

WEEKLY EPIDEMIOLOGY BULLETIN

NATIONAL EPIDEMIOLOGY UNIT, MINISTRY OF HEALTH & WELLNESS, JAMAICA

EPI WEEK 13

Biological Weapons: Series 7 of 10: Plague

Overview: Plague is an infectious disease caused by *Yersinia pestis* bacteria, usually found in small mammals and their fleas. The disease is transmitted between animals via their fleas and, as it is a zoonotic bacterium, it can also transmit from animals to humans. Humans can be contaminated by the bite of infected fleas, through direct contact with infected materials, or by inhalation. Plague can be a very severe disease in people, particularly in its septicaemic and pneumonic forms, with a case-fatality ratio of 30% - 100% if left untreated. Although plague has been responsible for widespread pandemics throughout history, including the so-called Black Death that caused over 50 million deaths in Europe during the fourteenth century, today it can be easily treated with antibiotics and the use of standard preventative measures. Plague is found on all continents except Oceania but most human cases since the 1990s have occurred in Africa. Democratic Republic of Congo, Madagascar and Peru are the three most endemic countries.

Symptoms: People infected with plague usually develop influenza-like symptoms after an incubation period of 3–7 days. Symptoms include fever, chills, aches, weakness, vomiting and nausea. There are 3 main forms of plague. **1.** Bubonic plague is the most common and is caused by the bite of an infected flea. The plague bacillus, *Y. pestis*, enters at the bite and travels to the nearest lymph node to replicate. The lymph node becomes inflamed, tense and painful, and is called a bubo. With advanced infections, the inflamed lymph nodes can turn into suppurating open sores. Bubonic plague cannot be transmitted from human to human. **2.** Septicaemic plague occurs when infection spreads through the bloodstream. It may result from flea bites or from direct contact with infective materials through cracks in the skin. Advanced stages of the bubonic form of plague will also lead to direct spread of *Y. pestis* in the blood. **3.** Pneumonic plague – or lung-based plague – is the most virulent and least common form of plague. Typically, it is caused by spread to the lungs from advanced bubonic plague. However, a person with secondary pneumonic plague may form aerosolized infective droplets and transmit plague to other humans. This is usually fatal.

Vaccines: Untreated plague can be rapidly fatal, so early diagnosis and treatment is essential for survival and to reduce complications. Antibiotics and supportive therapy are effective against plague if patients are diagnosed in time. Laboratory testing is required to confirm infection. This includes identifying the causative bacteria in a sample of pus from a bubo, blood or sputum. WHO does not recommend vaccination except for high-risk people such as laboratory personnel and health care workers. Preventive measures include informing people when zoonotic plague is present in their environment and giving advice on how they can protect themselves. They should be advised to take precautions against flea bites and not to handle animal carcasses. People, especially health workers, should also avoid direct contact with infected tissues such as buboes, or close exposure to patients with pneumonic plague.



SYNDROMES

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CLASS 1 DISEASES

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INFLUENZA

PAGE 5



DENGUE FEVER

PAGE 6



GASTROENTERITIS

PAGE 7



RESEARCH PAPER

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The Black Death [Impact]

Invading Mongols brought the plague to East Europe, who fled and brought it to Sicily in 1347. From there, spread to mainland Italy and France in 1348. Reached British Isles and Scandinavia in 1349, and invading Scottish brought it back to their homeland. The Black Death travelled via Fleas on rats along trade routes cultivated by unsanitary practices like no sewage (trash on streets-->rats)

Mongols used plague as weapon! (catapulted sick)

Effects

Church lost credibility: couldn't save people from the Plague & priests charged for last rites

Death rate in Europe: 66%

Jews blamed and massacred for Bubonic Plague out of **fear**

Population decline meant **scarcity of labor:** few survivors could charge more & moved to cities: **end of manorialism**

Set up the Renaissance and the Protestant Reformation

Phillip Choi

SENTINEL SYNDROMIC SURVEILLANCE

Sentinel Surveillance in Jamaica



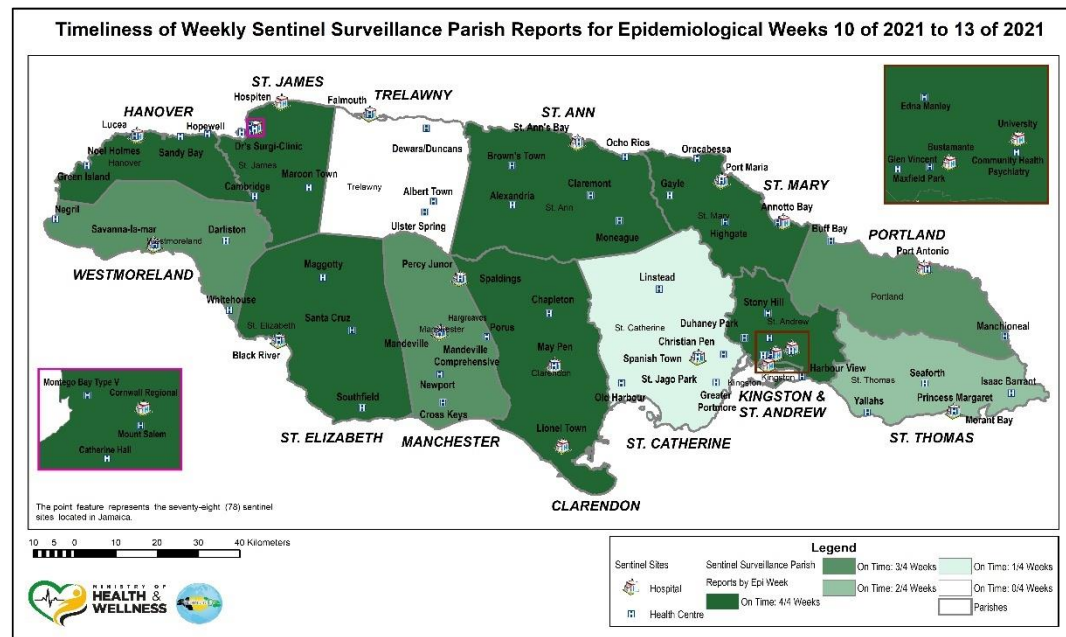
A syndromic surveillance system is good for early detection of and response to public health events.

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 - 10 2021 to 13 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

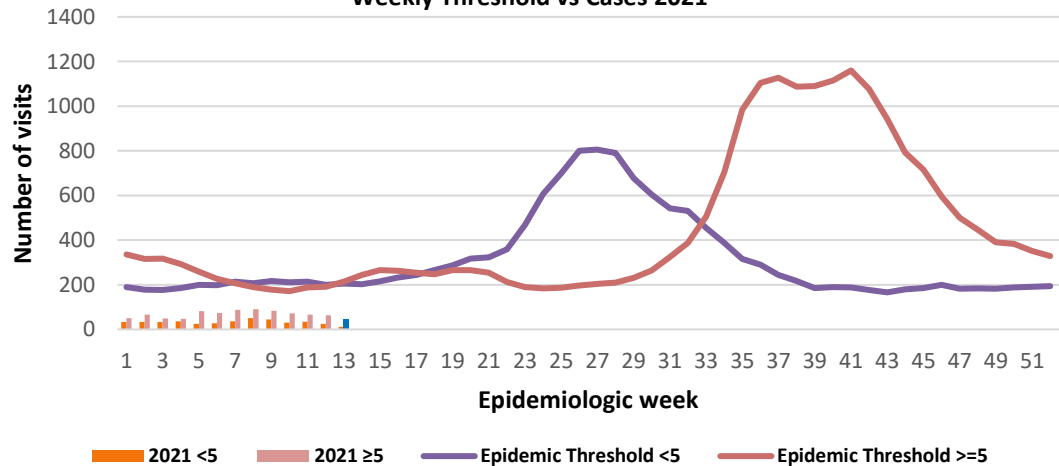
Temperature of $>38^{\circ}C$ / $100.4^{\circ}F$ (or recent history of fever) with or without an obvious diagnosis or focus of infection.



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



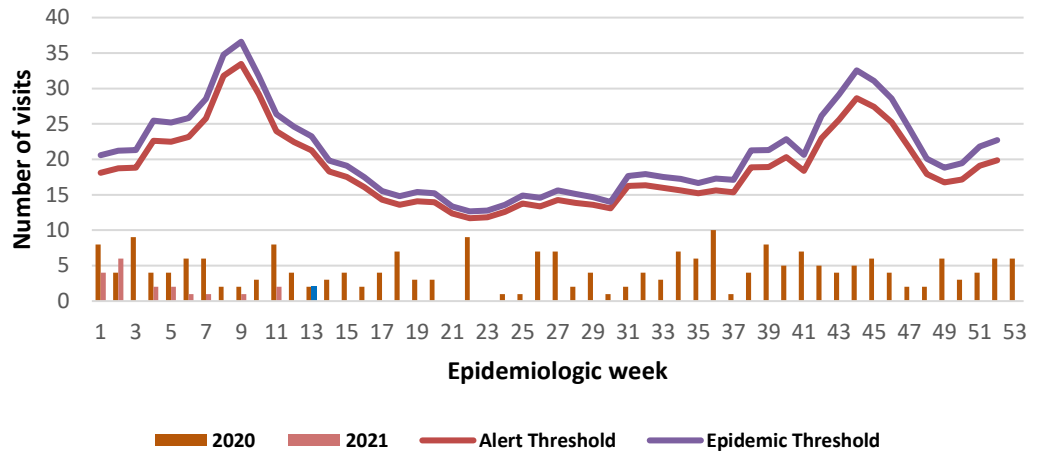
SENTINEL REPORT- 78 sites. Automatic reporting

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).



Weekly Visits to Sentinel Sites for Fever and Neurological Symptoms 2020 and 2021 vs. Weekly Threshold: Jamaica

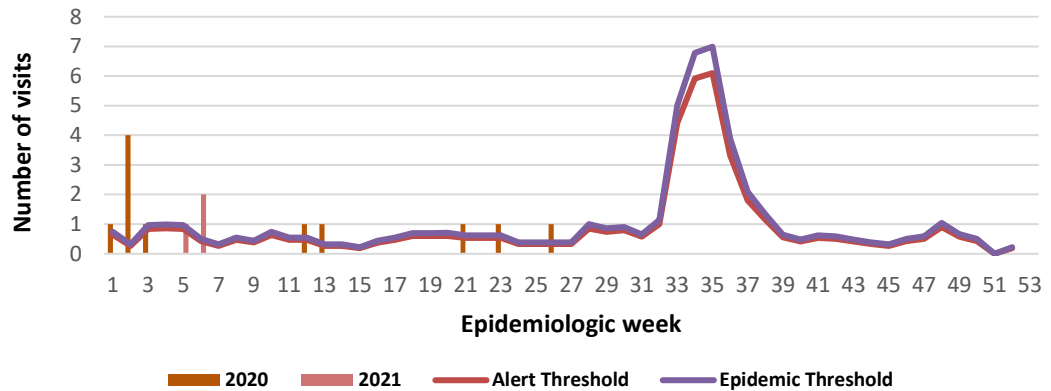


FEVER AND HAEMORRHAGIC

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.



Weekly visits to Sentinel Sites for Fever and Haemorrhagic 2020 and 2021 vs Weekly Threshold; Jamaica



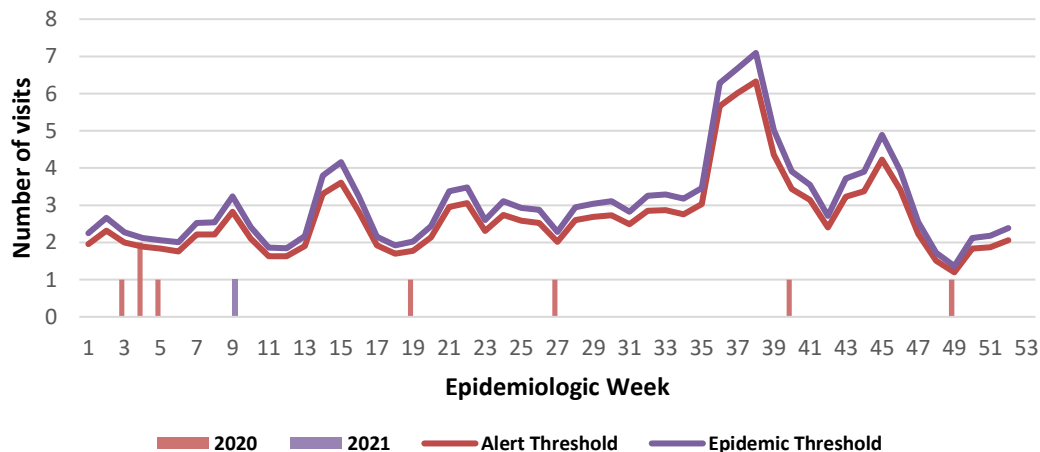
FEVER AND JAUNDICE

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.



Fever and Jaundice cases: Jamaica, Weekly Threshold vs Cases 2020 and 2021



3 NOTIFICATIONS-
All clinical sites



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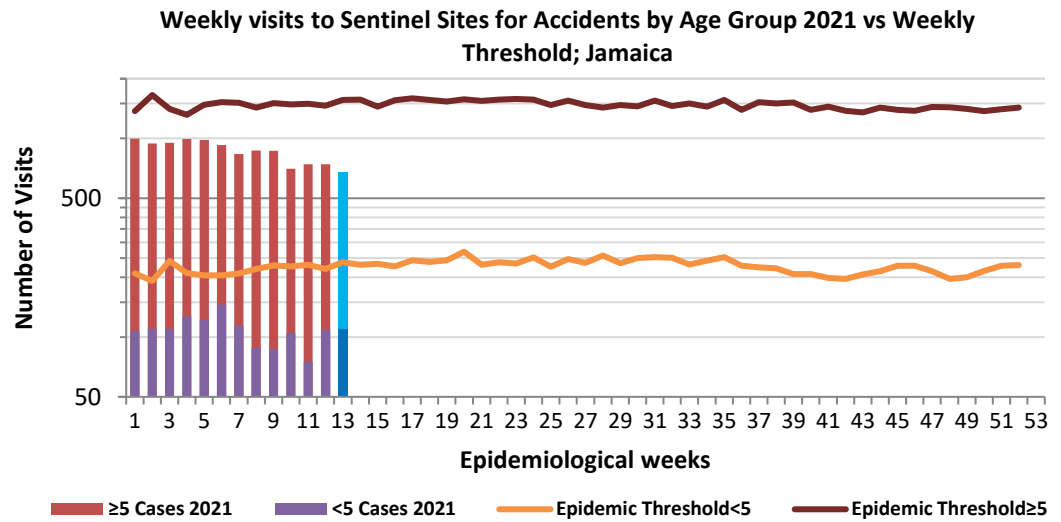
SENTINEL REPORT- 78 sites. Automatic reporting

ACCIDENTS

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

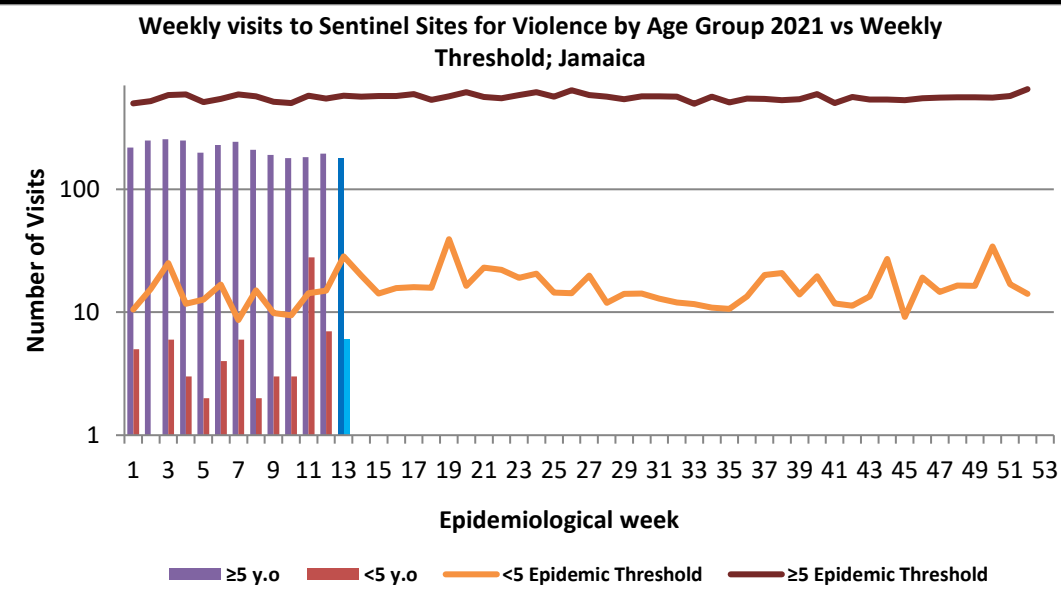
KEY

VARIATIONS OF BLUE SHOW CURRENT WEEK



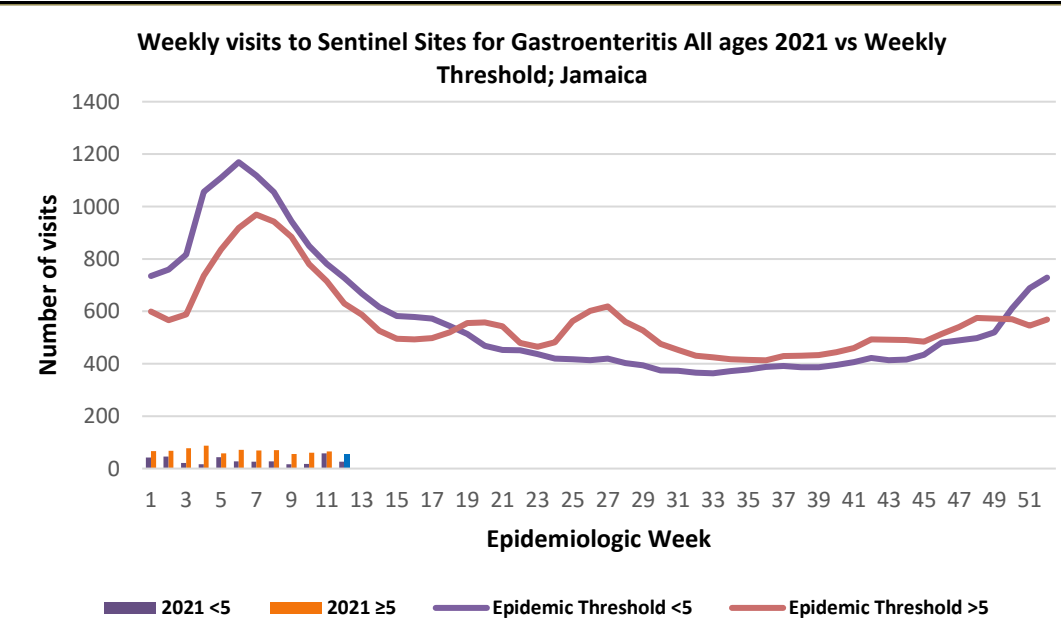
VIOLENCE

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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SENTINEL REPORT- 78 sites. Automatic reporting

- CLASS ONE NOTIFIABLE EVENTS			Comments	
			Confirmed YTD ^α	
	CLASS 1 EVENTS		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		3	12
	Ophthalmia Neonatorum		0	38
	Pertussis-like syndrome		0	0
	Rheumatic Fever		0	0
	Tetanus		0	0
Tuberculosis		0	9	
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



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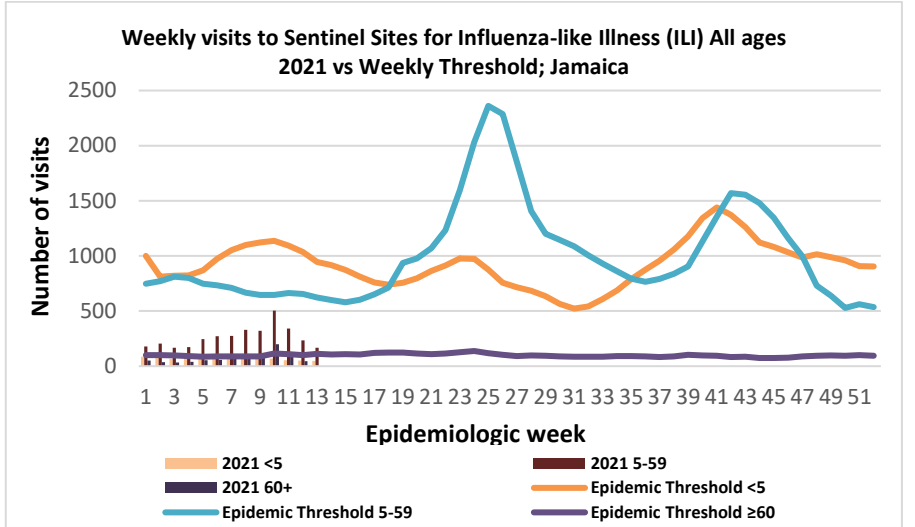
SENTINEL REPORT- 78 sites. Automatic reporting

NATIONAL SURVEILLANCE UNIT INFLUENZA REPORT

EW 13

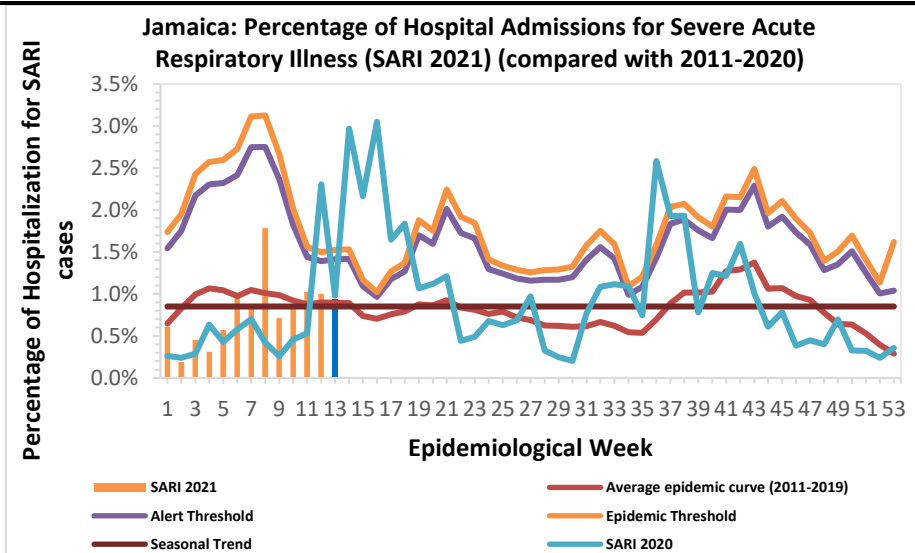
March 28, 2021 – April 03, 2021 Epidemiological Week 13

	EW 13	YTD
SARI cases	12	156
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



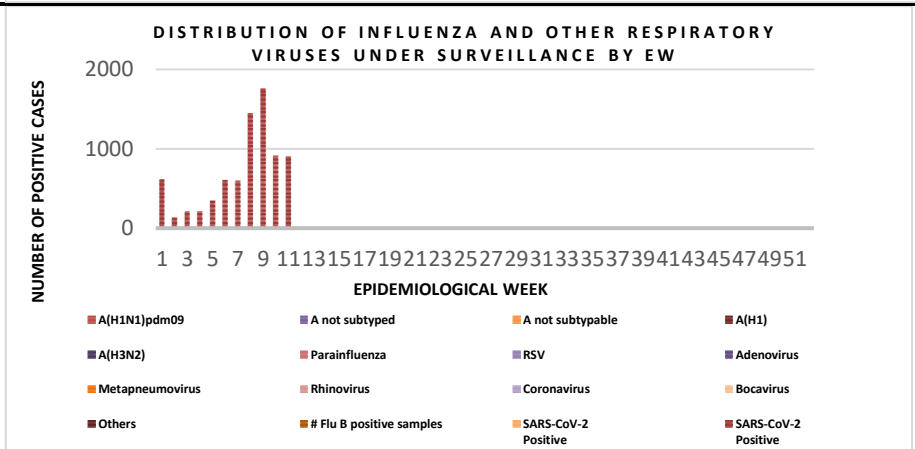
Epi Week Summary

During EW 13, 12 (twelve) SARI admissions were reported.



Caribbean Update EW 13

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

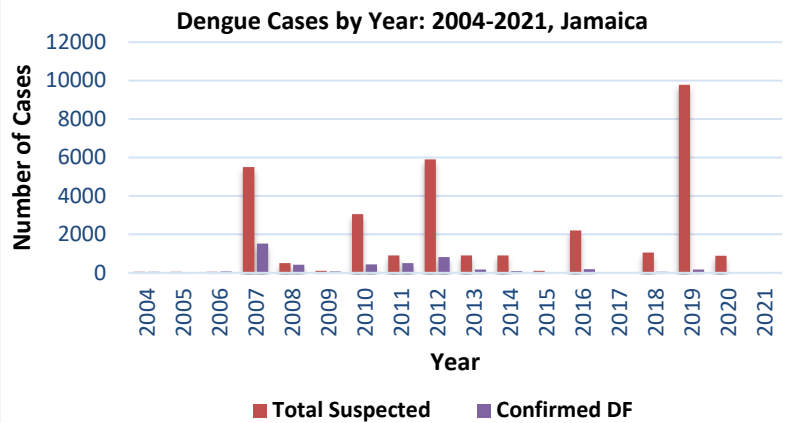


SENTINEL REPORT- 78 sites. Automatic reporting

Dengue Bulletin

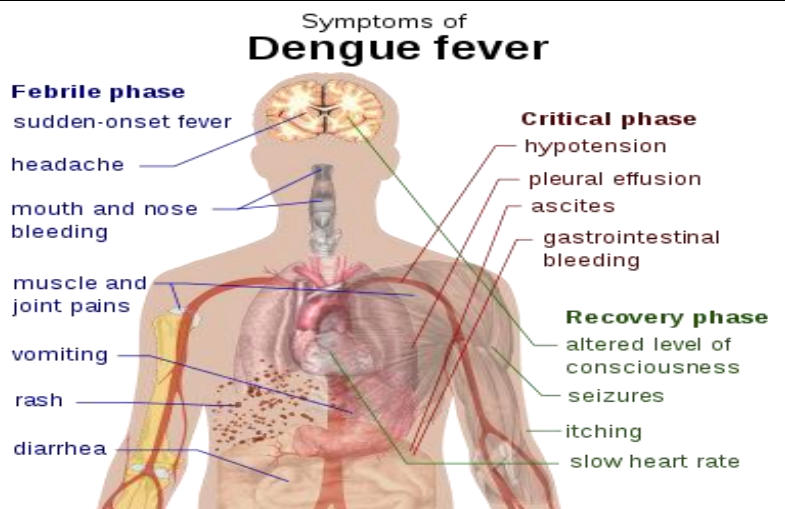
March 28, 2020 – April 03, 2021 Epidemiological Week 13

Epidemiological Week 13



Reported suspected and confirmed dengue with symptom onset in week 13 of 2021

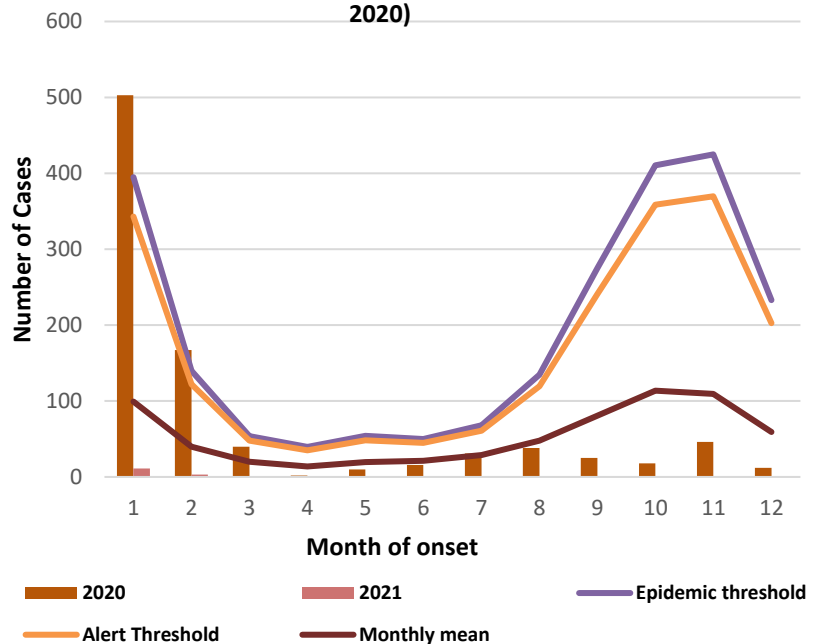
	2021*	
	EW 13	YTD
Total Suspected Dengue Cases	5	15
Lab Confirmed Dengue cases	0	0
CONFIRMED Dengue Related Deaths	0	0



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

HOSPITAL ACTIVE SURVEILLANCE- 30 sites. Actively pursued

SENTINEL REPORT- 78 sites. Automatic reporting

RESEARCH PAPER

ABSTRACT

Patient Satisfaction with Nurse Practitioner delivered Services at two Health Centres in Kingston and St. Andrew

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Objective: To explore the level of patient satisfaction with nurse practitioner delivered services in two health centres in Kingston and St. Andrew.

Method: A cross sectional survey of 120 adult clients (≥ 18 years old) seen by the nurse practitioner at a Type 3 and a Type 5 health centre in Kingston and St. Andrew was conducted utilizing a self administered questionnaire. The data collection instrument included a modified Nurse Practitioner Satisfaction Survey. Data were analyzed using the SPSS® version 18 for Windows®.

Results: Of 120 participants, 77.2% were females with an average age of 40 ± 16 years. Most (63.3%) were from the Type 5 health centre. The mean general satisfaction score was 80.88 out of a possible 90 and 83.3% of the respondents reported they were very satisfied and 16.6% were satisfied with the nurse practitioner services at both facilities. There was no significant difference between the mean satisfaction scores among males (80.41 ± 6.5) and females (80.95 ± 8.3) and respondents from the Type 3 (81.09 ± 9.18) and Type 5 (81.76 ± 7.1) health centre. No respondent was dissatisfied. The mean satisfaction score was significantly higher among respondents 40 years and older than that of their younger counterparts ($p=0.032$). Socio-demographic and organization characteristics were not associated with the mean satisfaction score.

Conclusions: A high level of satisfaction exists among patients seen by the nurse practitioner in the two facilities in Kingston and St Andrew. Nurse practitioners may play an expanded role in the delivery of primary healthcare.



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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