLUENZA REPORT

November 15, 2020 – November 21, 2020 Epidemiological Week 47

<table>
<thead>
<tr>
<th>EW 47</th>
<th>YTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARI cases</td>
<td>7</td>
</tr>
<tr>
<td>Total Influenza positive Samples</td>
<td>0</td>
</tr>
<tr>
<td>Influenza A</td>
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</tr>
<tr>
<td>H3N2</td>
<td>0</td>
</tr>
<tr>
<td>H1N1pdm09</td>
<td>0</td>
</tr>
<tr>
<td>Not subtyped</td>
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</tr>
<tr>
<td>Influenza B</td>
<td>0</td>
</tr>
<tr>
<td>Parainfluenza</td>
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</tr>
</tbody>
</table>

Epi Week Summary

During EW 47, 7 (seven) SARI admissions were reported.

Caribbean Update EW 47

Caribbean: Influenza and other respiratory virus activity remained low in the subregion. In Haiti, SARI activity increased above epidemic levels.
NOTIFICATIONS
All clinical sites

INVESTIGATION REPORTS - Detailed Follow-up for all Class One Events

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Reported suspected and confirmed dengue with symptom onset in week 47 of 2020

<table>
<thead>
<tr>
<th></th>
<th>2020*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EW 47</td>
</tr>
<tr>
<td>Total Suspected Dengue Cases</td>
<td>0</td>
</tr>
<tr>
<td>Lab Confirmed Dengue cases</td>
<td>0</td>
</tr>
<tr>
<td>CONFIRMED Dengue Related Deaths</td>
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</tr>
</tbody>
</table>

Points to note:

- * figure as at November 23, 2020
- Only PCR positive dengue cases are reported as confirmed.
- IgM positive cases are classified as presumed dengue.

Suspected dengue cases for 2018 and 2019 versus monthly mean, alert, and epidemic thresholds

**Symptoms of Dengue fever**

- **Febrile phase**
  - sudden-onset fever
  - headache
  - mouth and nose bleeding
  - muscle and joint pains
- **Critical phase**
  - hypotension
  - pleural effusion
  - ascites
  - gastrointestinal bleeding
- **Recovery phase**
  - altered level of consciousness
  - seizures
  - itching
  - slow heart rate

Dengue Cases by Year: 2004-2020, Jamaica

**Suspected Dengue Cases for 2018 and 2019 versus monthly mean, alert, and epidemic thresholds**

- **2018 suspected dengue**
- **2019 Suspected Dengue**
- **2020**
- **Epidemic threshold**
- **Alert Threshold**
- **Monthly mean**

Month of onset

Number of Cases

- 0
- 500
- 1000
- 1500
- 2000
- 2500

Number of cases

- 0
- 2000
- 4000
- 6000
- 8000
- 10000
- 12000

Year

- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
- 2020

Number of cases

- JAN
- FEB
- MAR
- APR
- MAY
- JUN
- JUL
- AUG
- SEP
- OCT
- NOV
- DEC

Number of Cases

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Number of Cases
Background and objectives: Medical students are faced with life changing career decisions at the end of their training. This study’s objective was to identify the factors which influence medical students’ career selections in order to assist in guiding students when making this decision.

Method: This is a cross-sectional study and convenience sampling was employed from July to September 2019. The participants were given a questionnaire by a trained research assistant which was collected immediately. This took approximately ten minutes for completion.

Results: A total of 86 questionnaires were completed. Most final year medical students are interested in the specialties of orthopaedic surgery (20.5%), obstetrics and gynaecology (10.8%) and anaesthesiology (8.4%). The specialties of least interest were intensive care medicine (1.2%) and thoracic surgery (1.2%). The top three main reasons for the students’ choice of specialty were personal interest (94.1%), working hours (35.3%) and lifestyle (31.8%). While the three main deterrents as to why other specialties were not chosen were workload (61.2%), poor quality of life (52.9%), and no technical or surgical aspects (32.9%). Approximately half of the students were undecided as to where they would continue studies for specializing. Most of the remaining students planned to specialize abroad with the first choice being the United States of America.

Conclusion: The results suggest that most of the final year students know what they expect to specialize in after graduation. As 50% of the students were unsure as to where they would continue study, this an area in which they could be directed to the viable options for postgraduate training.