

WEEKLY EPIDEMIOLOGY BULLETIN

NATIONAL EPIDEMIOLOGY UNIT, MINISTRY OF HEALTH & WELLNESS, JAMAICA

EPI WEEK 15

Biological Weapons: Series 9 of 10: Botulism

Overview: Botulism is a rare but serious illness caused by a toxin that attacks the body's nerves. Symptoms of botulism usually start with weakness of the muscles that control the eyes, face, mouth, and throat. This weakness may spread to the neck, arms, torso, and legs. Botulism also can weaken the muscles involved in breathing, which can lead to difficulty breathing and even death.

About Botulism: Botulism ("BOT-choo-liz-um") is a rare but serious illness caused by a toxin that attacks the body's nerves and causes difficulty breathing, muscle paralysis, and even death. This toxin is made by *Clostridium botulinum* and sometimes *Clostridium butyricum* and *Clostridium baratii* bacteria. These bacteria can be spread by food and sometimes by other means. The bacteria that make botulinum toxin are found naturally in many places, but it's rare for them to make people sick. These bacteria make spores, which act like protective coatings. Spores help the bacteria survive in the environment, even in extreme conditions. The spores usually do not cause people to become sick, even when they're eaten. But under certain conditions, these spores can grow and make one of the most lethal toxins known. The conditions in which the spores can grow and make toxin are: **1.** Low-oxygen or no oxygen (anaerobic) environment. **2.** Low acid/Low sugar. **3.** Low salt. **4.** A certain temperature range. **5.** A certain amount of water.

Types of Botulism: The five main kinds of botulism are: **1. Foodborne botulism** can happen by eating foods that have been contaminated with botulinum toxin. Common sources of foodborne botulism are homemade foods that have been improperly canned, preserved, or fermented. Though uncommon, store-bought foods also can be contaminated with botulinum toxin. **2. Wound botulism** can happen if the spores of the bacteria get into a wound and make a toxin. People who inject drugs have a greater chance of getting wound botulism. Wound botulism has also occurred in people after a traumatic injury, such as a motorcycle accident, or surgery. **3. Infant botulism** can happen if the spores of the bacteria get into an infant's intestines. The spores grow and produce the toxin which causes illness. **4. Adult intestinal toxemia** (also known as adult intestinal colonization) botulism is a very rare kind of botulism that can happen if the spores of the bacteria get into an adult's intestines, grow, and produce the toxin (similar to infant botulism). Although we don't know why people get this kind of botulism, people who have serious health conditions that affect the gut may be more likely to get sick. **5. Iatrogenic botulism** can happen if too much botulinum toxin is injected for cosmetic reasons, such as for wrinkles, or medical reasons, such as for migraine headaches.

WANTED! Botulism
Clostridium botulinum (*C. botulinum*)
-Botulism occurs in the soil and affects the nervous system by producing a toxin.

Food-borne
-caused by food contaminated by the bacteria
-often from improperly processed canned foods or spoiled food

Wound
-*C. botulinum* enters a wound and creates a toxin

Infant
-primarily affects children under one years old
-ingestion of *C. botulinum* spores from the environment or specific foods (honey)
C. botulinum grows inside the intestines and releases a toxin

How does Botulism spread?
-the bacteria contaminates either food or a wound and produces a toxin
-CANNOT spread from person-to-person contact

Symptoms
-double or blurred vision
-droopy eyelids
-trouble swallowing
-dry mouth
-slurred speech
-muscle weakness that moves down the body

Infant Symptoms
-lethargic
-weak cry
-constipation
-poor muscle tone
-do not eat well

How many are affected?
-about 110 cases per year in the United States
-72 percent infant botulism
-25 percent food-borne botulism
-3 percent wound botulism

Degree of Damage
-High: it is likely botulism will harm someone.

Treatments
-use of an antitoxin
-ventilator
-proper canning techniques
-do not feed children under one year of age honey

Botulism bacteria is rod-shaped and grows best in low oxygen states. It contains spores which allows the bacteria to 1.0 µm

<https://www.cdc.gov/botulism/index.html>



SYNDROMES

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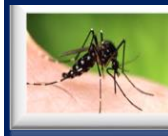
CLASS 1 DISEASES

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INFLUENZA

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DENGUE FEVER

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GASTROENTERITIS

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RESEARCH PAPER

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SENTINEL SYNDROMIC SURVEILLANCE

Sentinel Surveillance in Jamaica



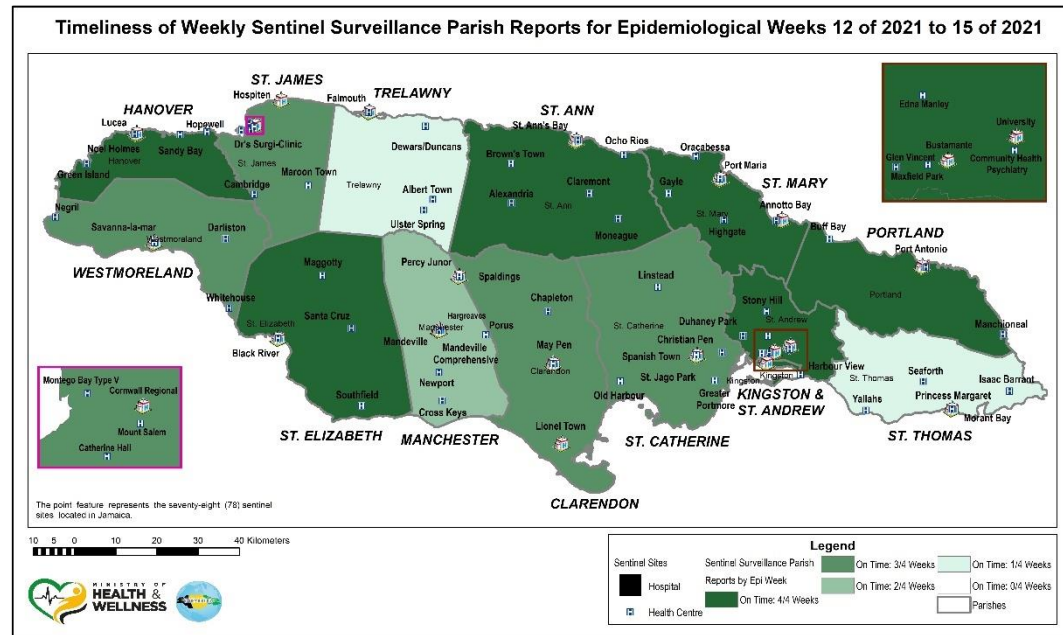
A syndromic surveillance system is good for early detection of and response to public health events.

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.

Map representing the Timeliness of Weekly Sentinel Surveillance Parish Reports for the Four Most Recent Epidemiological Weeks - 12 2021 to 15 of 2021

Parish health departments submit reports weekly by 3 p.m. on Tuesdays. Reports submitted after 3 p.m. are considered late.



REPORTS FOR SYNDROMIC SURVEILLANCE

FEVER

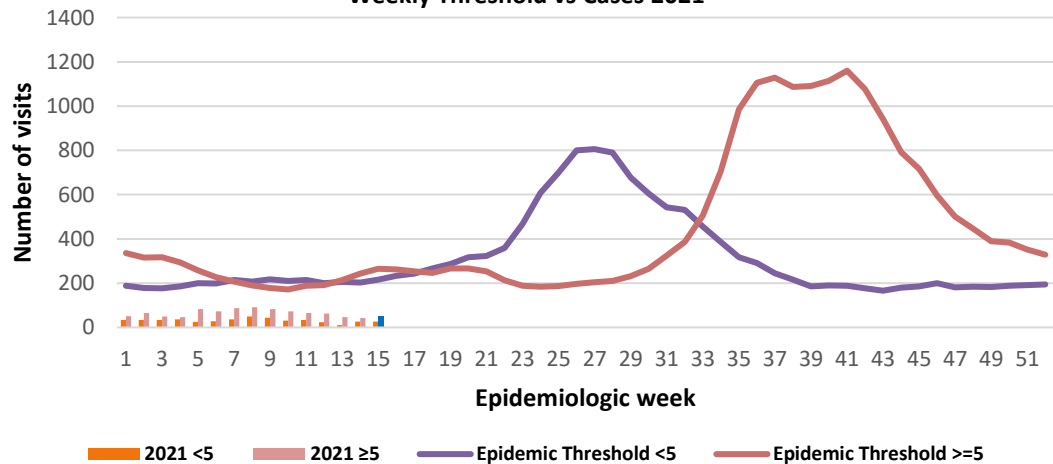
Temperature of $>38^{\circ}C$ / $100.4^{\circ}F$ (or recent history of fever) with or without an obvious diagnosis or focus of infection.



KEY

VARIATIONS OF BLUE SHOW CURRENT WEEK

Weekly Visits to Sentinel Sites for Undifferentiated Fever All ages: Jamaica, Weekly Threshold vs Cases 2021



2 NOTIFICATIONS- All clinical sites



INVESTIGATION REPORTS- Detailed Follow up for all Class One Events



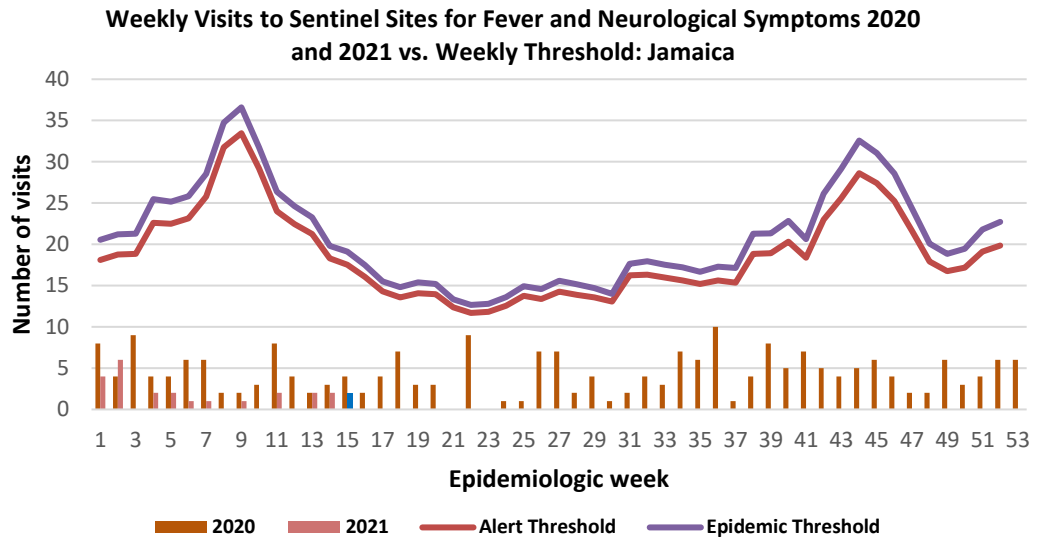
HOSPITAL ACTIVE SURVEILLANCE- 30 sites. Actively pursued



SENTINEL REPORT- 78 sites. Automatic reporting

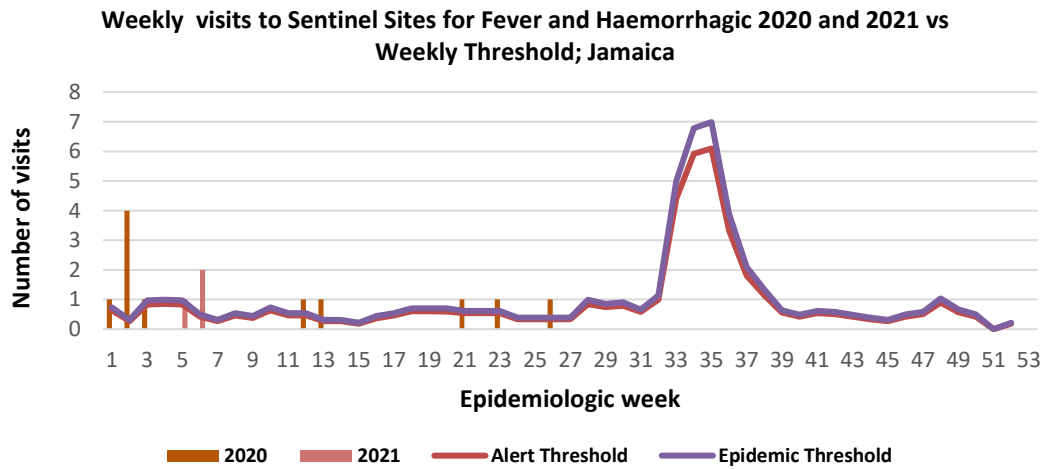
FEVER AND NEUROLOGICAL

Temperature of $>38^{\circ}\text{C}$ / 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

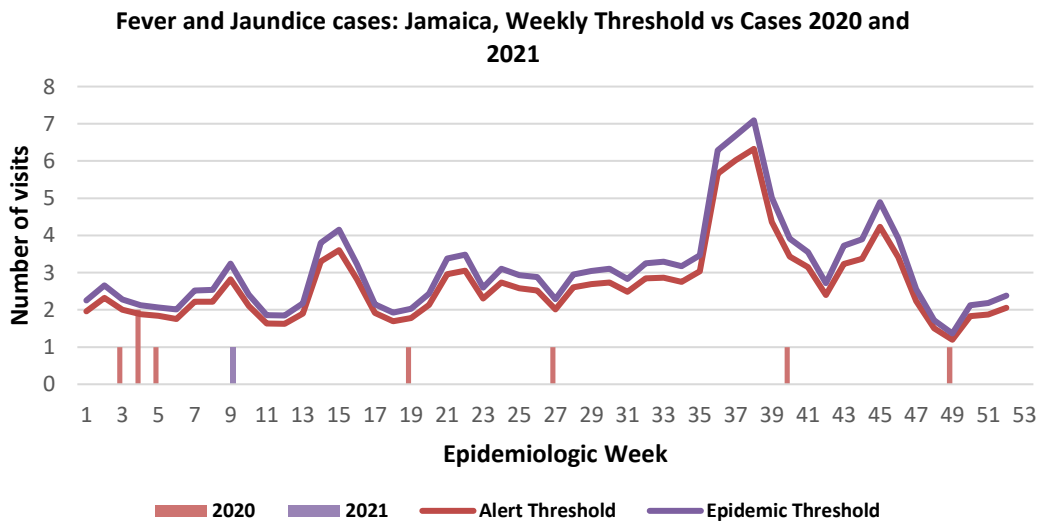
Temperature of $>38^{\circ}\text{C}$ / 100.4°F (or recent history of fever) in a previously healthy person presenting with at least one haemorrhagic (bleeding) manifestation with or without jaundice.



FEVER AND JAUNDICE

Temperature of $>38^{\circ}\text{C}$ / 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.



3 NOTIFICATIONS-
All clinical sites



INVESTIGATION REPORTS- Detailed Follow up for all Class One Events



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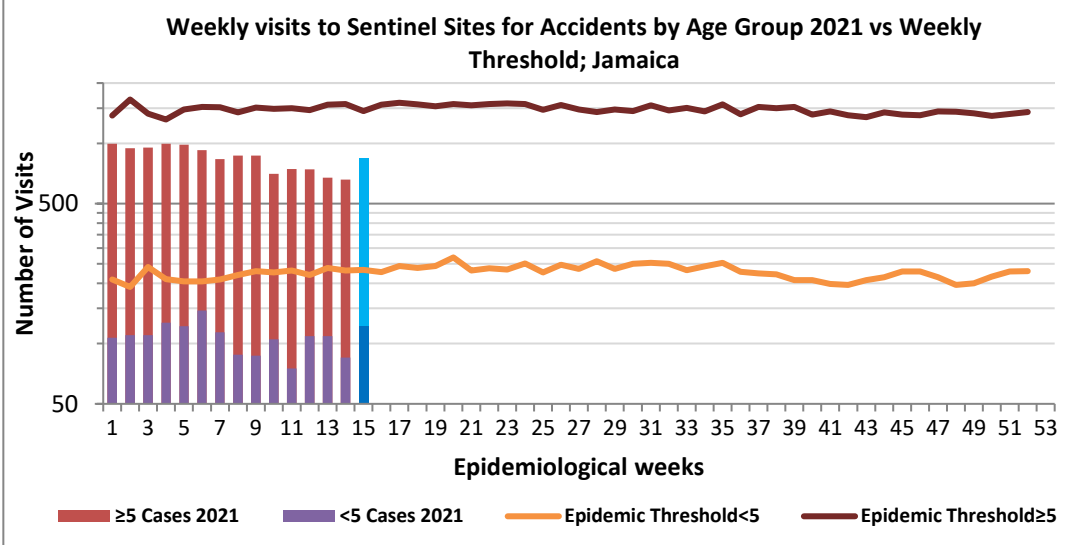
SENTINEL REPORT- 78 sites. Automatic reporting

ACCIDENTS

Any injury for which the cause is unintentional, e.g. motor vehicle, falls, burns, etc.

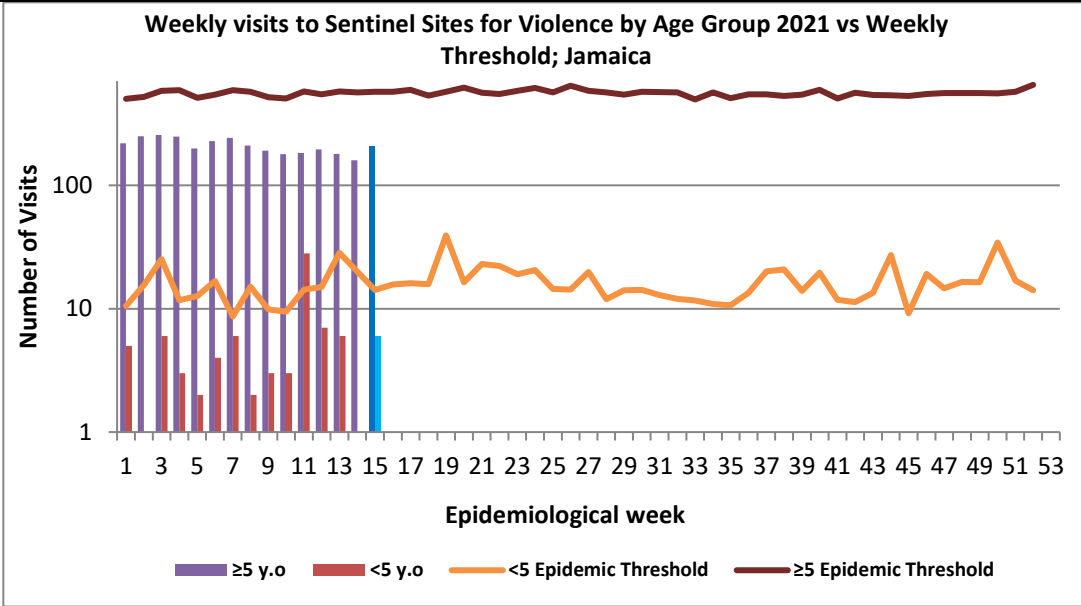
KEY

VARIATIONS OF BLUE SHOW CURRENT WEEK



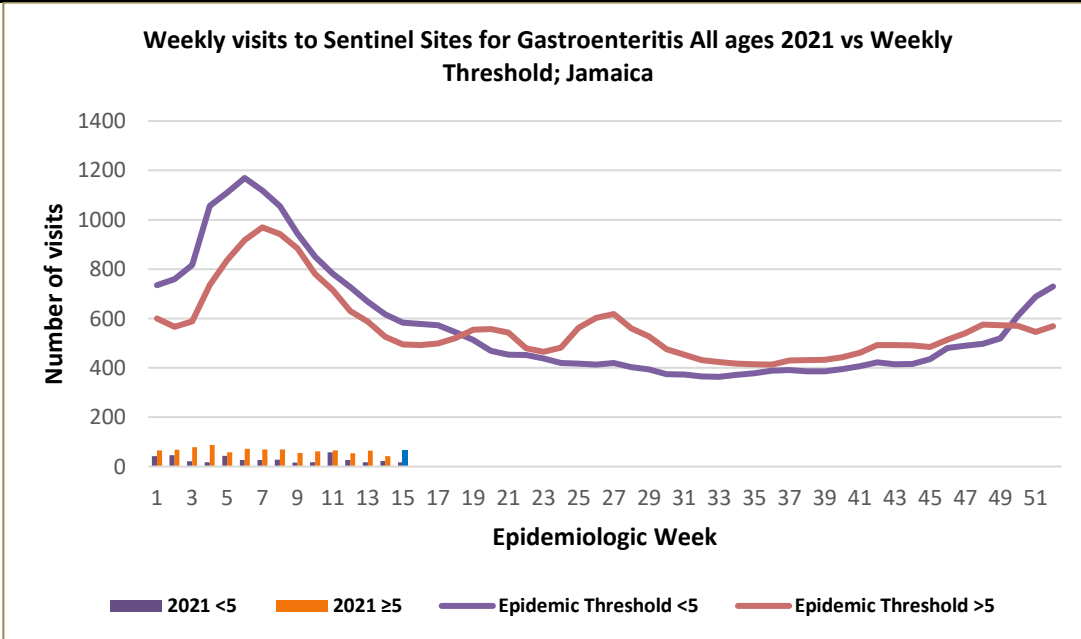
VIOLENCE

Any injury for which the cause is intentional, e.g. gunshot wounds, stab wounds, etc.



GASTROENTERITIS

Inflammation of the stomach and intestines, typically resulting from bacterial toxins or viral infection and causing vomiting and diarrhoea.



4 NOTIFICATIONS- All clinical sites



INVESTIGATION REPORTS- Detailed Follow up for all Class One Events



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- CLASS ONE NOTIFIABLE EVENTS		Comments		
	CLASS 1 EVENTS	Confirmed YTD ^α		
		CURRENT YEAR 2021	PREVIOUS YEAR 2020	
NATIONAL /INTERNATIONAL INTEREST	Accidental Poisoning	0 ^β	37	
	Cholera	0	0	
	Dengue Hemorrhagic Fever ^γ	See Dengue page below	See Dengue page below	
	Hansen's Disease (Leprosy)	0	0	
	Hepatitis B	0	0	
	Hepatitis C	0	0	
	HIV/AIDS	NA	NA	
	Malaria (Imported)	0	0	
	Meningitis (Clinically confirmed)	0	1	
EXOTIC/ UNUSUAL	Plague	0	0	
HIGH MORBIDITY/ MORTALITY	Meningococcal Meningitis	0	0	
	Neonatal Tetanus	0	0	
	Typhoid Fever	0	0	
	Meningitis H/Flu	0	0	
SPECIAL PROGRAMMES	AFP/Polio	0	0	
	Congenital Rubella Syndrome	0	0	
	Congenital Syphilis	0	0	
	Fever and Rash	Measles	0	0
		Rubella	0	0
	Maternal Deaths ^δ	7	12	
	Ophthalmia Neonatorum	0	38	
	Pertussis-like syndrome	0	0	
	Rheumatic Fever	0	0	
	Tetanus	0	0	
Tuberculosis	0	12		
Yellow Fever	0	0		
	Chikungunya ^ε	0	0	
	Zika Virus ^θ	0	0	

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.

^γ Dengue Hemorrhagic Fever data include Dengue related deaths;

^δ Figures include all deaths associated with pregnancy reported for the period.

^ε CHIKV IgM positive cases

^θ Zika PCR positive cases

^β Updates made to prior weeks in 2020.

^α Figures are cumulative totals for all epidemiological weeks year to date.

NA- Not Available



5 NOTIFICATIONS- All clinical sites



INVESTIGATION REPORTS- Detailed Follow up for all Class One Events



HOSPITAL ACTIVE SURVEILLANCE- 30 sites. Actively pursued



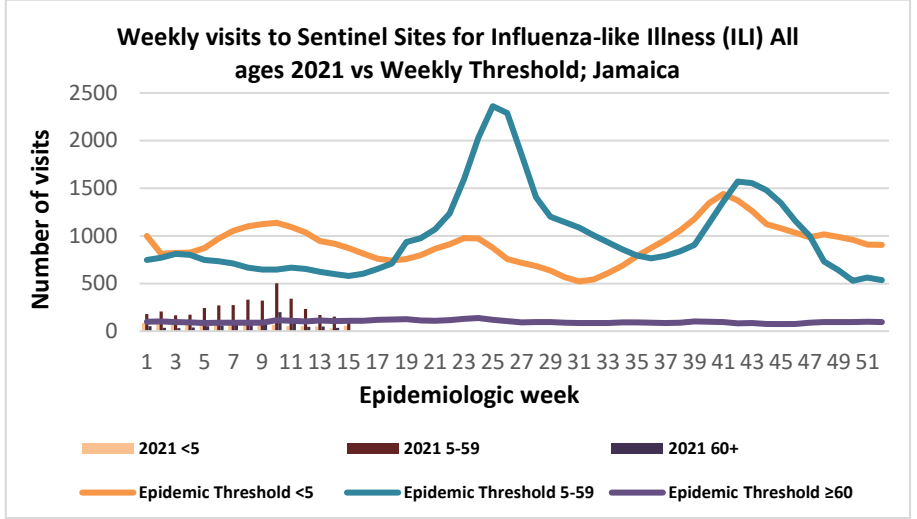
SENTINEL REPORT- 78 sites. Automatic reporting

NATIONAL SURVEILLANCE UNIT INFLUENZA REPORT

EW 15

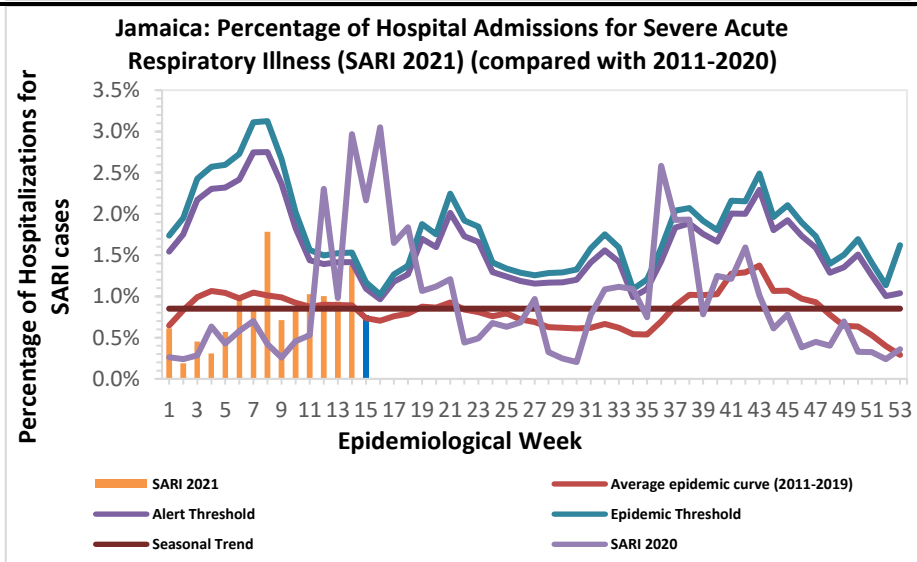
April 11, 2021 – April 17, 2021 Epidemiological Week 15

	EW 15	YTD
SARI cases	12	186
Total Influenza positive Samples	0	0
Influenza A	0	0
H3N2	0	0
H1N1pdm09	0	0
Not subtyped	0	0
Influenza B	0	0
Parainfluenza	0	0



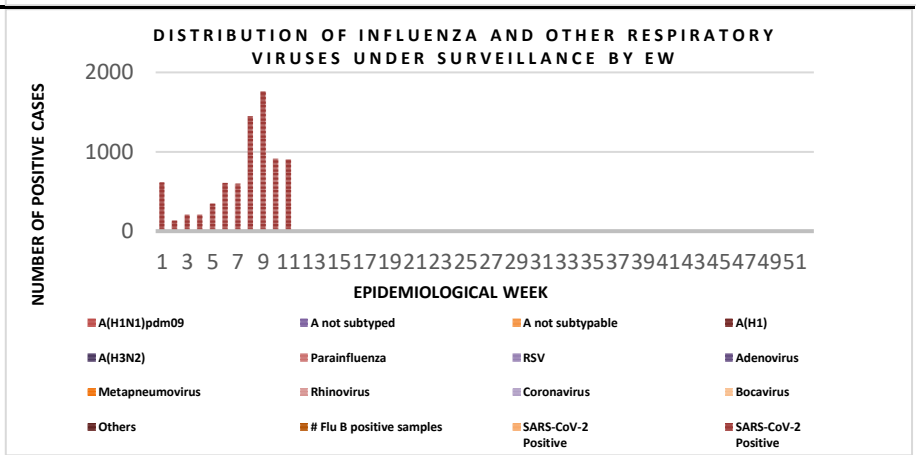
Epi Week Summary

During EW 15, 12 (twelve) SARI admissions were reported.



Caribbean Update EW 15

Caribbean: Influenza and other respiratory virus activity remained low. In Jamaica, SARS-CoV-2 activity remained at moderate levels, while SARI activity continued to increase.



6 NOTIFICATIONS-
All clinical sites

INVESTIGATION REPORTS- Detailed Follow up for all Class One Events

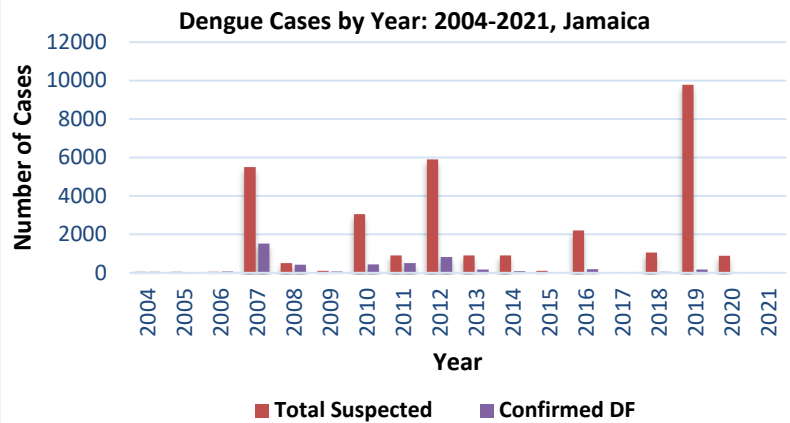
HOSPITAL ACTIVE SURVEILLANCE- 30 sites. Actively pursued

SENTINEL REPORT- 78 sites. Automatic reporting

Dengue Bulletin

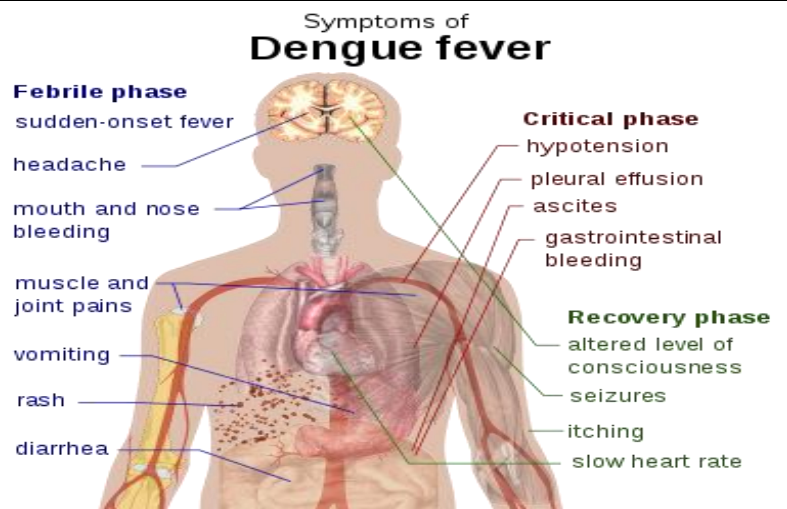
April 11, 2020 – April 17, 2021 Epidemiological Week 15

Epidemiological Week 15



Reported suspected and confirmed dengue with symptom onset in week 15 of 2021

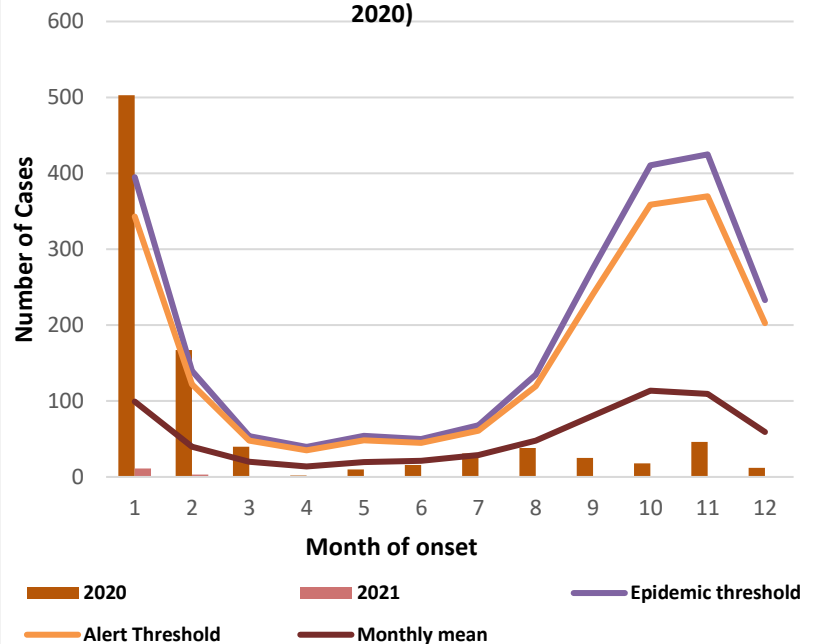
	2021*	
	EW 15	YTD
Total Suspected Dengue Cases	0	15
Lab Confirmed Dengue cases	0	0
CONFIRMED Dengue Related Deaths	0	0



Points to note:

- *Figure as at April 16, 2021
- Only PCR positive dengue cases are reported as confirmed.
- IgM positive cases are classified as presumed dengue.

Suspected dengue cases for 2020 and 2021 versus monthly mean, alert, and epidemic thresholds (2007-2020)



7 NOTIFICATIONS-
All clinical sites



INVESTIGATION REPORTS- Detailed Follow up for all Class One Events



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SENTINEL REPORT- 78 sites. Automatic reporting

RESEARCH PAPER

ABSTRACT

Risk Factors Associated with Glaucoma and Cataract among Patients Attending an Eye Clinic in Jamaica

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Objectives:

To determine association between demographic, medical and social variables and glaucoma and cataract in a Jamaican patient population.

Methods:

A descriptive cross-sectional study was done at the University Hospital of the West Indies Eye Clinic, where data was extracted from 370 randomly selected files of patients who attended the clinic between January and March 2017. Data extracted included demographic data and patient medical history. Ethical approval was obtained from the UHWI/UWI/FMS Ethics Committee. Statistical analyses were performed using SPSS Statistics software. To determine association between variables, Chi-squared tests and Spearman's correlation analyses were done, $p < 0.05$ indicating statistical significance.

Results:

Glaucoma (45.4%) and cataract (33.8%) were the most frequently reported chronic ocular diseases, and the cases increased with age ($p < 0.001$). More females than males presented with glaucoma and cataract. Statistically significant associations were found between glaucoma and a patient history of cataract or pterygium ($p < 0.007$); while cataract was significantly associated with a patient history of physical trauma or retinopathy ($p < 0.047$). In relation to coexisting non-ocular conditions, cataract was significantly associated with hypertension, diabetes mellitus and hypercholesterolemia ($p < 0.001$); while glaucoma was associated with hypertension ($p < 0.001$). Family histories of hypertension, sickle cell disease, glaucoma or blindness were significantly associated with the presence of glaucoma ($p < 0.05$), but not with cataract ($p > 0.1$). Glaucoma and cataract were not significantly associated with alcohol drinking or smoking.

Conclusion: A significant association was found between presence of glaucoma and presence of cataract. Hypertension was significantly associated with glaucoma and cataract; higher frequencies being associated with glaucoma and cataract.



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8 NOTIFICATIONS-
All clinical
sites



INVESTIGATION
REPORTS- Detailed Follow
up for all Class One Events



HOSPITAL
ACTIVE
SURVEILLANCE-
30 sites. Actively
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SENTINEL
REPORT- 78 sites.
Automatic reporting