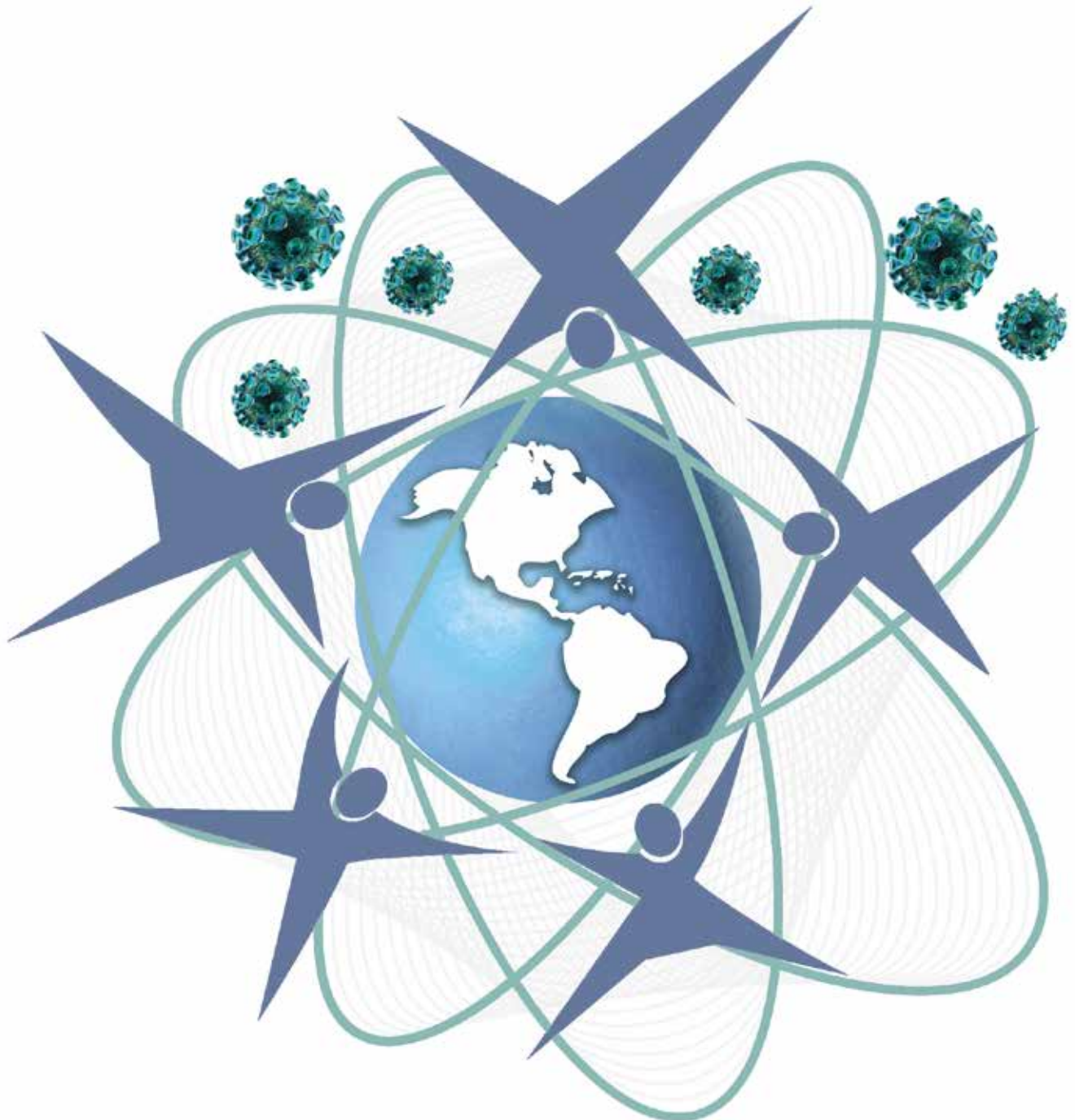


Influenza and Other Respiratory Viruses: Surveillance in the Americas 2019



PAHO



Pan American
Health
Organization



World Health
Organization
REGIONAL OFFICE FOR THE
Americas

Influenza and Other Respiratory Viruses: Surveillance in the Americas 2019



Washington, D.C., 2020

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PHE/IHM/2020

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Acronyms

ARI	acute respiratory infection
EQAP	External Quality Assessment Project
FluID	flu-informed decisions
HAI	hemagglutination inhibition
ICD-10	International Classification of Diseases, 10th revision
IF	immunofluorescence assay
ILI	influenza-like illness
ORV	other respiratory viruses
PISA	pandemic influenza severity assessment
RSV	respiratory syncytial virus
RT-PCR	reverse transcription polymerase chain reaction
SARI	severe acute respiratory infection

Case Definitions

Severe Acute Respiratory Infection (SARI)

An acute respiratory infection with: history of fever or measured fever ≥ 38 °C; and cough; with onset within the last 10 days; and requires hospitalization. (WHO, 2014)

Influenza-Like Illness (ILI)

An acute respiratory infection with: measured fever ≥ 38 °C and cough; with onset within the last 10 days. (WHO, 2014)

Background

Since 2009, pandemic surveillance systems in the countries of the Americas have improved both their laboratory capacity to detect influenza and other respiratory viruses and their ability to characterize those viruses genetically, clinically, and epidemiologically. More recently, countries of the Region have also improved their ability to assess the severity of seasonal influenza epidemics and potential pandemics.

In most of the Region, the first surveillance systems developed were laboratory-based; they made it possible to detect a novel influenza subtype if clinical samples were collected and tested in the laboratory. Since then, several other systems have been developed that complement and integrate with the laboratory surveillance platforms. These systems make it possible to monitor influenza and detect new subtypes of influenza virus that have the potential to become a pandemic, pneumonia, or clinical influenza proxy syndromes—e.g., an influenza-like illness (ILI) or severe acute respiratory infection (SARI) in ambulatory and hospitalized settings. By using automated and integrated systems such as PAHOFlu to collect, process, analyze, and generate reports, it is possible to obtain information and monitor events under surveillance in real time. These developments mean there are now a variety of surveillance systems that contribute to understanding influenza and other respiratory viruses nationally, regionally, and globally.

This report is a compilation of the respiratory virus surveillance systems in countries throughout the Americas, and is an update to the publication *Influenza and Other Respiratory Virus Surveillance Systems in the Americas, 2017*. The 2019 inventory includes two sections: regional analyses and country-by-country analyses. The first section includes regional data, maps showing surveillance capacities in the Region, and the frequency with which data are reported to FluID and FluNet. The country-by-country section includes information about epidemiological and laboratory surveillance, and focuses on four areas:

Area 1

- Sociodemographic indicators

Area 2

- Surveillance systems
- Surveillance maps

Area 3

- Country epidemiologic and laboratory data

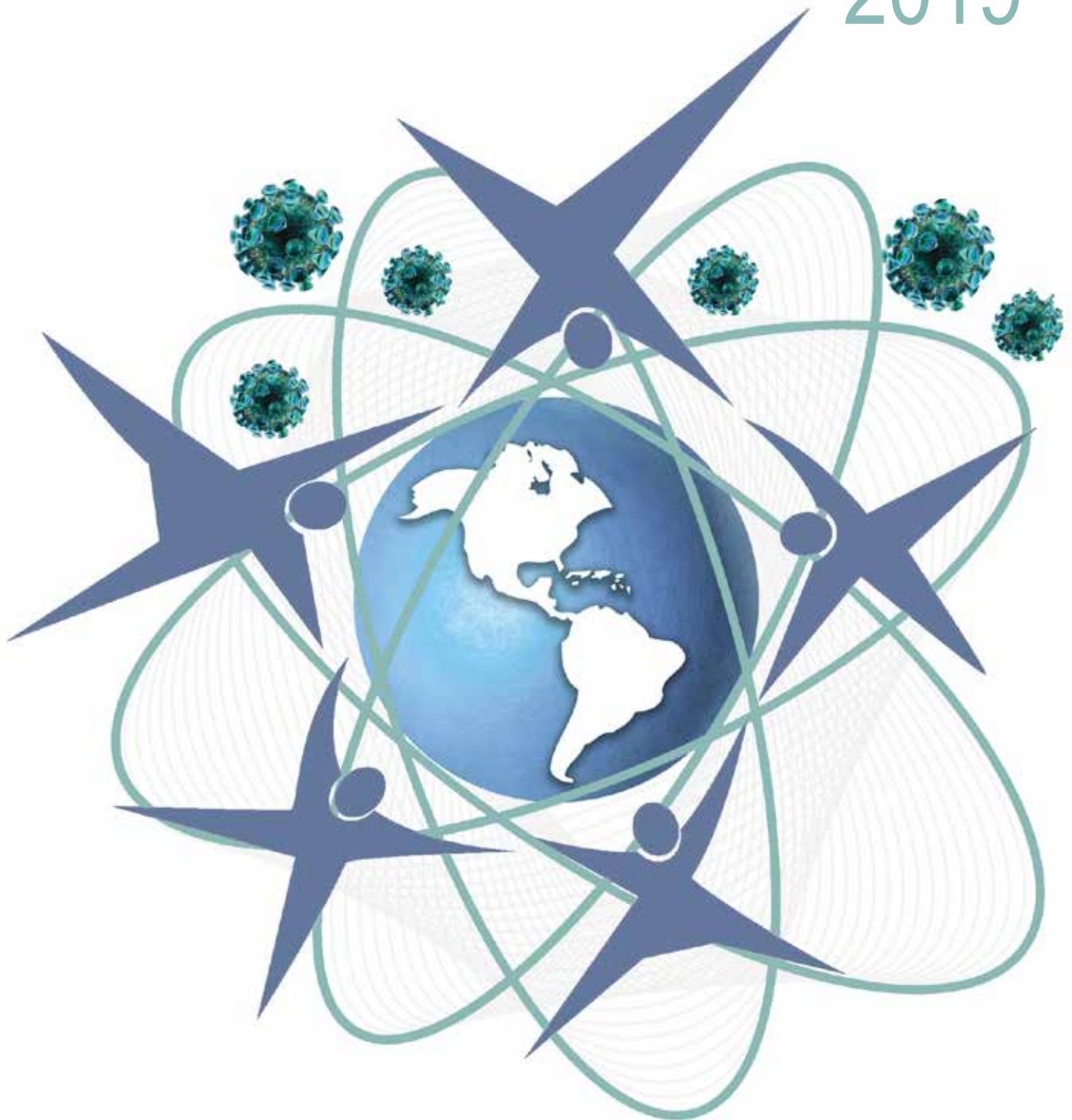
Area 4

- FluNet/FluID reporting profile
- Influenza vaccine profile
- Pandemic influenza preparedness planning profile
- Human-animal interface for influenza profile
- Laboratory capacity profile
- Influenza disease burden profile

The data were obtained by PAHO/WHO directly from the countries and territories from one or more sources: online surveys administered by PAHO/WHO and completed by epidemiologists and/or national laboratory coordinators; influenza bulletins published online and distributed by the countries; and through consultation with influenza surveillance coordinators in the countries. Each country's document was submitted to the corresponding national counterpart for revision and approval before publication.

Profiles are organized in alphabetical order and include all countries that responded to requests for data and approval in a timely manner; in the case of a country that was non-responsive, if data had been provided for the 2017 publication, those data are included here.

Regional Data 2019



Country Indicators Table

Country	SARI Surveillance*	ILI Surveillance*	National Influenza Center	RT-PCR Surveillance for Influenza	2018 EQAP Participation	FluID Reporting	FluNet Reporting
Anguilla ^{3,3}	No	No	No	No	NA	In progress	Yes
Antigua and Barbuda ^{3,3}	Yes	No	No	No	Yes	In progress	Yes
Argentina ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Aruba ^{1,2}	Yes	No	No	No	NA	Yes	Yes
Bahamas ^{1,2}	Yes	No	No	No	NA	Yes	Yes
Belize ^{3,3}	No	No	No	No	Yes	In progress	Yes
Bolivia (Plurinational State of) ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brazil ^{1,1}	Yes	Yes	Yes	Yes	Yes	In progress	Yes
British Virgin Islands ^{3,3}	No	No	No	No	No	Yes	Yes
Canada ^{4,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cayman Islands ^{1,2}	Yes	No	No	No	No	Yes	Yes
Chile ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colombia ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Costa Rica ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cuba ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dominica ^{2,3}	Yes	No	No	No	No	Yes	Yes
Dominican Republic ^{1,2}	Yes	No	Yes	Yes	Yes	Yes	Yes
Ecuador ^{1,2}	Yes	No	Yes	Yes	Yes	Yes	Yes
El Salvador ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Grenada ^{3,3}	No	No	No	No	No	In progress	Yes
Guatemala ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Guyana ^{3,1}	No	No	No	Yes	Yes	In progress	Yes
Haiti ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Honduras ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jamaica ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mexico ^{1,1}	Yes	Yes	Yes	Yes	Yes	In progress	Yes
Nicaragua ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panama ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Paraguay ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Peru ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Saint Lucia ^{1,1}	Yes	Yes	No	Yes	Yes	Yes	Yes
Saint Vincent and the Grenadines ^{1,2}	Yes	Yes	No	No	No	In progress	Yes
Suriname ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trinidad and Tobago ^{1,2}	Yes	No	Yes	Yes	Yes	Yes	Yes
United States of America ^{4,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Uruguay ^{1,1}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Venezuela (Bolivarian Republic of) ^{3,3}	No	No	Yes	Yes	No	Yes	Yes

*SARI/ILI Surveillance

1 = SARI/ILI surveillance established: Frequent reporting during January-December 2019

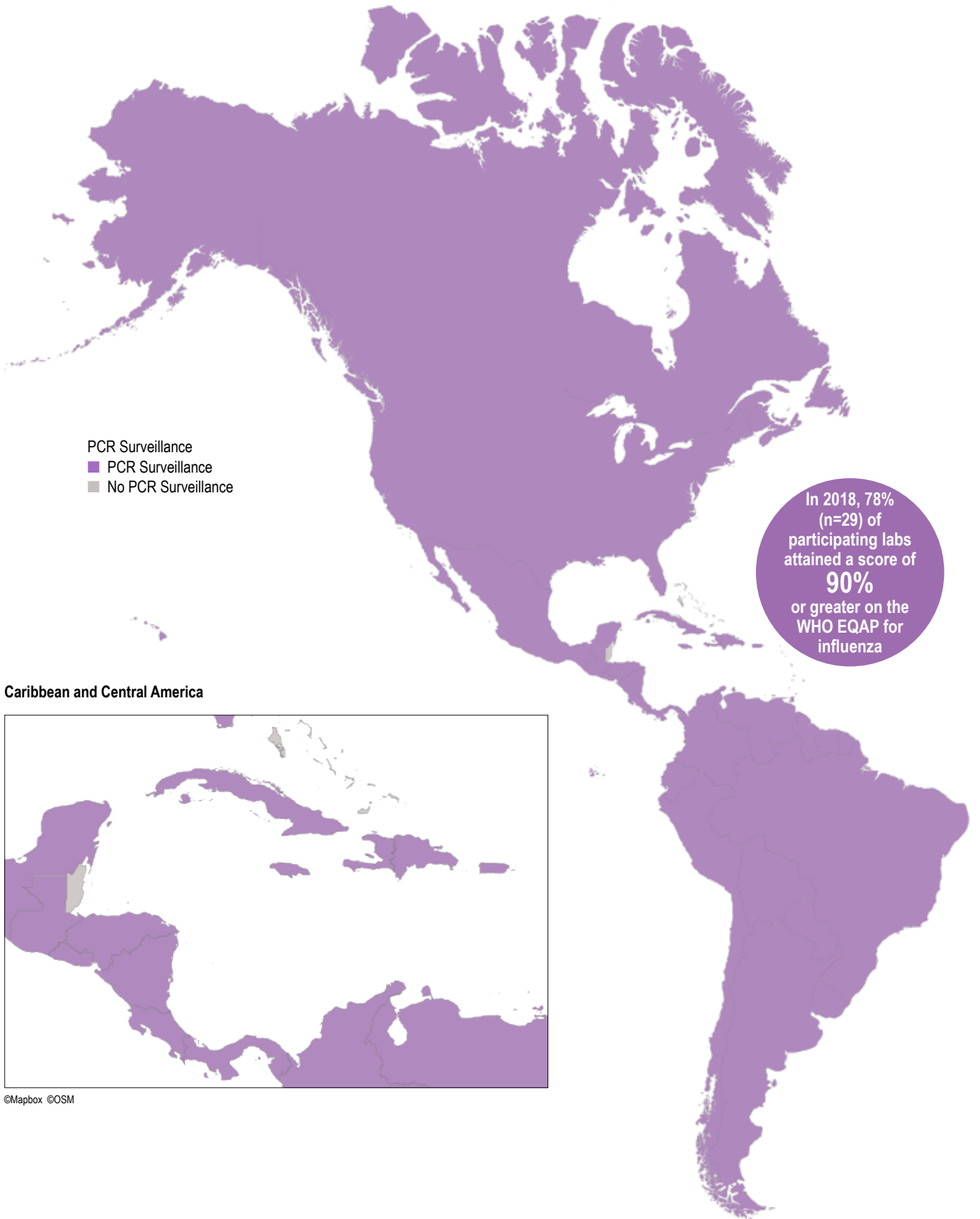
2 = SARI/ILI surveillance being established: Infrequent reporting and PAHO verification of SARI/ILI sites

3 = SARI/ILI surveillance not established: No reporting and no verification of SARI/ILI sites

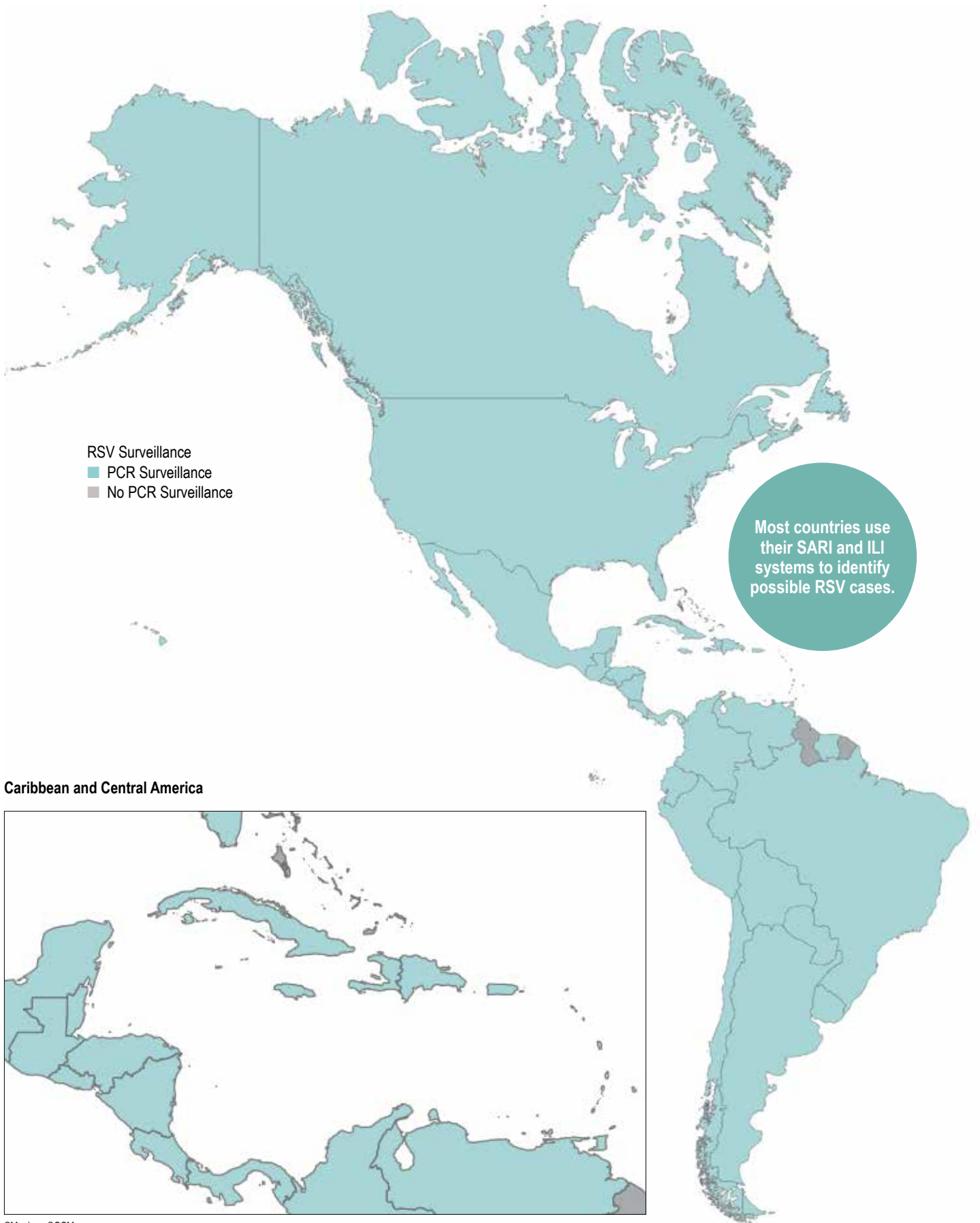
4 = Hospital-based active surveillance but not using WHO SARI case definition

Note on SARI/ILI Surveillance

Countries Conducting Influenza Surveillance by RT-PCR



Countries Conducting Respiratory Syncytial Virus (RSV) Surveillance



Countries Conducting SARI and ILI Surveillance

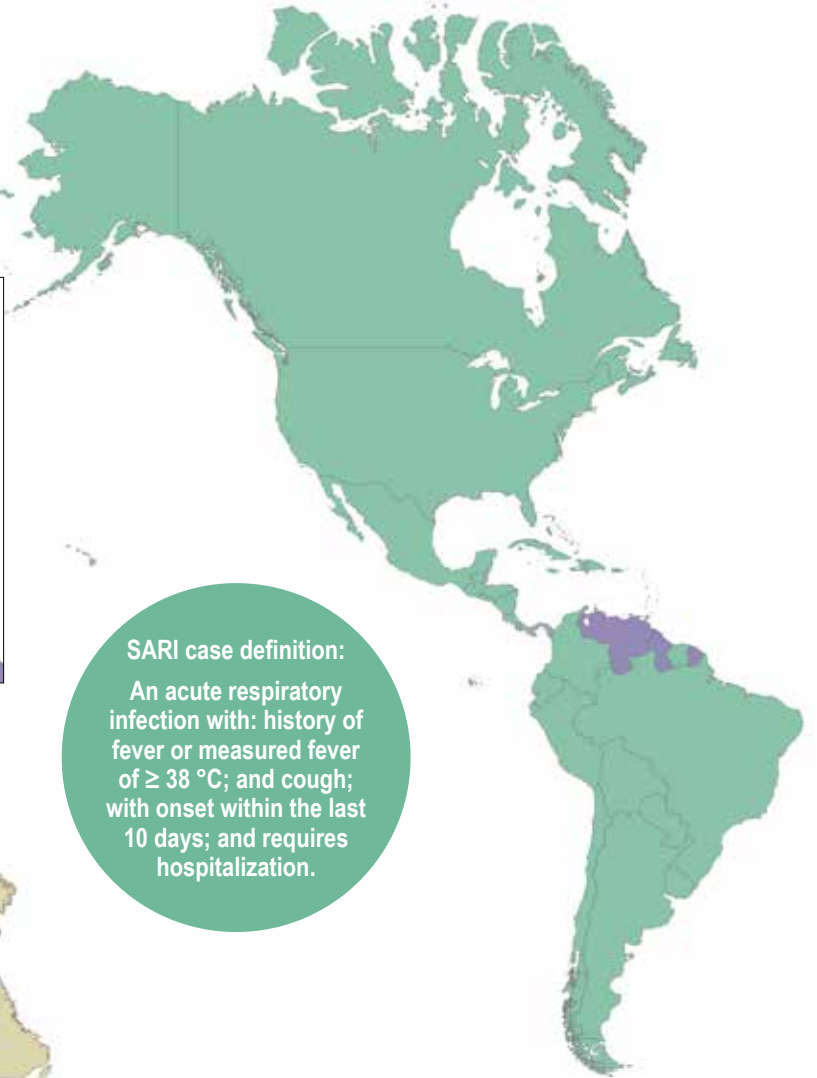
Severe Acute Respiratory Infection (SARI) Surveillance by Country

- SARI Surveillance
- SARI Surveillance
 - No SARI Surveillance
 - SARI Surveillance being established

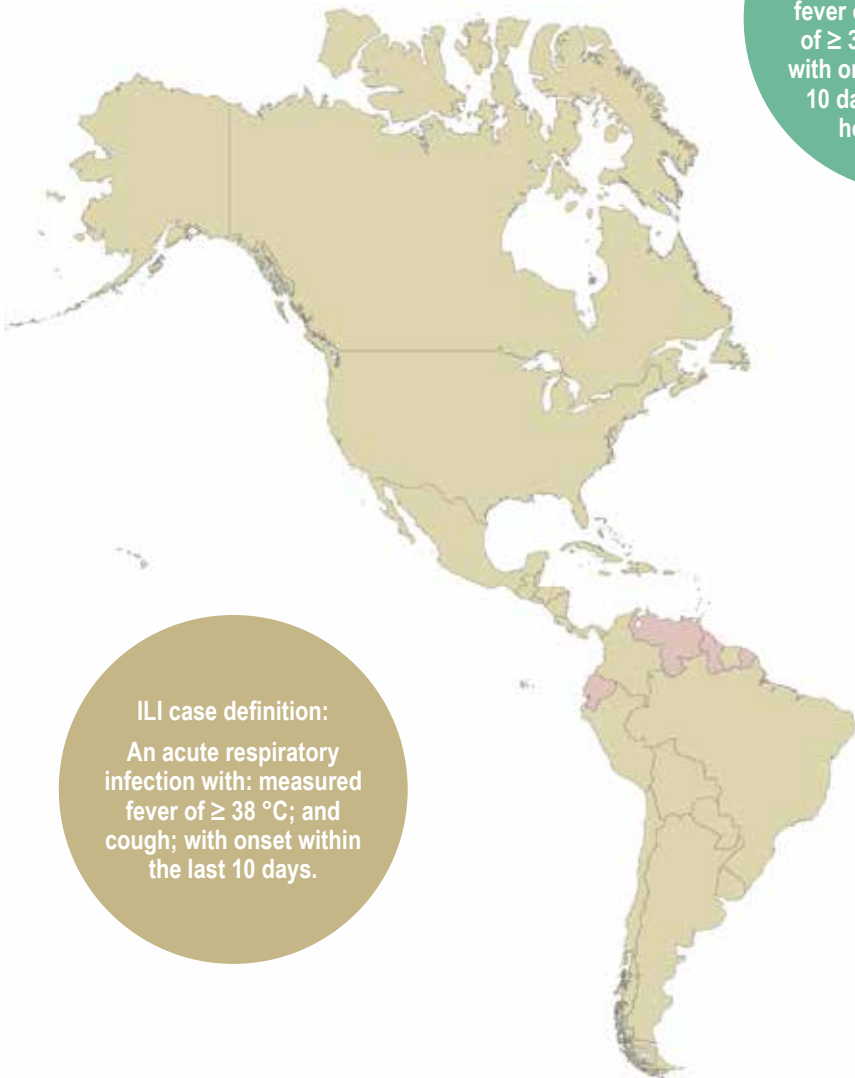
Caribbean and Central America



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SARI case definition:
 An acute respiratory infection with: history of fever or measured fever of $\geq 38\text{ }^{\circ}\text{C}$; and cough; with onset within the last 10 days; and requires hospitalization.



ILI case definition:
 An acute respiratory infection with: measured fever of $\geq 38\text{ }^{\circ}\text{C}$; and cough; with onset within the last 10 days.

Influenza-Like Illness (ILI) Surveillance by Country

- ILI Surveillance
- ILI Surveillance
 - No ILI Surveillance

Caribbean and Central America



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FluNet percentage of weeks reported in 2019

Percentage of the epidemiological weeks for which data were reported to PAHO/WHO

< 25% 25–49% 50–74% ≥ 75%

Caribbean and Central America



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FluNet is a global web-based tool for influenza virological surveillance first launched in 1997. The virological data entered into FluNet, e.g. number of influenza viruses detected by subtype, are critical for tracking the movement of viruses globally and interpreting the epidemiological data.

FluID percentage of weeks reported in 2019

Percentage of the epidemiological weeks for which data were reported to PAHO/WHO

< 25% 25–49% 50–74% ≥ 75%

Caribbean and Central America

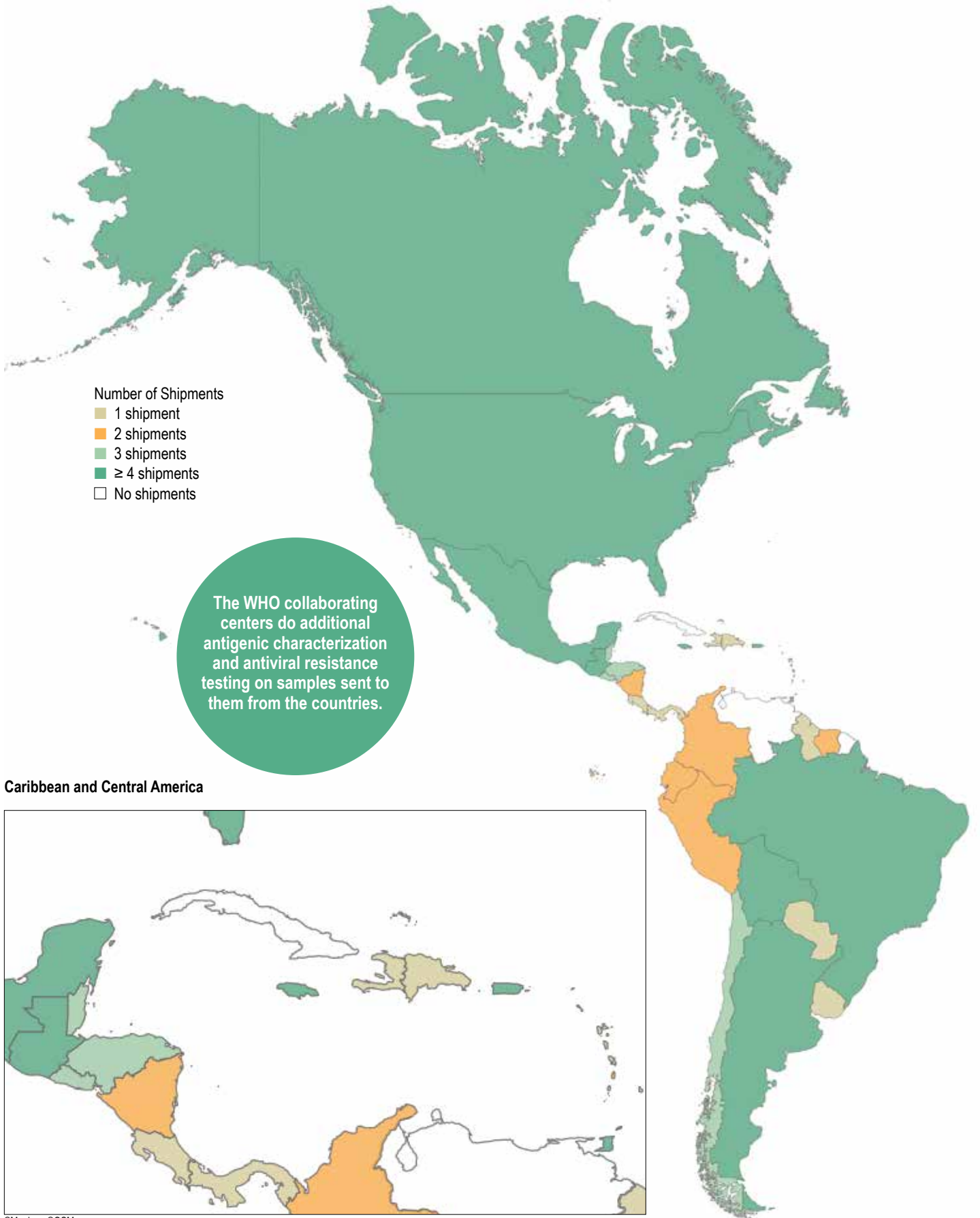


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FluID is a global platform for data-sharing that links regional influenza epidemiological data into a single global database. The platform accommodates both qualitative and quantitative data, which facilitates the tracking of global trends, spread, intensity, and impact of influenza.

Shipment to WHO Collaborating Center at CDC



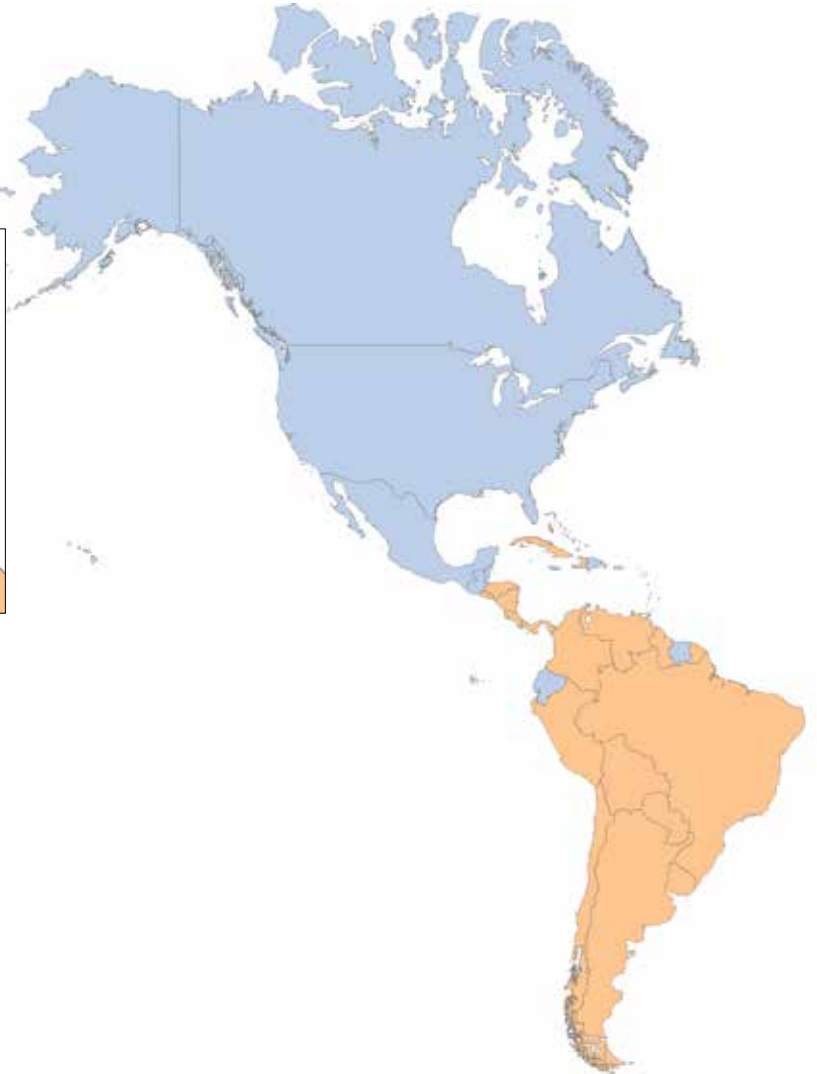
Vaccine formulation

- Northern hemisphere
- Southern hemisphere

Caribbean and Central America



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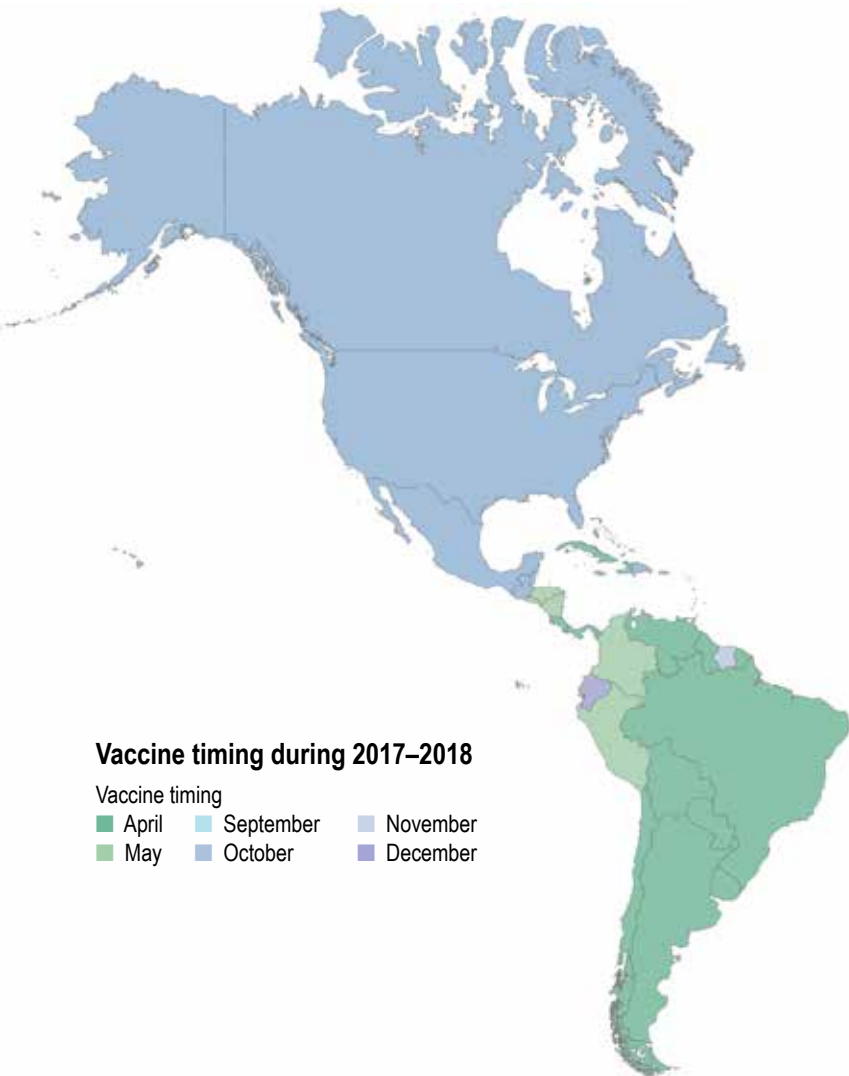
Vaccine timing during 2017–2018

- Vaccine timing
- April
 - May
 - September
 - October
 - November
 - December

Caribbean and Central America



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Influenza Vaccine

Percentage of children vaccinated during 2018

Children vaccine %



Caribbean and Central America



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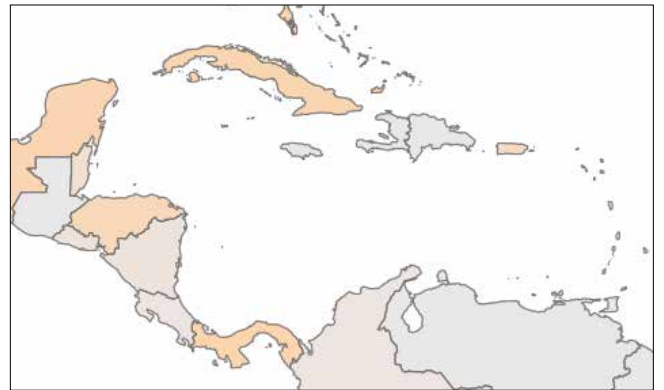


Percentage of elderly adults vaccinated during 2018

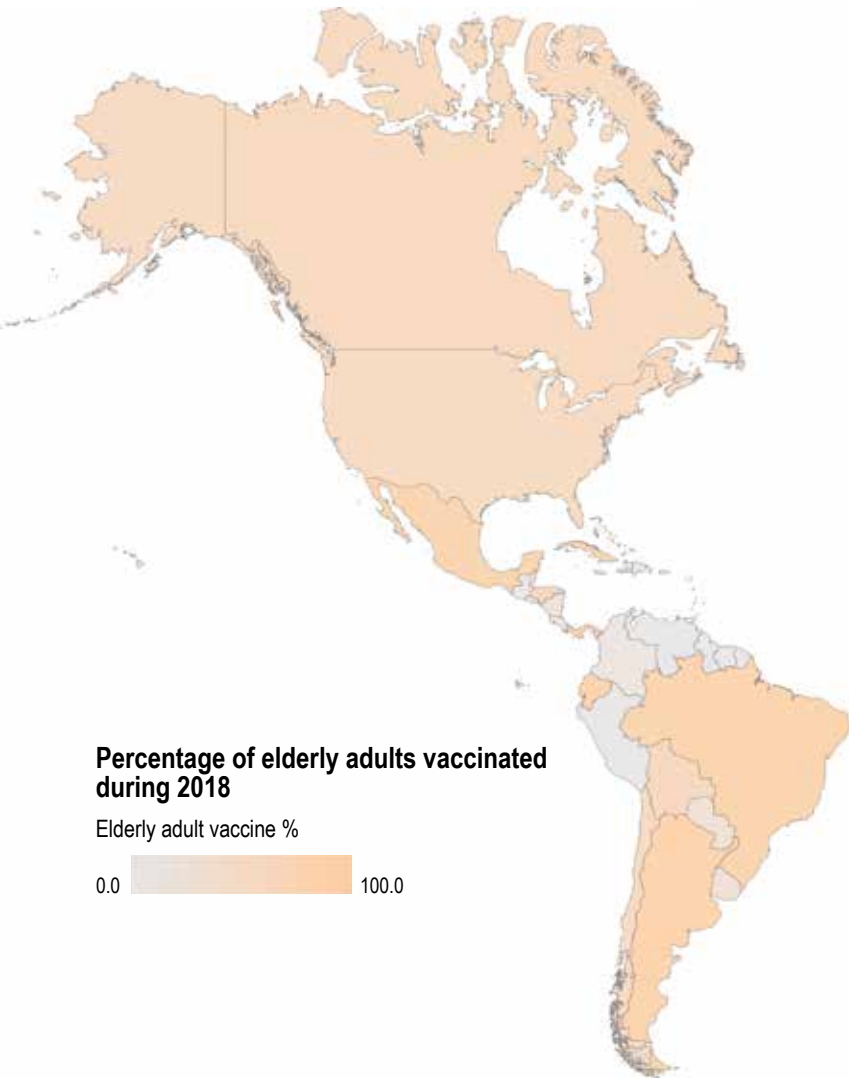
Elderly adult vaccine %

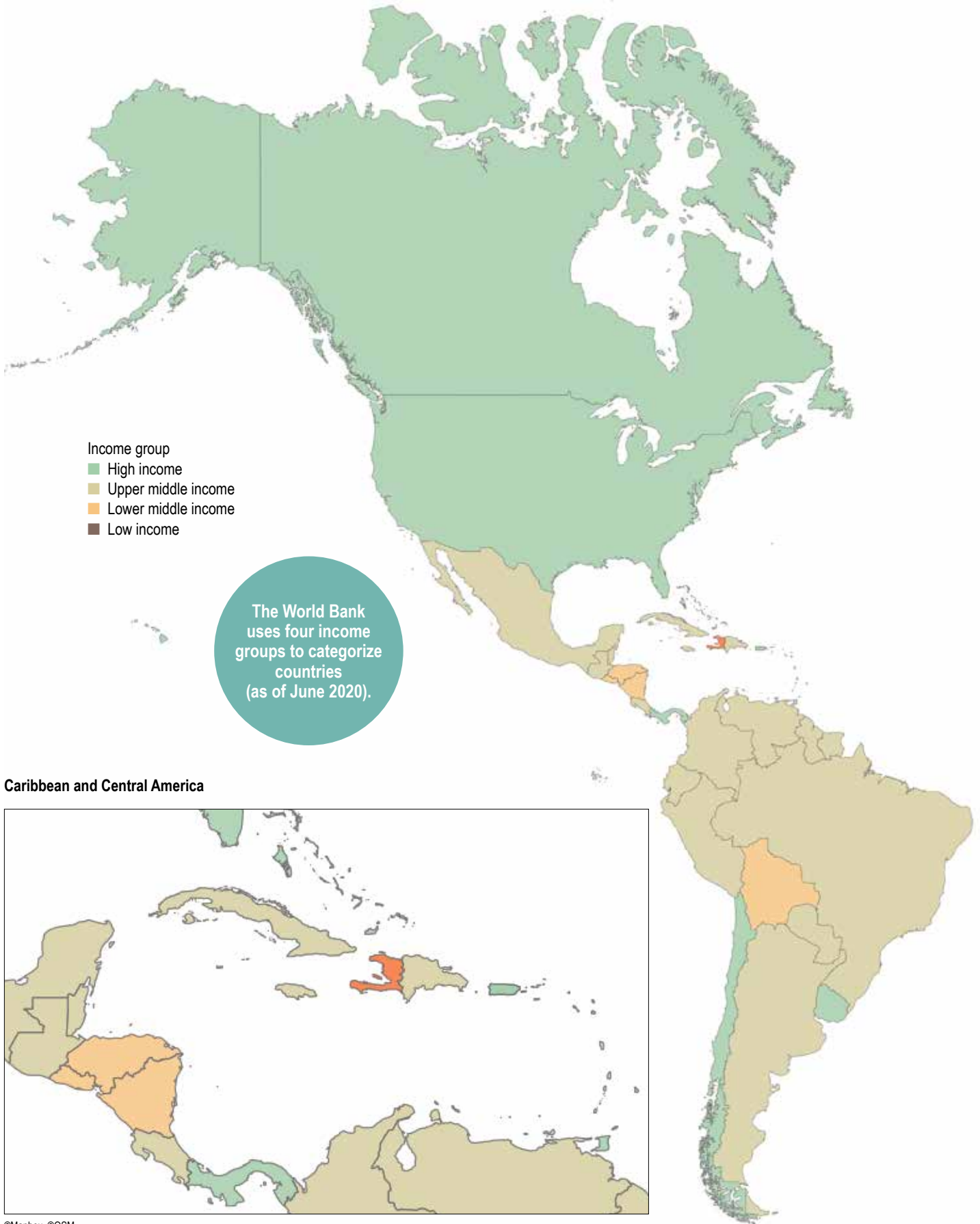


Caribbean and Central America



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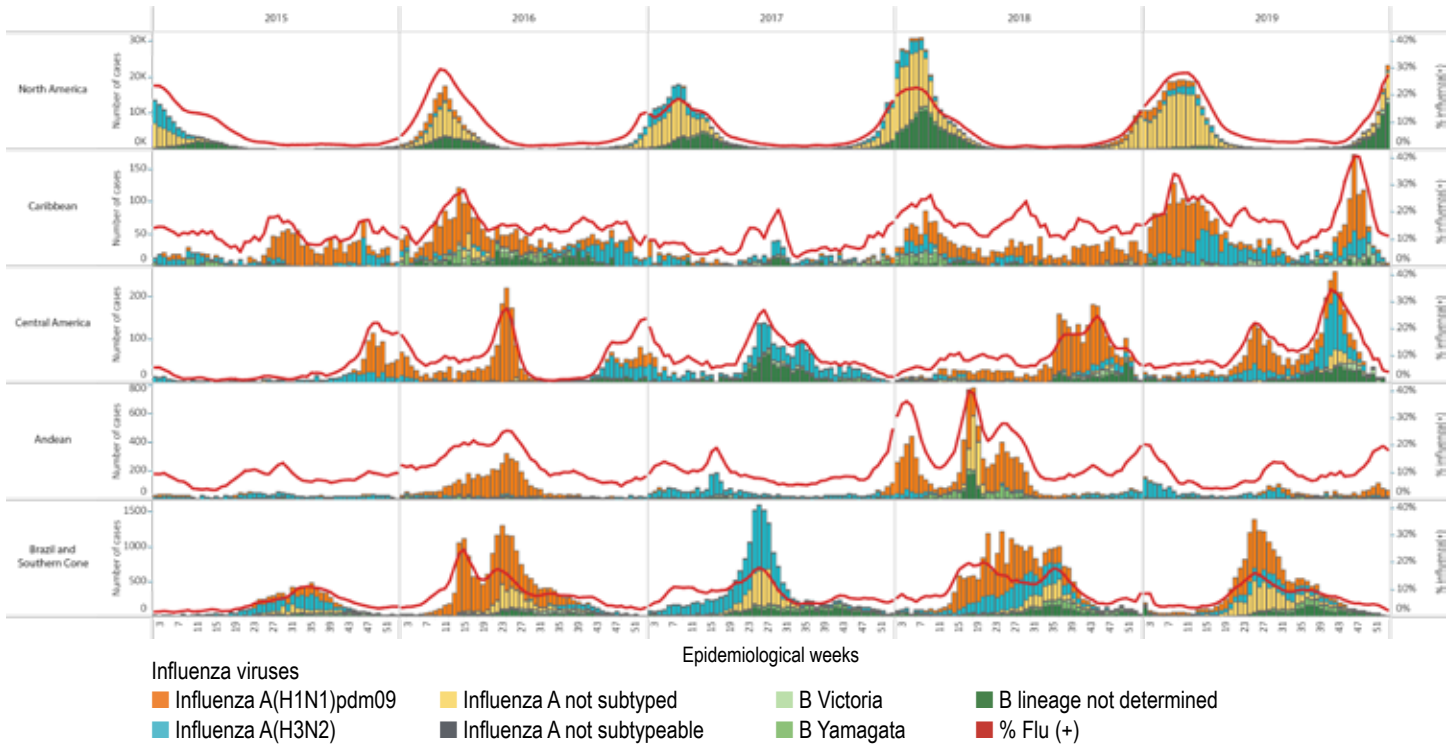


Caribbean and Central America

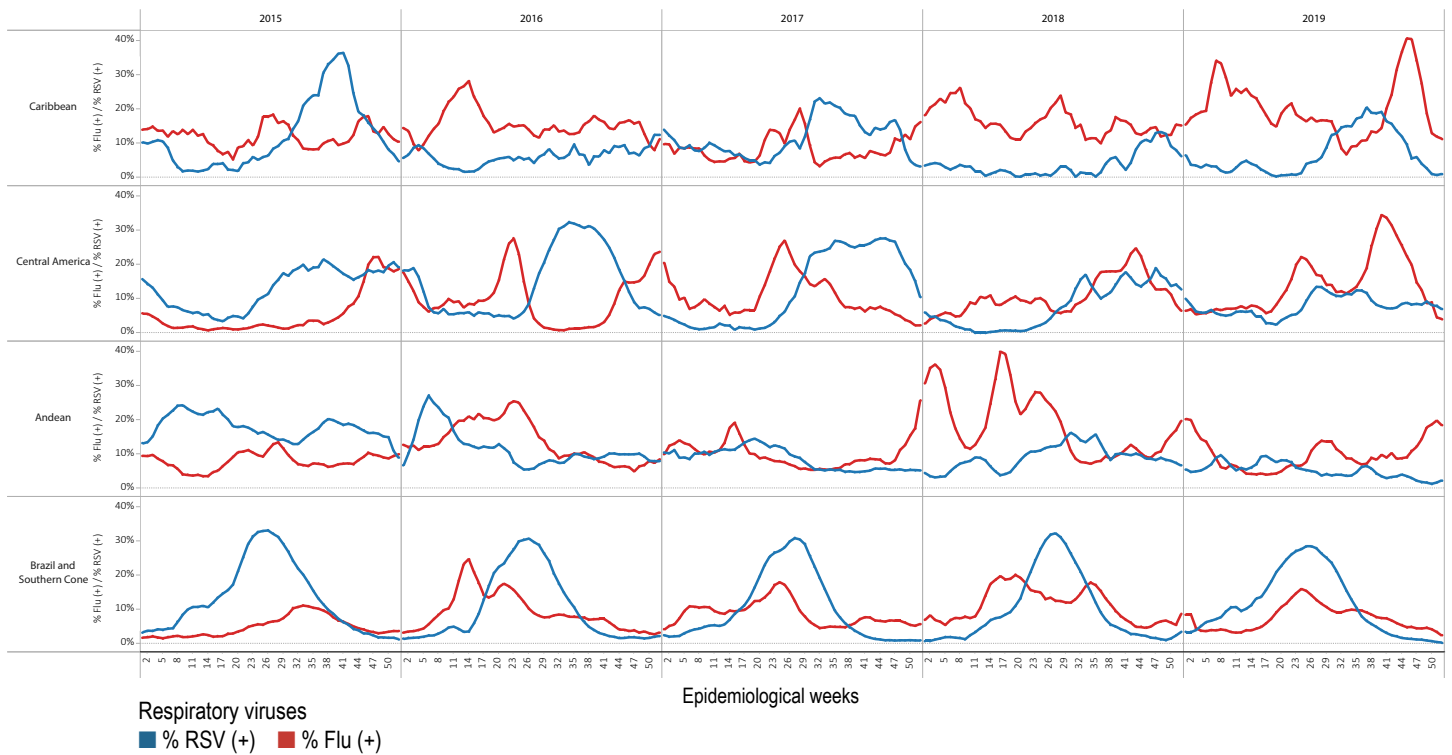


Regional Graphs

Distribution of Influenza Viruses by Subregion, 2015–19

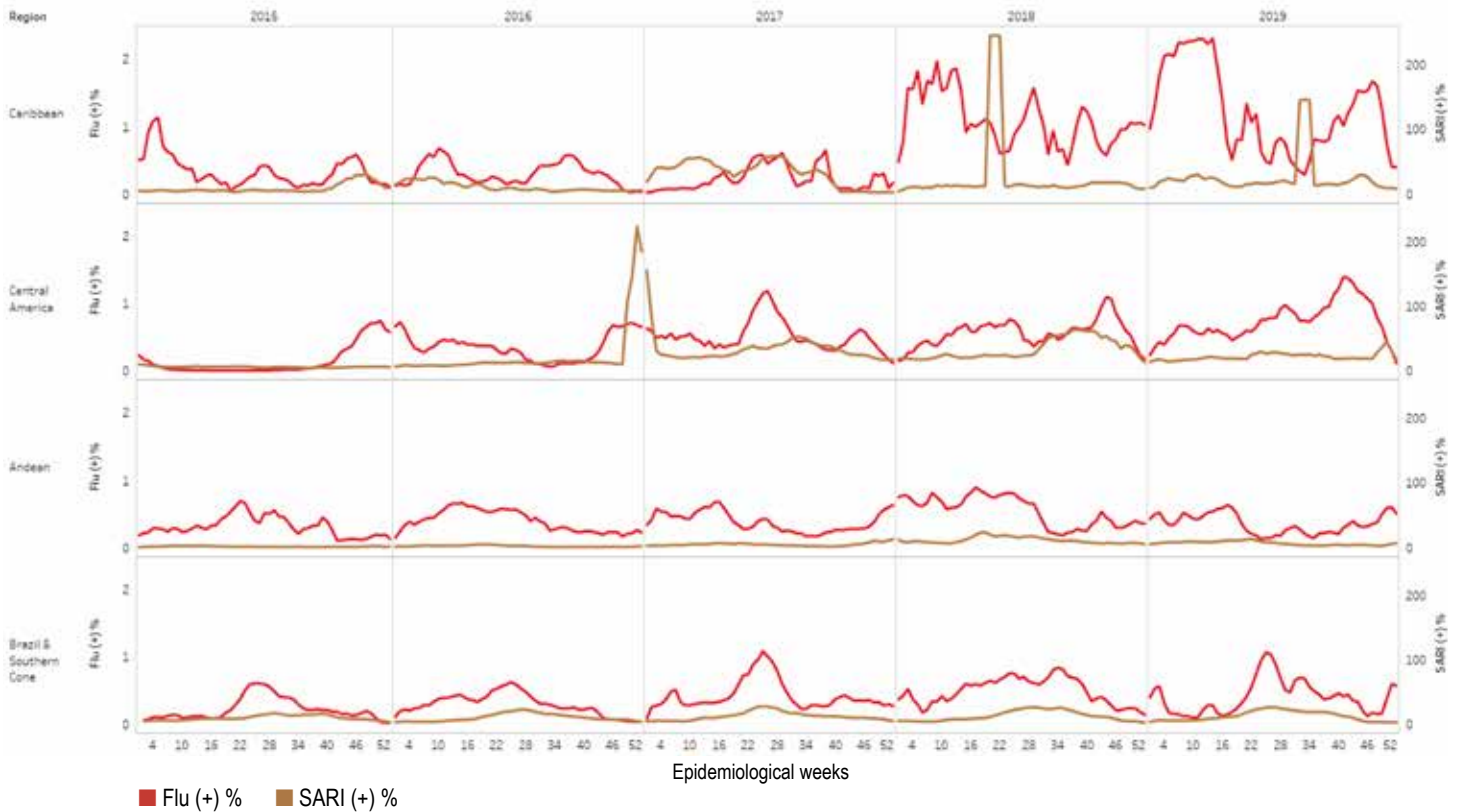


Distribution of Respiratory Syncytial Virus by Subregion, 2015–19

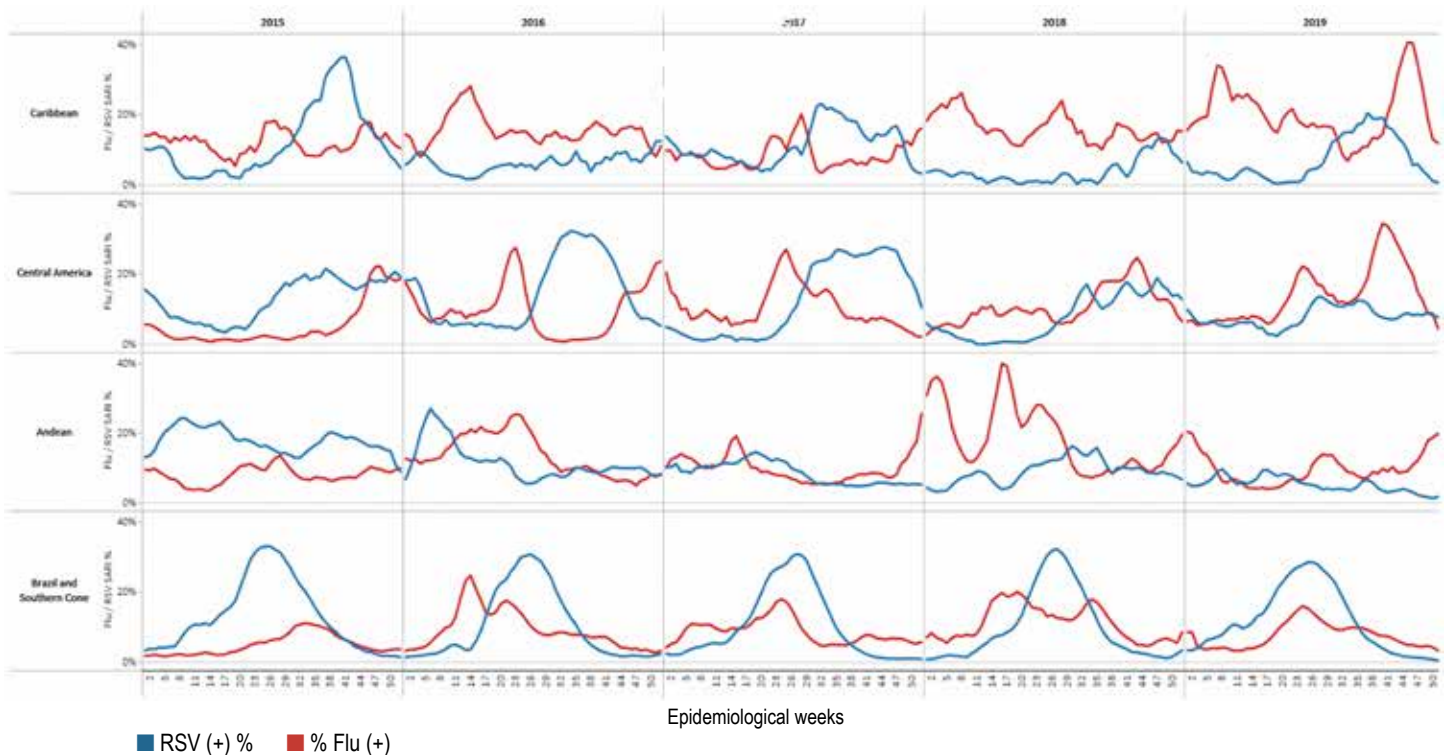


Regional Graphs

Percent of SARI cases among all hospitalizations and percent positivity for influenza among SARI cases, 2015–19*

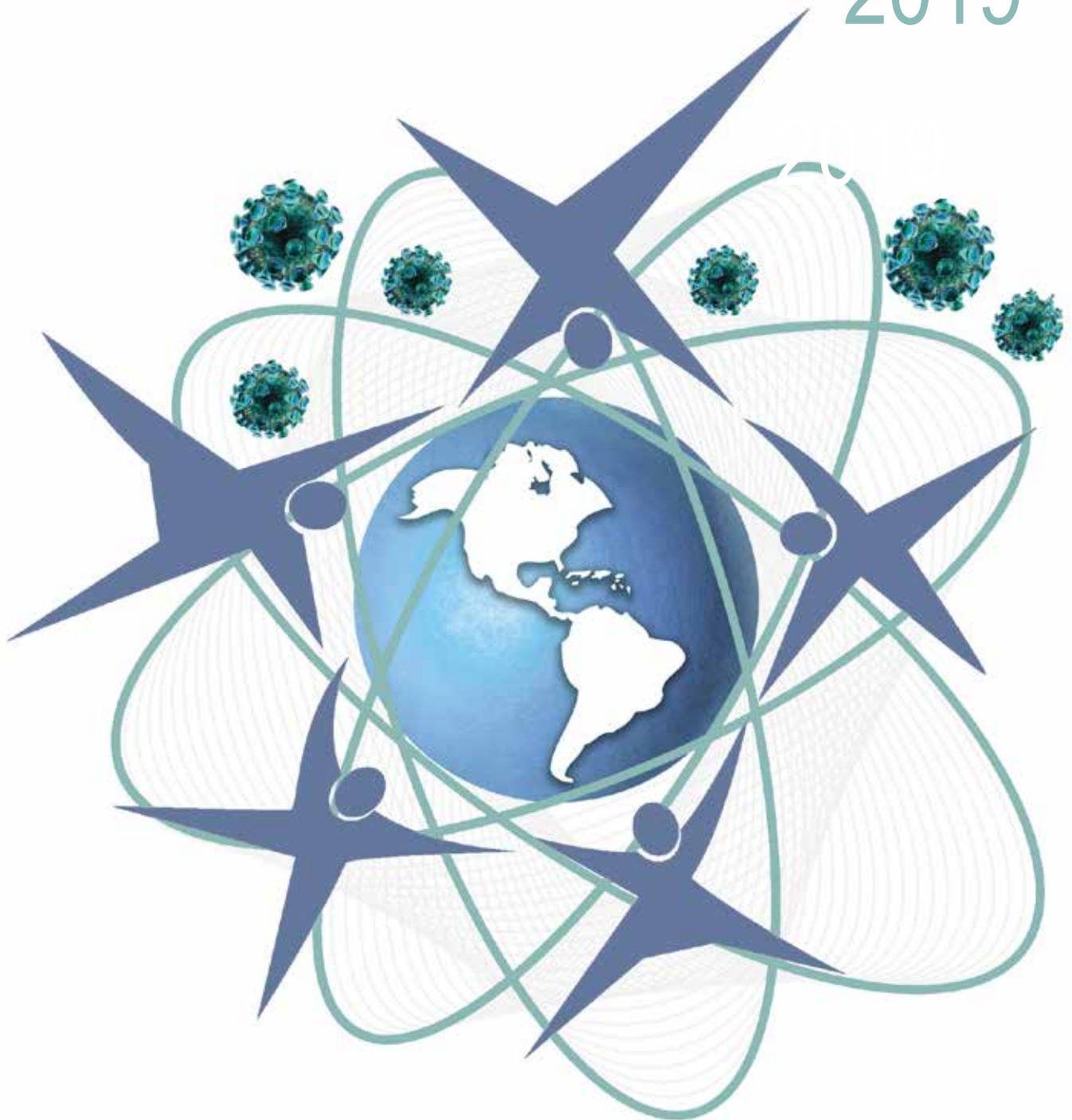


Percent positivity for influenza and RSV among SARI cases, 2015–19*



* Countries included in the above analyses: **Caribbean:** Barbados, Cuba, Dominica, Dominican Republic, Haiti, Jamaica, Saint Lucia, Suriname, Trinidad and Tobago; **Central America:** Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua; **Andean:** Bolivia (Plurinational State of), Colombia, Ecuador, Peru; **Brazil & Southern Cone:** Argentina, Brazil, Chile, Paraguay, Uruguay.

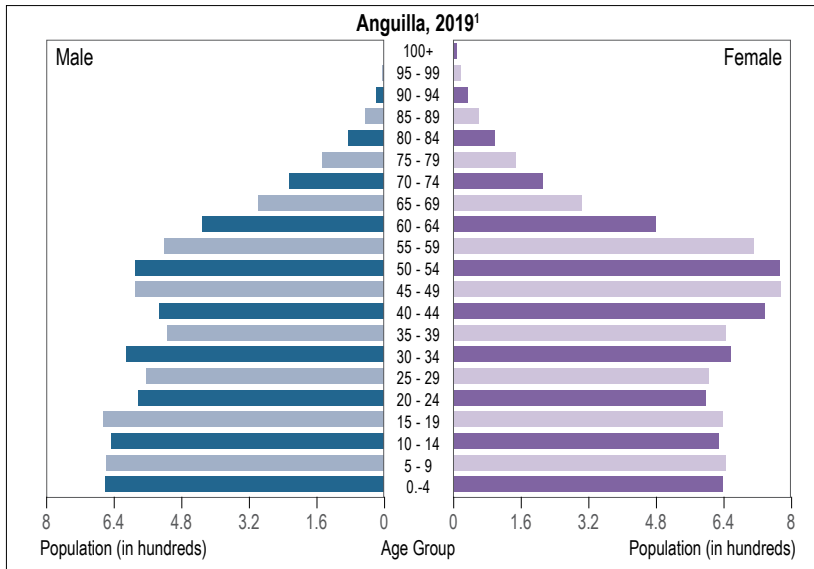
Country and Territory Data 2019







Anguilla



POPULATION

Population (thousands)²: **15.0**

Population density (per km²)³: **163.8**

Percentage of population < 5 years⁴: **7.8%**

Percentage of population ≥ 65 years⁴: **7.5%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **4.8**

Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **20.7**

Mortality rate due to communicable diseases (per 100,000 population)⁵: **18.4**

PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **NA**

Current health expenditure per capita, PPP* (current international \$)⁶: **NA**

National health expenditure as % of GDP 2016⁵: **NA**

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
ARI	No*	Sentinel	No	Varies	NA	5	NA	NA	No
PNEUMONIA	No; ICD-10 codes (J12-J18)	National	100%	NA	NA	1	NA	NA	Yes
INFLUENZA	NA	Sentinel	NA	NA	NA	5	NA	NA	Yes
INFLUENZA MORTALITY	NA	National	NA	NA	NA	1	NA	NA	NA

* ARI: Acute (sudden) febrile illness in a previously healthy person, presenting with cough or sore throat with or without respiratory distress.



* The data in the sentinel surveillance map are updated as of January 2019.
Population based on Core Indicators 2019: Health Trends in the Americas. Washington, D.C.: PAHO; 2019.

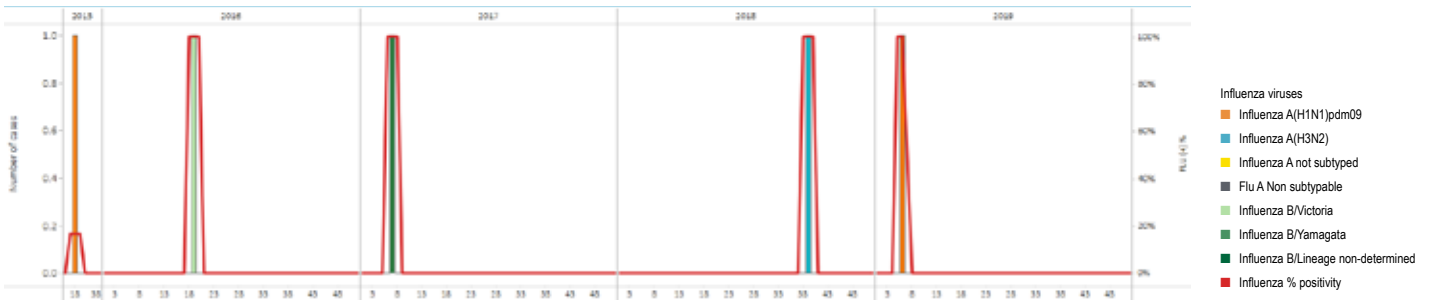
Surveillance Systems

Surveillance Map

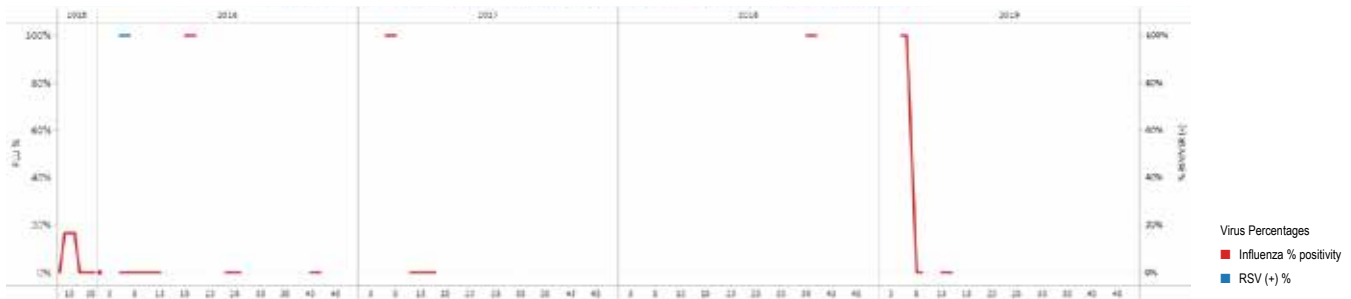
Influenza and Respiratory Syncytial Virus

Virologic data

Anguilla: Distribution of influenza by epidemiological week

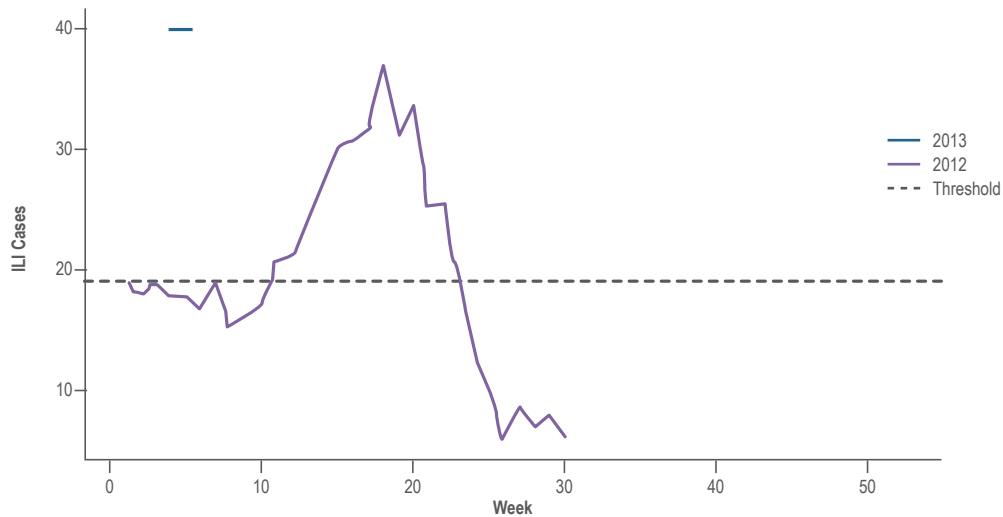


Anguilla: Cumulative percent positivity for influenza and respiratory syncytial virus



Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases

Not applicable

Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	No	Composition	NA
Part of an all-hazards plan	NA	Month of vaccine administration	NA
Year of original publication	NA	Percentage of older adults vaccinated ⁷	NA (≥ 65 years, no denominators defined)
Year of last revision/update	NA	Percentage of children under 5 vaccinated ⁷	NA
Simulations	NA	Percentage of pregnant women vaccinated ⁷	NA
Drills	NA	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	NA	Percentage of health care workers vaccinated ⁷	Yes
Risk communication strategy in place	NA		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	No	FluID	Report: In progress Reported > 33%: NA Reported to WHO in 2018: NA
Participation in the latest WHO External Quality Assessment Programme (EQAP)	NA	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	NA	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	NA		
Specimens tested for other respiratory viruses (ORV)	NA		
Other respiratory viruses identified	NA		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	No	Estimation of medical burden for influenza	No
Information sharing between sectors	No	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	No	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/av>
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5. Pan American Health Organization. Core Indicators 2019: Health Trends in the Americas. Washington, D.C.: PAHO; 2019. <https://iris.paho.org> Accessed: 9 Oct. 2019.
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. Immunization in the Americas [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Antigua and Barbuda

POPULATION

Population (thousands)²: **97.0**

Population density (per km²)³: **219**

Percentage of population < 5 years⁴: **7.7%**

Percentage of population ≥ 65 years⁴: **9.3%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **5.8**

Mortality rate from all causes at < 5 years of age
(per 1,000 live births)⁵: **20.7**

Mortality rate due to communicable diseases
(per 100,000 population)⁵: **78.2**

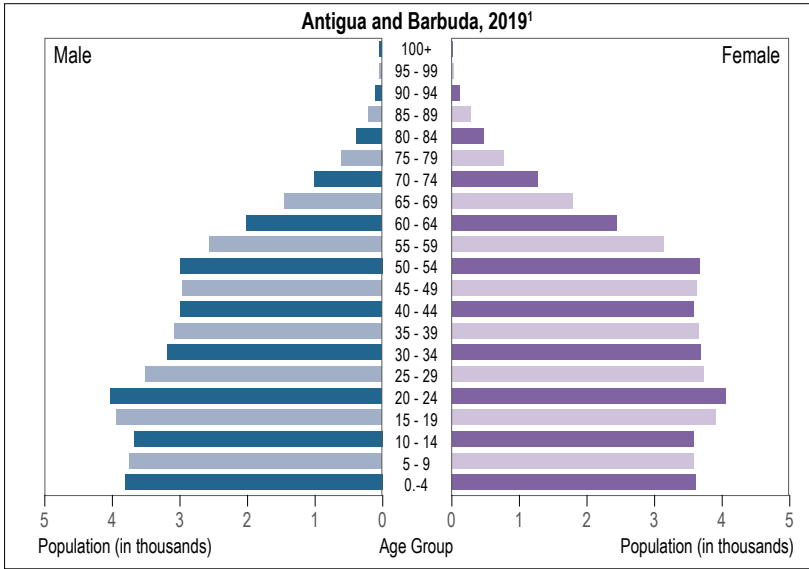
PUBLIC HEALTH

Number of medical doctors working in the public system
(per 10,000 population)⁵: **27.7**

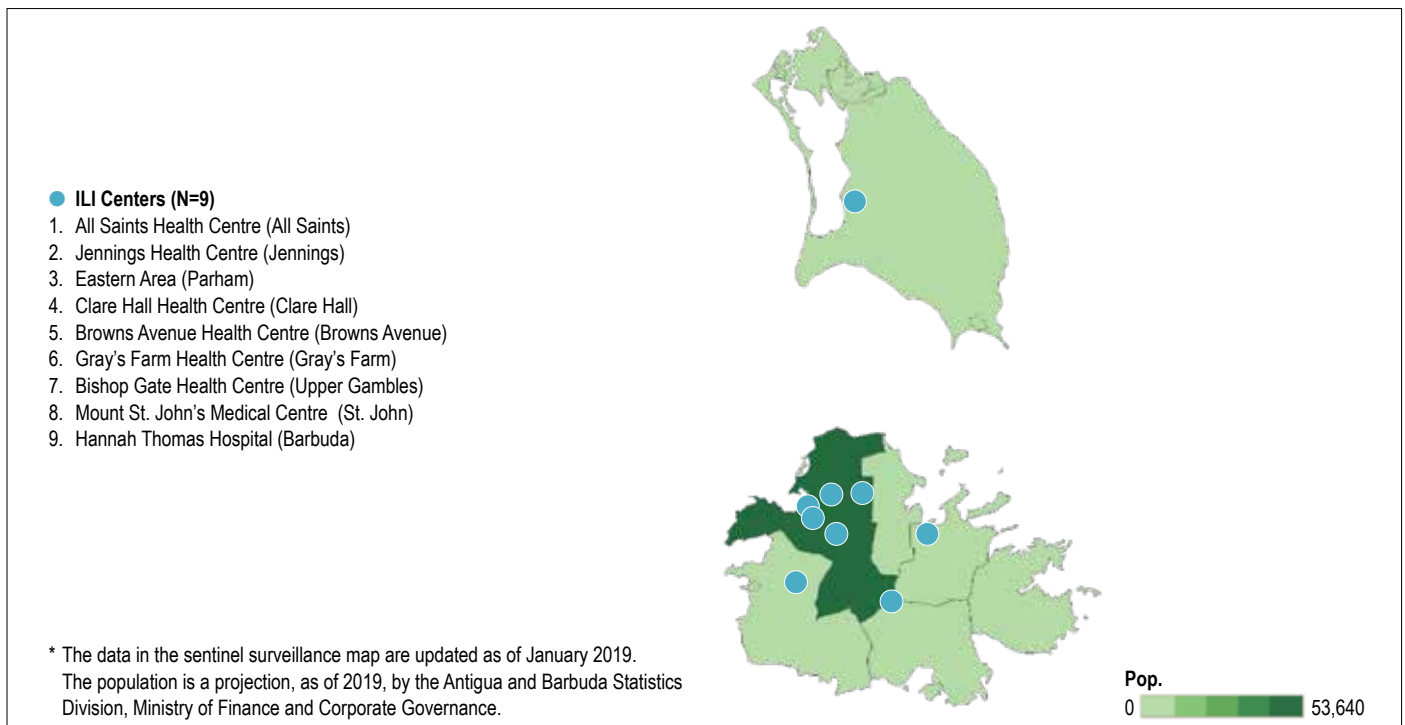
Current health expenditure per capita, PPP*
(current international \$)⁶: **1,070.7**

National health expenditure as % of GDP 2016⁵: **2.6**

*PPP – Purchasing Power Parity



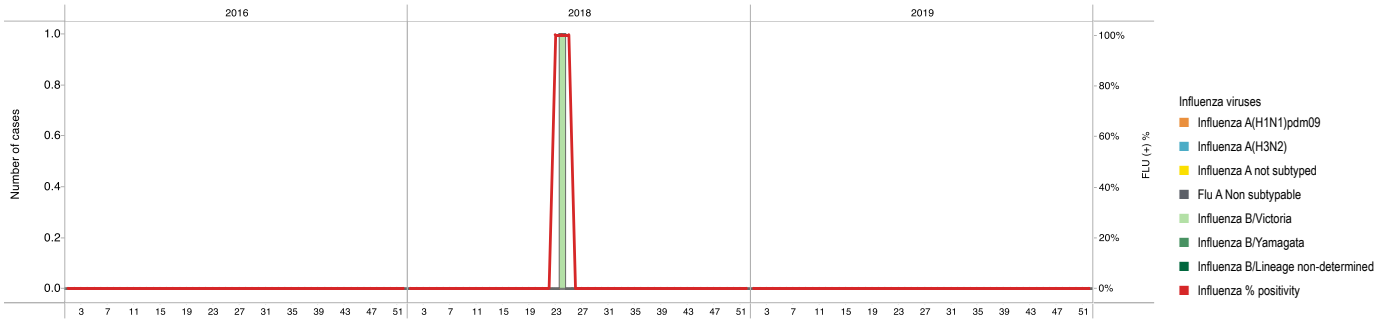
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
ILI	Yes	Sentinel	No	Varies	No	9	NA	NA	No
ARI	No; ICD-9 codes (519.8)	Sentinel	No	Varies	NA	9			
PNEUMONIA	No; ICD-9 codes (599.0)	Sentinel	Yes	Varies	NA	9			
INFLUENZA	NA	Sentinel	NA	Varies	NA	9			



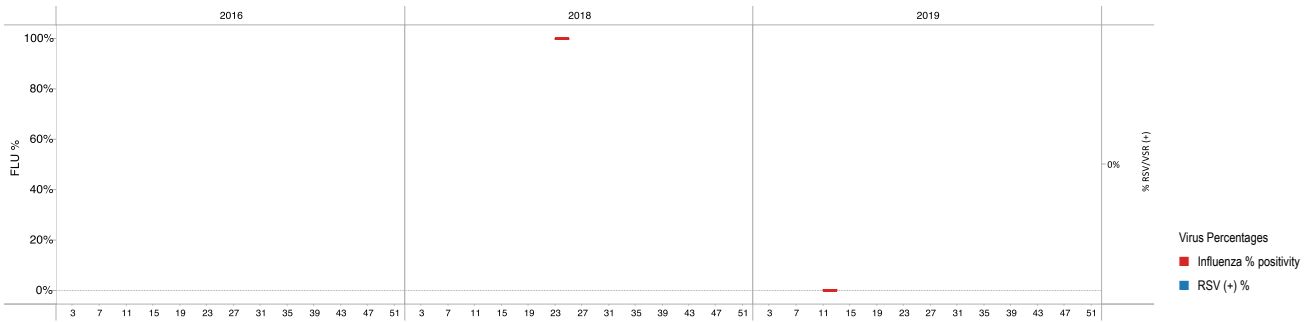
Influenza and Respiratory Syncytial Virus

Virologic data

Antigua and Barbuda: Distribution of influenza viruses by epidemiological week

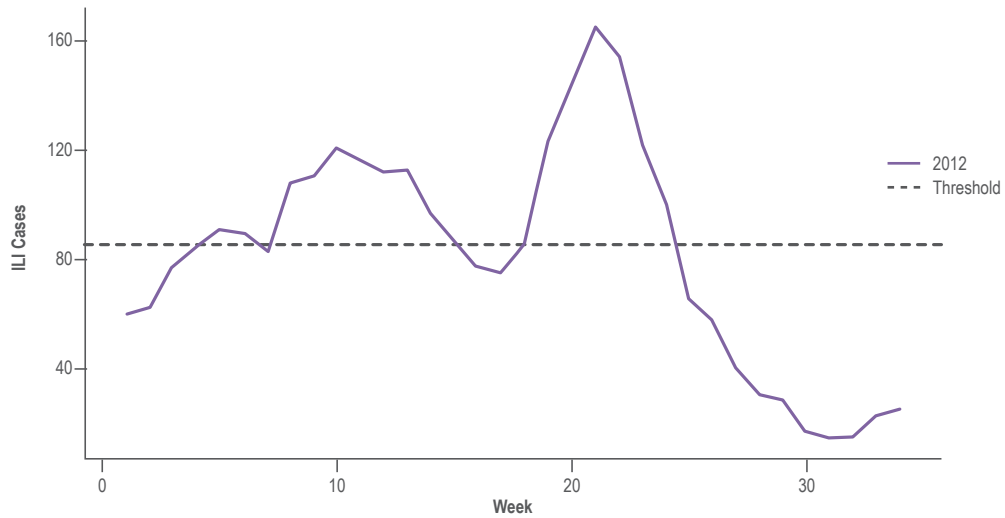


Antigua and Barbuda: Cumulative percent positivity for influenza and respiratory syncytial virus



Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases

Not applicable

Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	NA
Part of an all-hazards plan	Yes	Month of vaccine administration	NA
Year of original publication	2007	Percentage of older adults vaccinated ⁷	NA (> 60 years, no denominators defined)
Year of last revision/update	2007	Percentage of children under 5 vaccinated ⁷	NA
Simulations	No	Percentage of pregnant women vaccinated ⁷	NA
Drills	No	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	Yes
Risk communication strategy in place	Yes		

Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	No	FluID	Report: In progress Reported > 33%: NA Reported to WHO in 2018: NA
Participation in the latest WHO External Quality Assessment Programme (EQAP)	NA	FluNet	Report: In progress Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	NA	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	NA		
Specimens tested for other respiratory viruses (ORV)	NA		
Other respiratory viruses identified	NA		

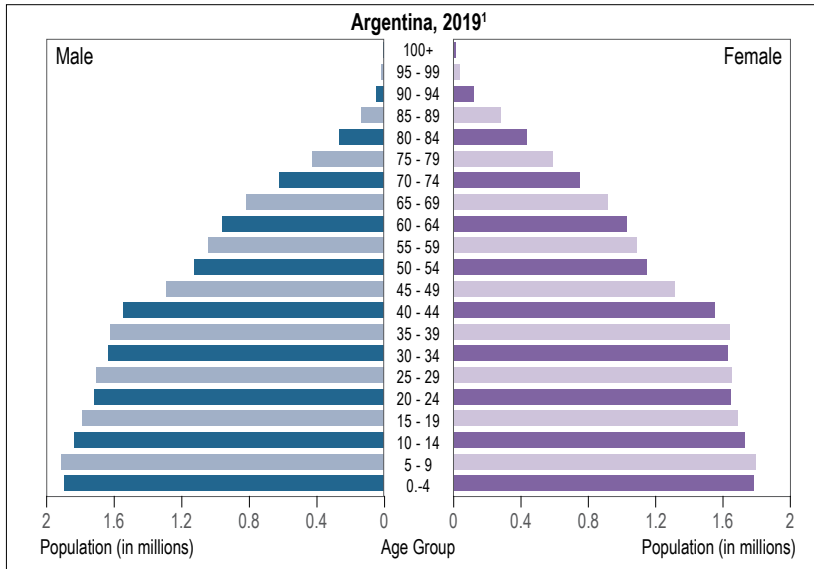
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	No
Information sharing between sectors	Yes	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	In progress	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/ac>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization. *Core Indicators 2019: Health Trends in the Americas*. Washington, D.C.: PAHO; 2019. <https://iris.paho.org>. Accessed: 9 Oct. 2019.
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Argentina



POPULATION
Population (thousands) ² : 44,495
Population density (per km ²) ³ : 16.0
Percentage of population < 5 years ⁴ : 8.4%
Percentage of population ≥ 65 years ⁴ : 11.1%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 5.6
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 11.0
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 85.2

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 39.9
Current health expenditure per capita, PPP* (current international \$) ⁶ : 1,916.5
National health expenditure as % of GDP 2016 ⁵ : 5.6

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	National	100%	Weekly	Yes	400	Sistema Nacional de Vigilancia de la Salud (SNVS)	Yes	Yes
ILI	Yes	National	100%	Weekly	Yes	2,000		Yes	No
PNEUMONIA	No; ICD-10 codes (J10-J18)	National	Quota	Weekly	NA	1,000		Yes	Yes
INFLUENZA	NA	National	100%	Weekly	NA	100		Yes	Yes
INFLUENZA MORTALITY	NA	National	100%	NA	NA	NA		Yes	Online

Surveillance Systems

- **SARI Hospitals (N=3)**
 1. RVIII – General Pueyrredón
 2. Soc. Italiana de Benef – Hospital Italiano
 3. Hospital Teodoro Schestakow
- ▲ **Laboratories with PCR capacity (N=38)**
The total number of regional laboratories, including those with immunofluorescence capacity, is greater than 100 (only those with PCR capacity are shown in map)
- ◆ **National Influenza Centers (N=3)**
 1. National Institute of Infectious Diseases (Buenos Aires City)
National Reference Laboratory for influenza and respiratory viruses and coordinator of the National Network of influenza and respiratory viruses.
 - Technical capacity: IF, RT-PCR, viral isolation (VI), hemagglutination inhibition (HAI), sequencing, antiviral susceptibility, serology.
 - Average samples processed/year: 4,905
 2. Influenza and Other Respiratory Virus Laboratory, Virology Institute - InViv (Córdoba)
 - Technical capacity: IF, RT-PCR, VI, HAI, sequencing, serology.
 3. National Institute of Epidemiology (Mar del Plata)
 - Technical capacity: IF, RT-PCR, VI, HAI, sequencing, antiviral susceptibility.

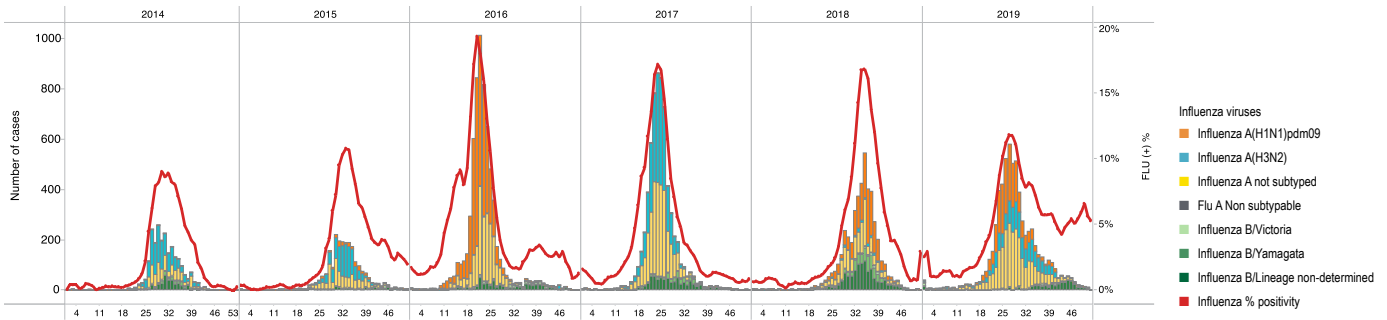
* The data in the sentinel surveillance map are updated as of January 2019.
The population is a projection, as of 2018, by the National Institute of Statistics and Census (INDEC), Argentina.

Surveillance Map

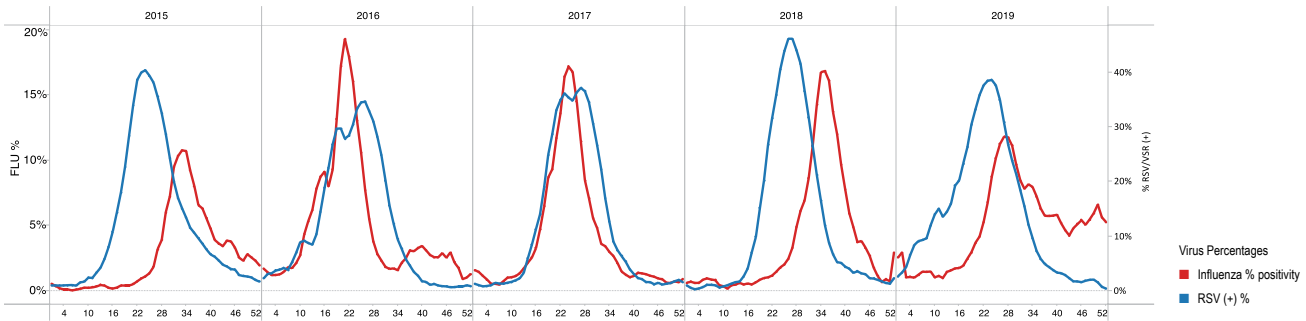
Influenza and Respiratory Syncytial Virus

Virologic data

Argentina: Distribution of influenza viruses by epidemiological week

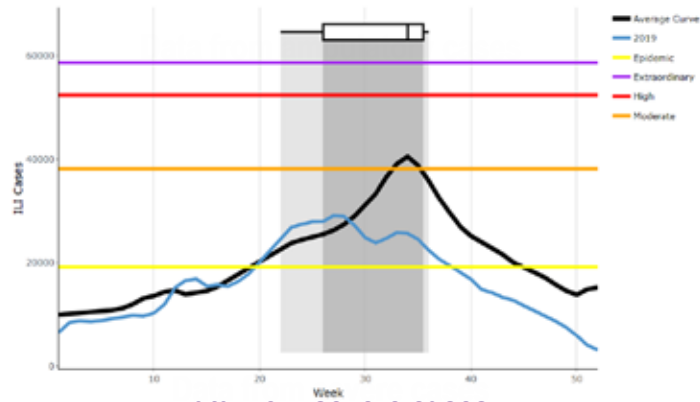


Argentina: Cumulative percent positivity for influenza and respiratory syncytial virus



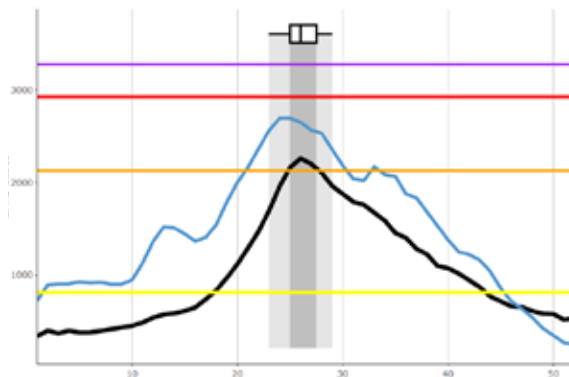
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



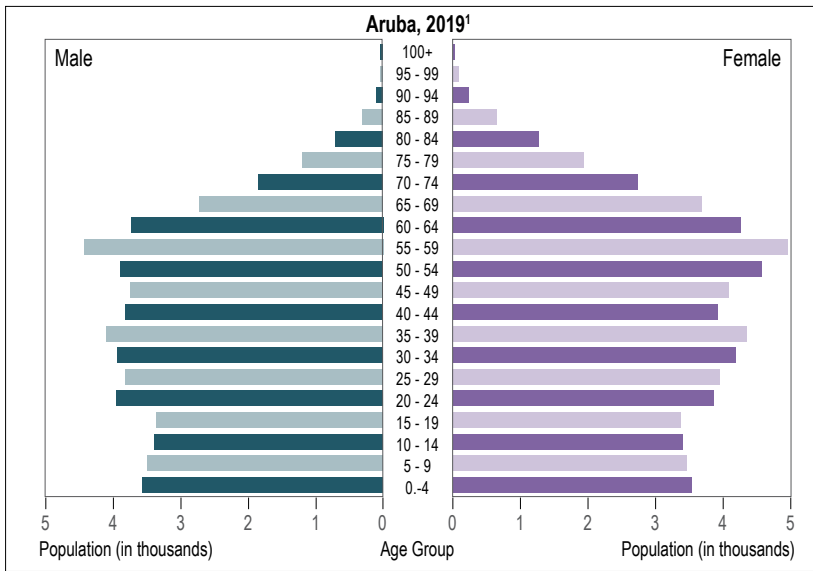
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere (*since 1993)
Part of an all-hazards plan	Yes	Month of vaccine administration	April (since 2016)
Year of original publication	2009	Percentage of older adults vaccinated ⁷	100% (reported coverage, > 65 years)
Year of last revision/update	2009	Percentage of children under 5 vaccinated ⁷	70% (age of vaccinated children is 6-24 months. 2018)
Simulations	Yes	Percentage of pregnant women vaccinated ⁷	72% (2018)
Drills	NA	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes (2018)
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	98% (2018)
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: Yes Seriousness of disease: Yes Impact: No
Number of samples analyzed during 2017–2018	4,905		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus, SARSCoV; MERSCoV; NL63Cov; HKU1Cov; 229ECov; OC43Cov; coronavirus (OC43, 229E NL63, HQU1)		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	In progress	Estimation of medical burden for influenza	No
Information sharing between sectors	In progress	Estimation of economic burden for influenza	NA
Surveillance of unusual respiratory cases with exposure to animals	No	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/ar>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization. *Core Indicators 2019: Health Trends in the Americas*. Washington, D.C.: PAHO; 2019. <https://iris.paho.org> Accessed: 9 Oct. 2019.
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Aruba



POPULATION
Population (thousands) ² : 105.8
Population density (per km ²) ³ : 588.0
Percentage of population < 5 years ⁴ : 5.4%
Percentage of population ≥ 65 years ⁴ : 13.6%

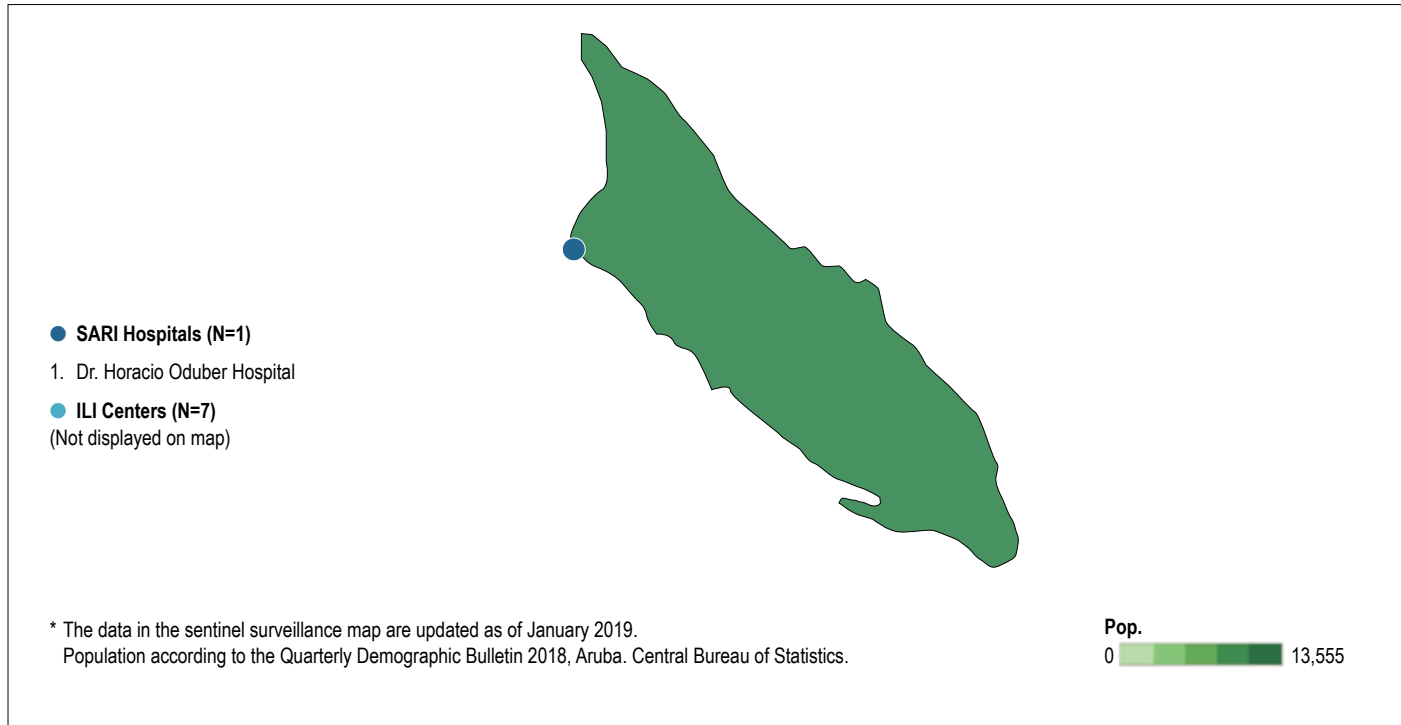
MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 5.2
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 3.3
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 39.4

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 19.0
Current health expenditure per capita, PPP* (current international \$) ⁶ : NA
National health expenditure as % of GDP 2016 ⁵ : NA

*PPP – Purchasing Power Parity

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	NA	NA	No	2	SPSS ARI-SARI data base	Yes	No
ARI	No*	Sentinel	NA	NA	NA	7	SPSS ARI-SARI data base		
INFLUENZA MORTALITY	NA	National	NA	No	NA	NA	SPSS Mortality data base		

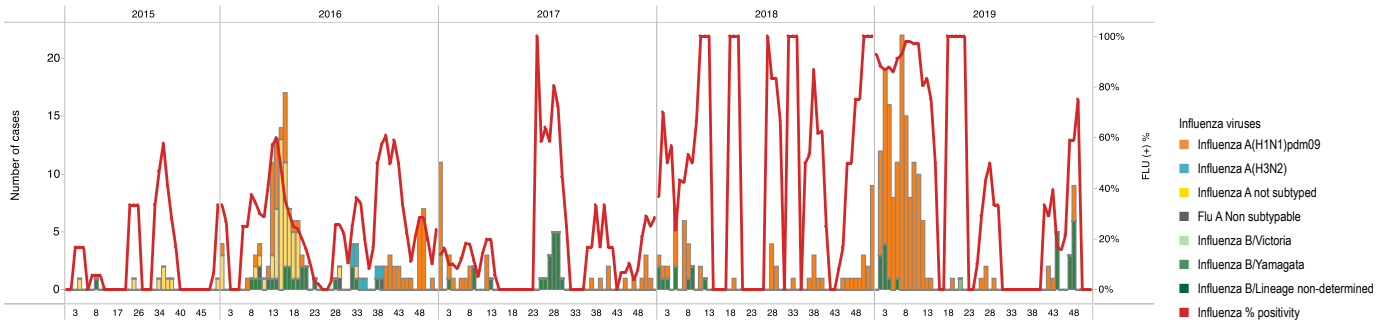
* ARI: Acute (sudden) febrile illness (> 38.0 °C); Previously healthy person; With cough and/or sore throat; With or without respiratory distress



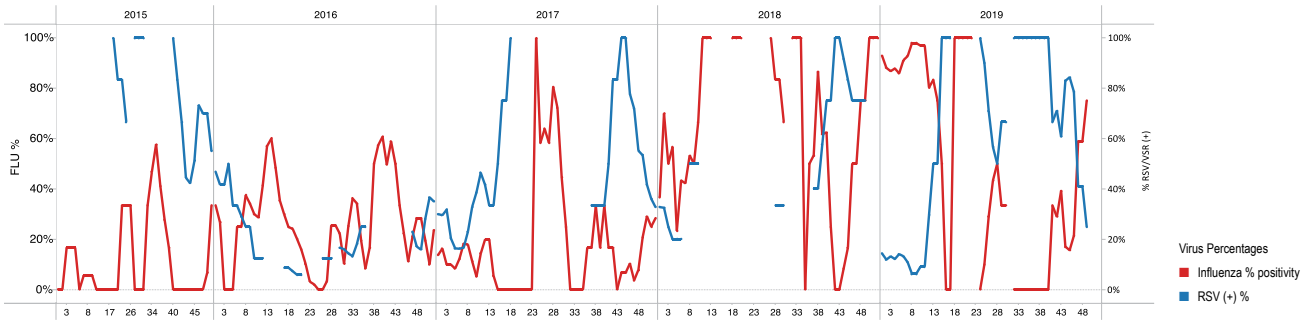
Influenza and Respiratory Syncytial Virus

Virologic data

Aruba: Distribution of influenza viruses by epidemiological week



Aruba: Cumulative percent positivity for influenza and respiratory syncytial virus



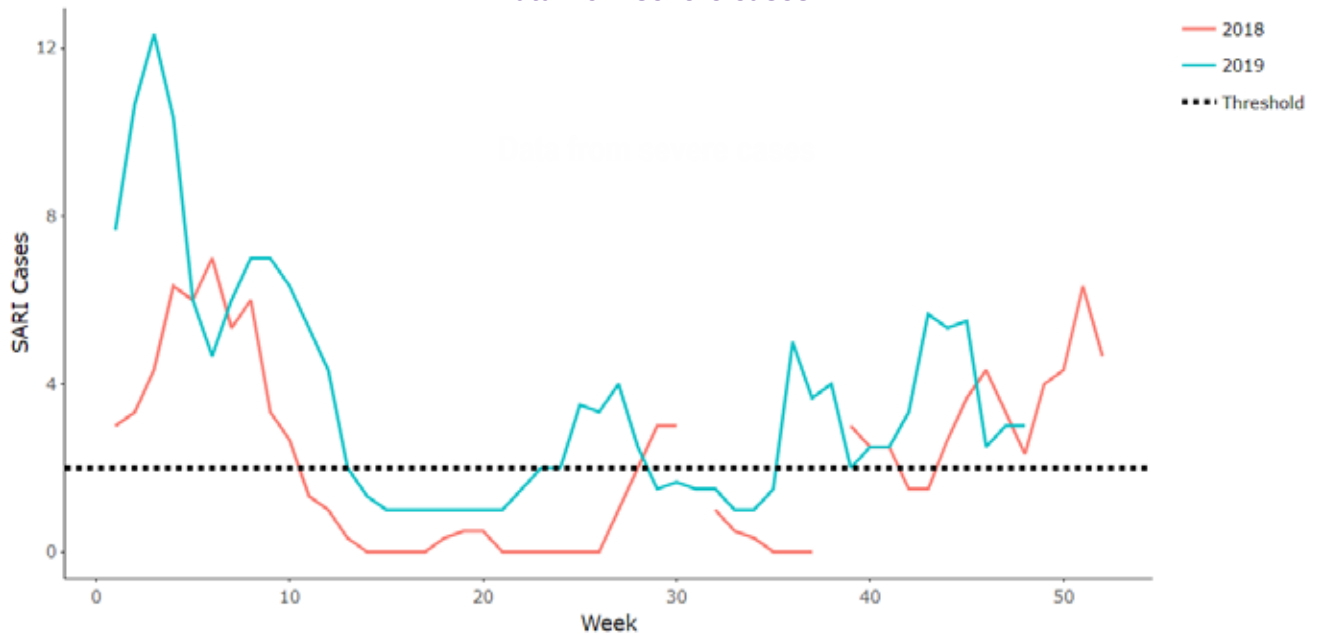
Influenza-Like Illness (ILI)

Data from ambulatory cases

Not applicable

Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



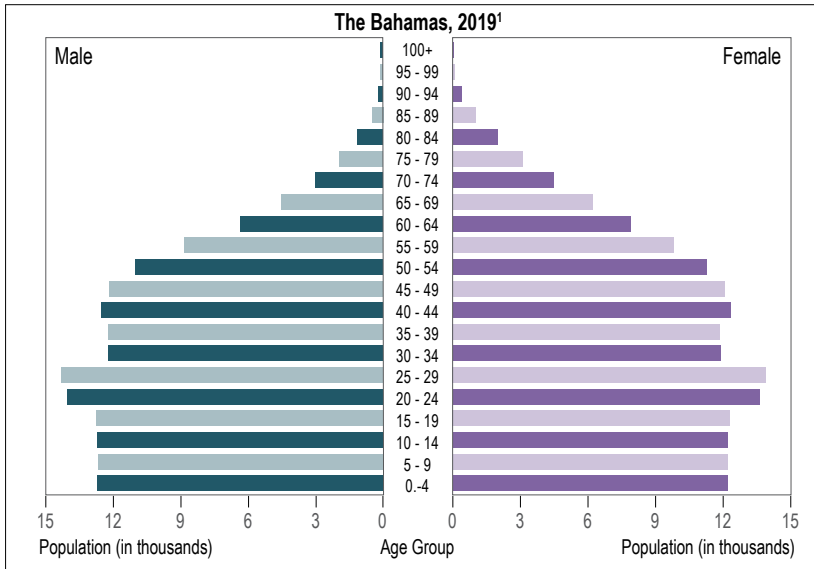
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	NA
Part of an all-hazards plan	No	Month of vaccine administration	NA
Year of original publication	2009	Percentage of older adults vaccinated ⁷	NA (> 65 years)
Year of last revision/update	2013	Percentage of children under 5 vaccinated ⁷	NA
Simulations	No	Percentage of pregnant women vaccinated ⁷	Yes
Drills	Yes	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	Yes
Risk communication strategy in place	No		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	NA	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	No	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	797		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, rhinovirus		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	No
Information sharing between sectors	Yes	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	No	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/aa>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



The Bahamas



POPULATION

Population (thousands)²: **385.64**

Population density (per km²)³: **39.0**

Percentage of population < 5 years⁴: **6.7%**

Percentage of population ≥ 65 years⁴: **7.5%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **5.7**

Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **17.6**

Mortality rate due to communicable diseases (per 100,000 population)⁵: **97.6**

PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **19.4**

Current health expenditure per capita, PPP* (current international \$)⁶: **1,436**

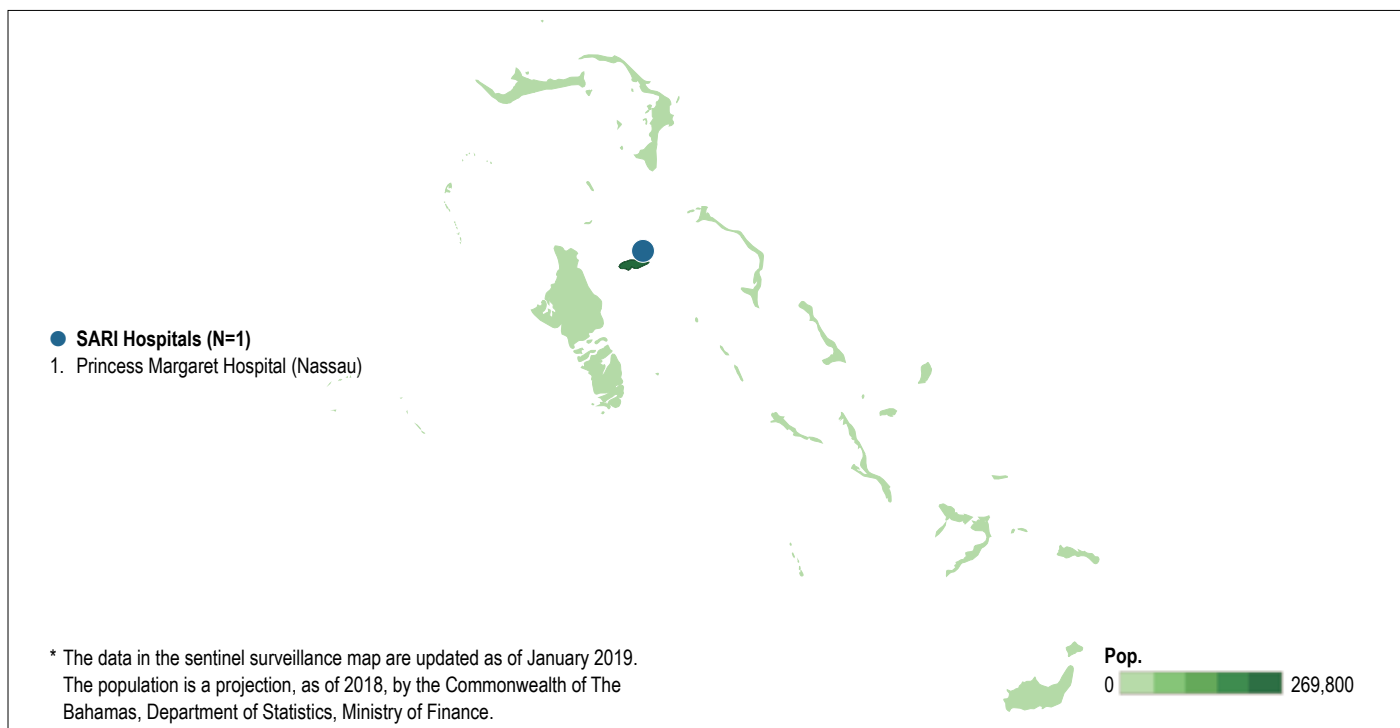
National health expenditure as % of GDP 2016⁵: **3.2**

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	NA	NA	NA	NA	NA	NA	NA

Surveillance Systems

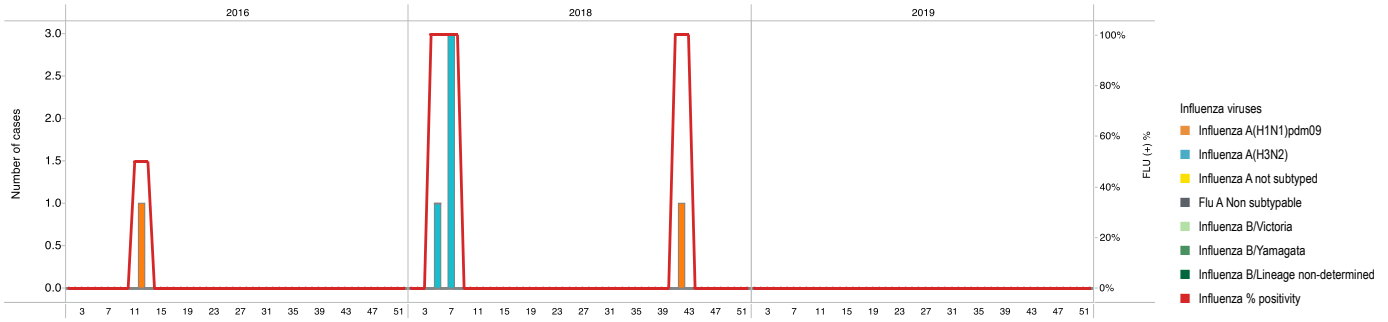


Surveillance Map

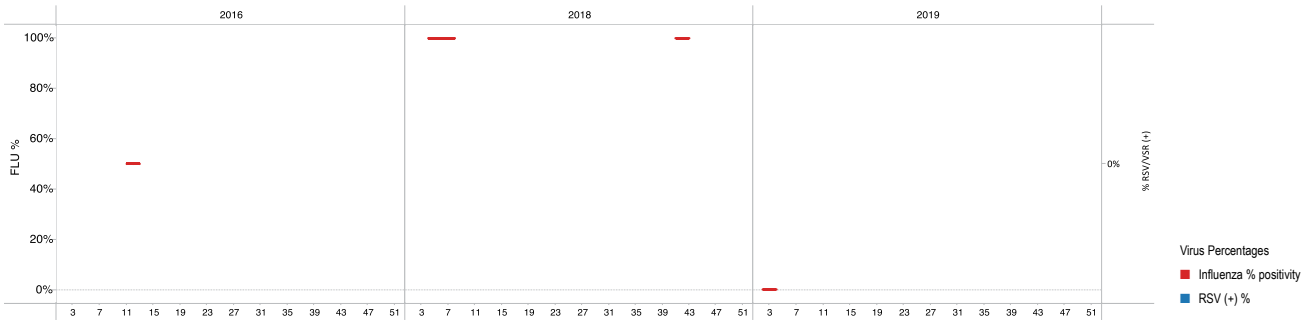
Influenza and Respiratory Syncytial Virus

Virologic data

Bahamas: Distribution of influenza viruses by epidemiological week



Bahamas: Cumulative percent positivity for influenza and respiratory syncytial virus



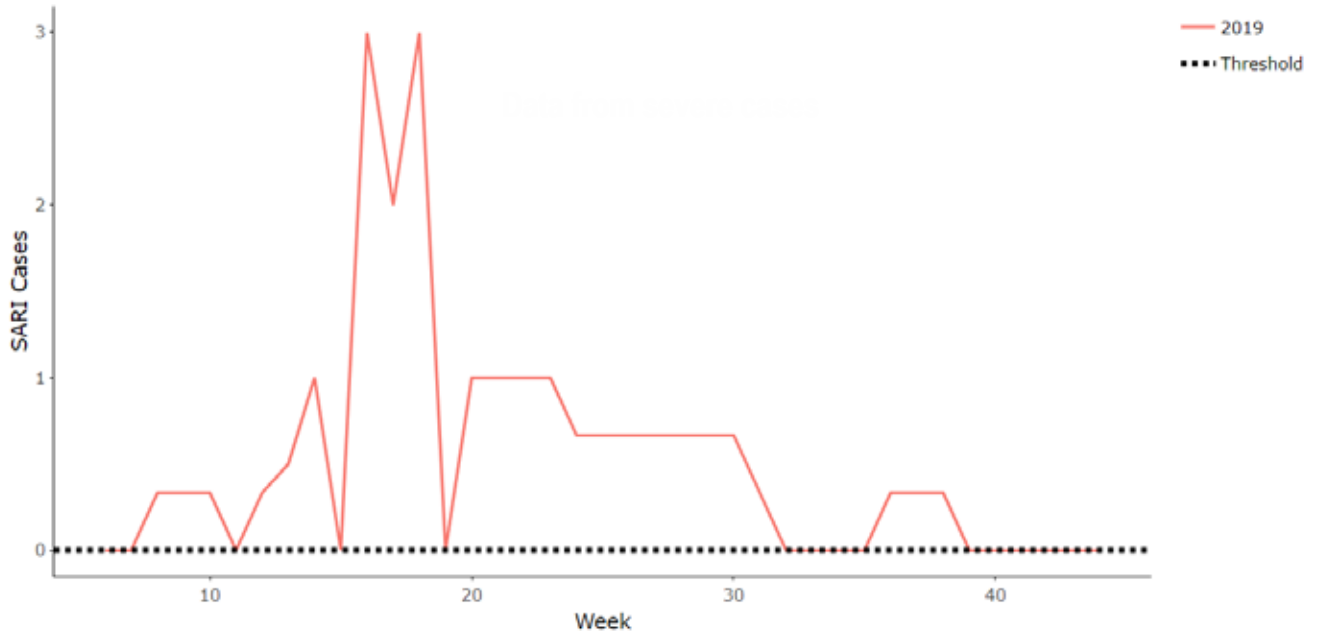
Influenza-Like Illness (ILI)

Data from ambulatory cases

Not applicable

Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	NA	Composition	NA
Part of an all-hazards plan	NA	Month of vaccine administration	NA
Year of original publication	NA	Percentage of older adults vaccinated ⁷	NA (≥ 65 years)
Year of last revision/update	NA	Percentage of children under 5 vaccinated ⁷	NA
Simulations	NA	Percentage of pregnant women vaccinated ⁷	Yes
Drills	NA	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	NA	Percentage of health care workers vaccinated ⁷	Yes
Risk communication strategy in place	NA		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	NA	FluID	Report: In progress Reported > 33%: NA Reported to WHO in 2018: NA
Participation in the latest WHO External Quality Assessment Programme (EQAP)	NA	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	NA	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	NA		
Specimens tested for other respiratory viruses (ORV)	NA		
Other respiratory viruses identified	NA		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	NA	Estimation of medical burden for influenza	NA
Information sharing between sectors	NA	Estimation of economic burden for influenza	NA
Surveillance of unusual respiratory cases with exposure to animals	NA	Publication of influenza burden of disease	NA

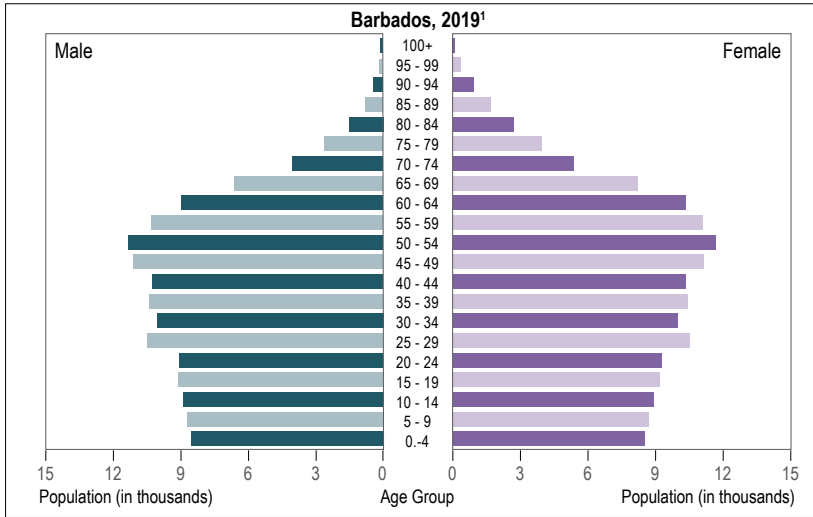
Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/bf>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization. *Core Indicators 2019: Health Trends in the Americas*. Washington, D.C.: PAHO; 2019. <https://iris.paho.org> Accessed: 9 Oct. 2019.
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Barbados

POPULATION
Population (thousands) ² : 286.6
Population density (per km ²) ³ : 666.6
Percentage of population < 5 years ⁴ : 5.3%
Percentage of population ≥ 65 years ⁴ : 15.8%

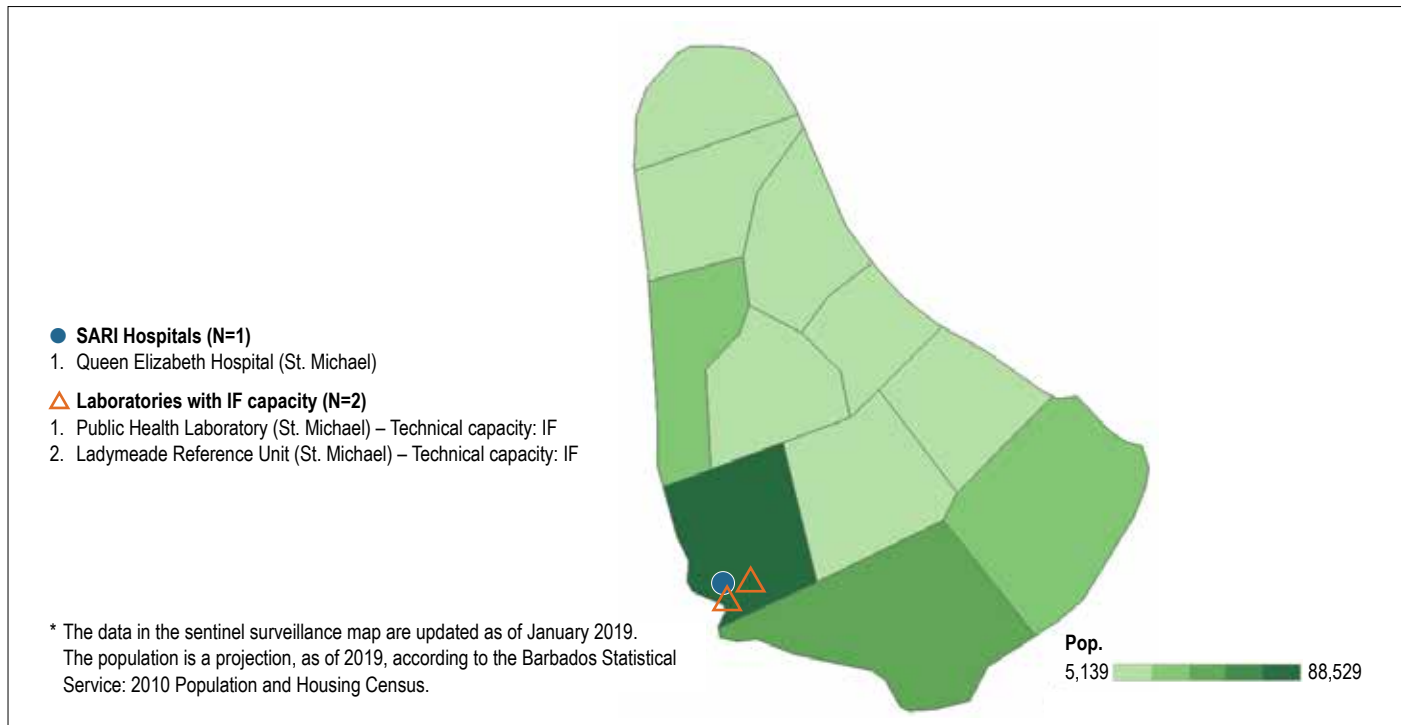


MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 6.5
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 14.9
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 92.6

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 24.9
Current health expenditure per capita, PPP* (current international \$) ⁶ : 1,322.9
National health expenditure as % of GDP 2016 ⁵ : 3.2

*PPP – Purchasing Power Parity

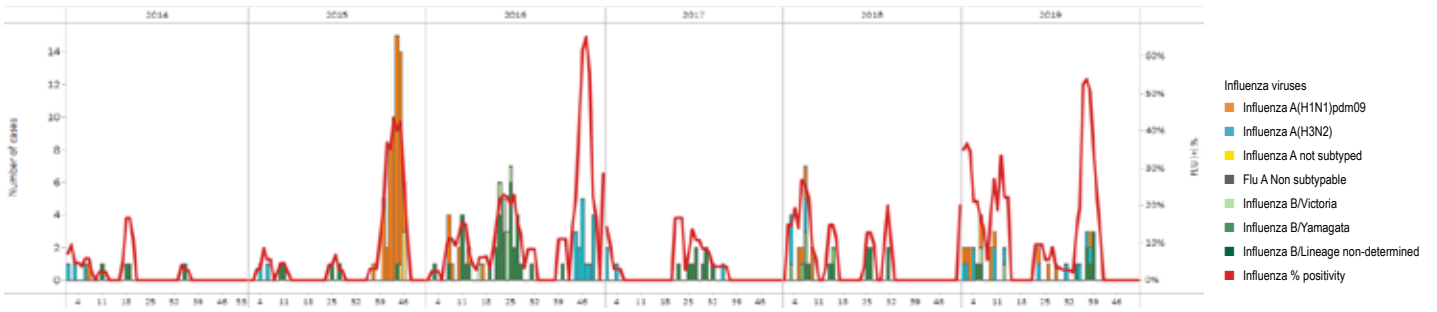
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	No	Sentinel	100%	Daily	Daily	1	Access Database	Yes	No
ARI	No	Sentinel	Quota (6 samples/site/week)	No	NA	13	Excel Database	Yes	No
INFLUENZA	No	Sentinel	All SARI cases/Quota of ARI cases	No	NA	2	Excel Database	Yes	No



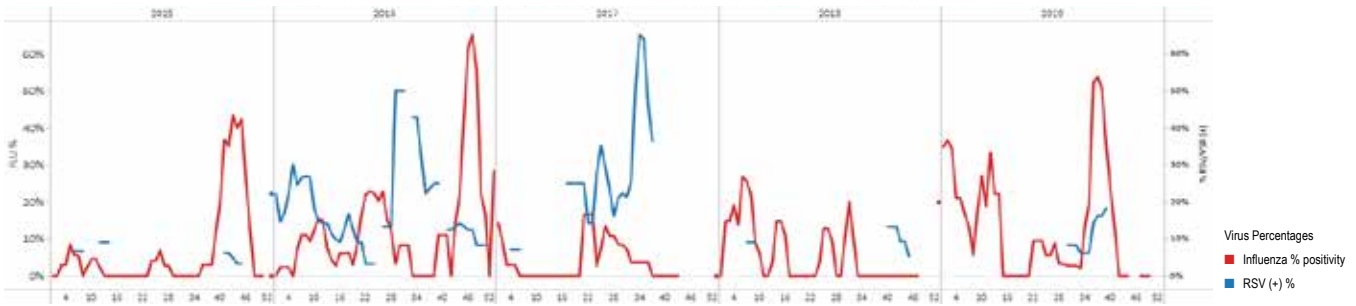
Influenza and Respiratory Syncytial Virus

Virologic data

Barbados: Distribution of influenza viruses by epidemiological week



Barbados: Cumulative percent positivity for influenza and respiratory syncytial virus



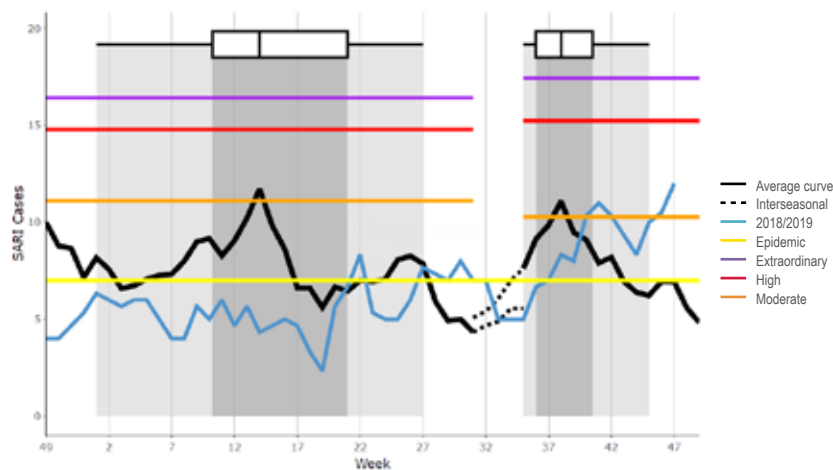
Acute Respiratory Infection (ARI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning

Plan available	Yes (printed document)
Part of an all-hazards plan	Yes
Year of original publication	2009
Year of last revision/update	In progress
Simulations	NA
Drills	NA
Rapid response teams composed	NA
Risk communication strategy in place	NA

Influenza Vaccine

Composition	Southern hemisphere
Month of vaccine administration	April (In 2016)
Percentage of older adults vaccinated ⁷	NA (> 65 years, no denominators defined)
Percentage of children under 5 vaccinated ⁷	NA
Percentage of pregnant women vaccinated ⁷	NA
Percentage of people at higher risk for influenza-related complications vaccinated ⁷	No
Percentage of health care workers vaccinated ⁷	Yes

Laboratory Capacity

Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	NA
Samples sent to WHO Collaborating Center	NA
Number of samples analyzed during 2017–2018	NA
Specimens tested for other respiratory viruses (ORV)	NA
Other respiratory viruses identified	NA

FluID/FluNet/PISA

FluID	Report: In progress Reported > 33%: NA Reported to WHO in 2018: NA
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza

Intersectoral meetings	NA
Information sharing between sectors	NA
Surveillance of unusual respiratory cases with exposure to animals	NA

Influenza Disease Burden

Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	No

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/bb>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Belize

POPULATION

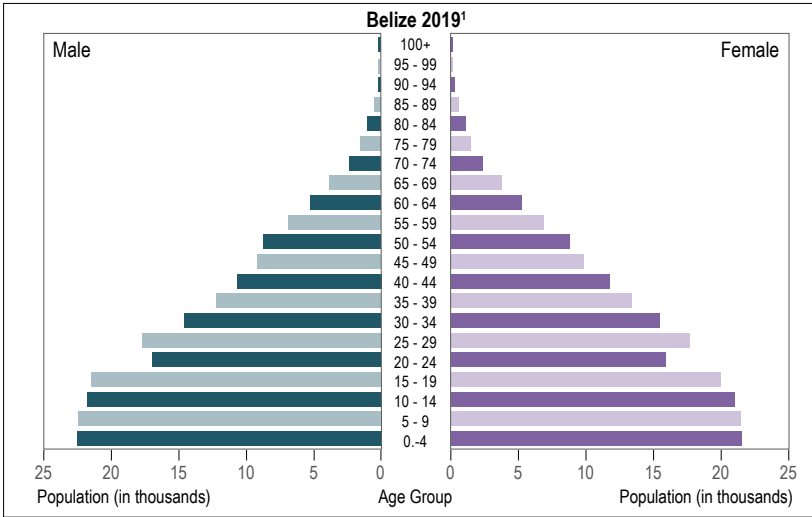
Population (thousands)²: **383.0**
 Population density (per km²)³: **17.0**
 Percentage of population < 5 years⁴: **10.3%**
 Percentage of population ≥ 65 years⁴: **4.7%**

MORTALITY

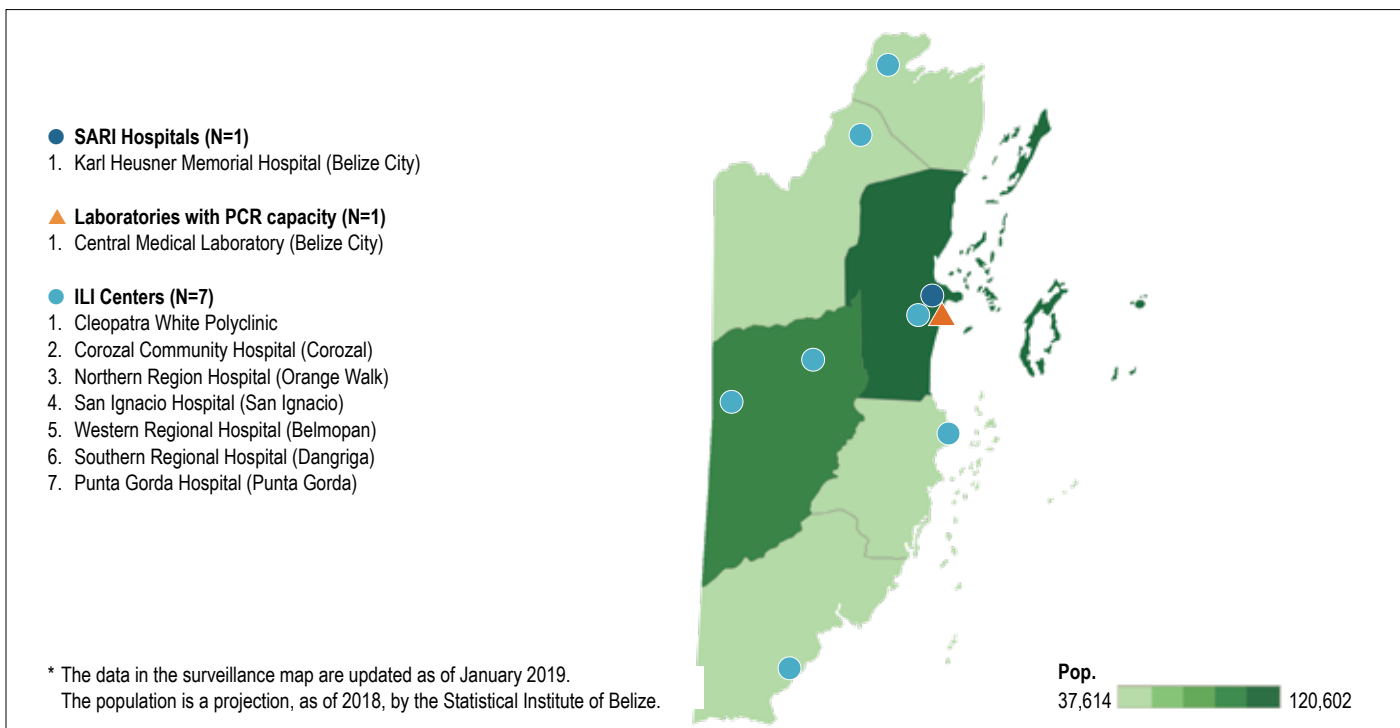
Gross mortality rate (per 1,000 population)⁵: **9.5**
 Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **14.8**
 Mortality rate due to communicable diseases (per 100,000 population)⁵: **142.7**

PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **10.8**
 Current health expenditure per capita, PPP* (current international \$)⁶: **541.4**
 National health expenditure as % of GDP 2016⁵: **4.1**
 *PPP – Purchasing Power Parity



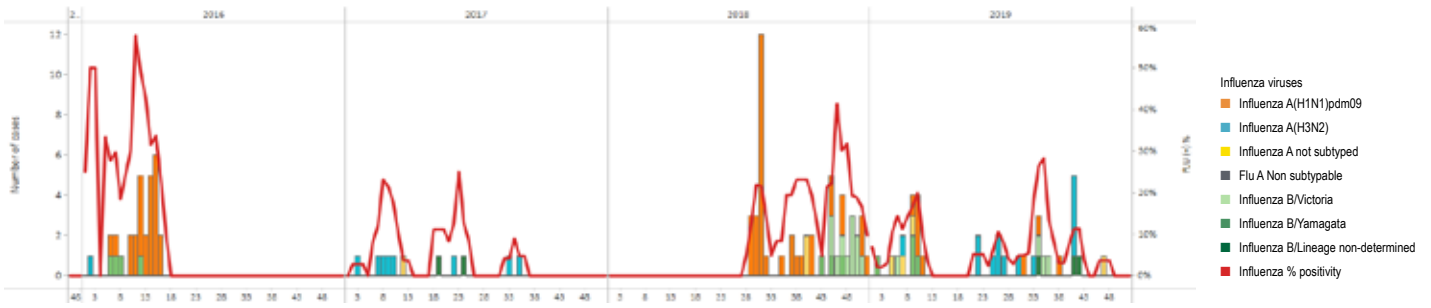
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
ARI	No; ICD-10 codes (J09-J18 and J20-J22)	National	100%	NA	NA	8	Belize Health Information System	Yes	No
PNEUMONIA	No; ICD-10 codes (J09-J18)	National	100%	NA	NA	8			No
INFLUENZA	NA	National	100%	NA	NA	8			Yes
INFLUENZA MORTALITY	NA	National	100%	No	NA	8			No



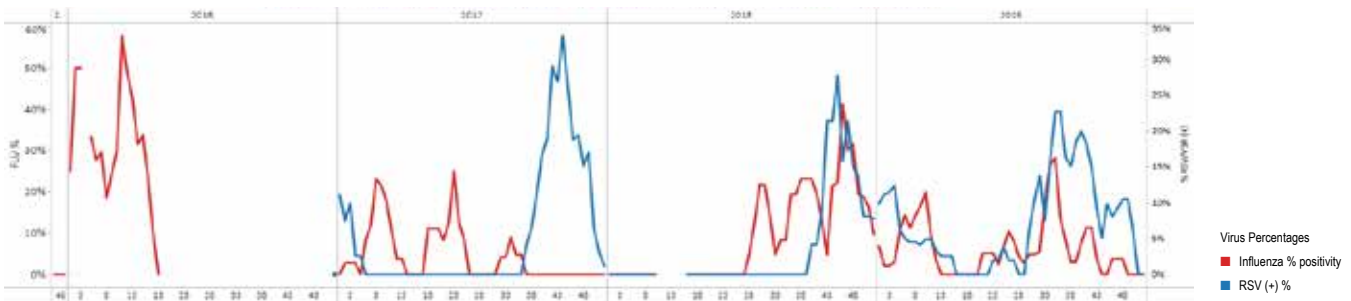
Influenza and Respiratory Syncytial Virus

Virologic data

Belize: Distribution of influenza viruses by epidemiological week

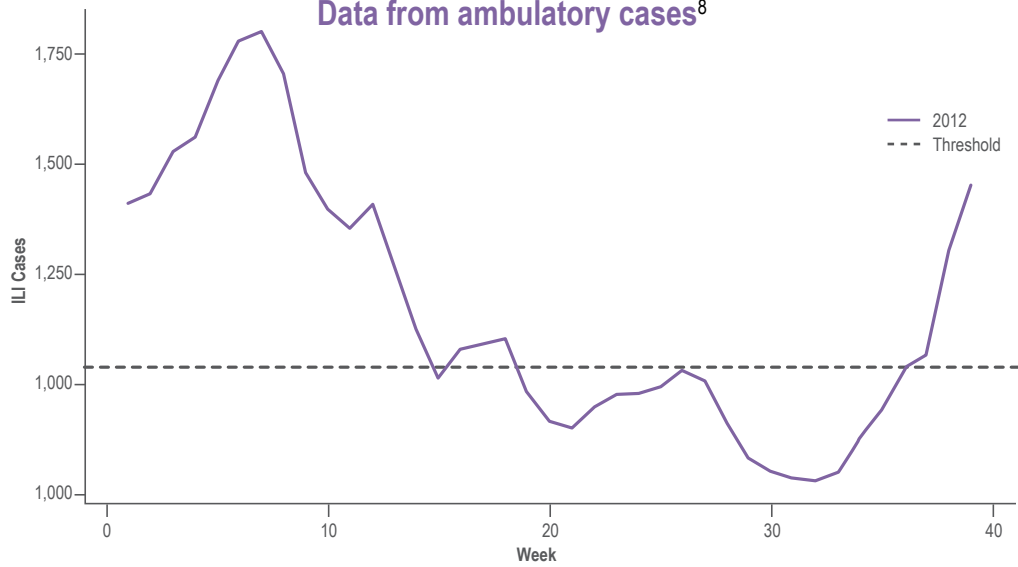


Belize: Cumulative percent positivity for influenza and respiratory syncytial virus



Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases

Not applicable

Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	No
Year of original publication	NA
Year of last revision/update	2014
Simulations	NA
Drills	NA
Rapid response teams composed	Yes
Risk communication strategy in place	No

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	NA
Percentage of older adults vaccinated	41% (≥ 65 years)
Percentage of children under 5 vaccinated	71% (age of vaccinated children is 6–23 months. 2018)
Percentage of pregnant women vaccinated	48%
Percentage of people at higher risk for influenza-related complications vaccinated	Yes
Percentage of health care workers vaccinated ⁷	78%

Laboratory Capacity	
Virologic surveillance	No
Participation in the latest WHO External Quality Assessment Programme (EQAP)	NA
Samples sent to WHO Collaborating Center	NA
Number of samples analyzed during 2017–2018	NA
Specimens tested for other respiratory viruses (ORV)	NA
Other respiratory viruses identified	NA

FluID/FluNet/PISA	
FluID	In progress
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	Yes
Information sharing between sectors	In progress
Surveillance of unusual respiratory cases with exposure to animals	No

Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	No

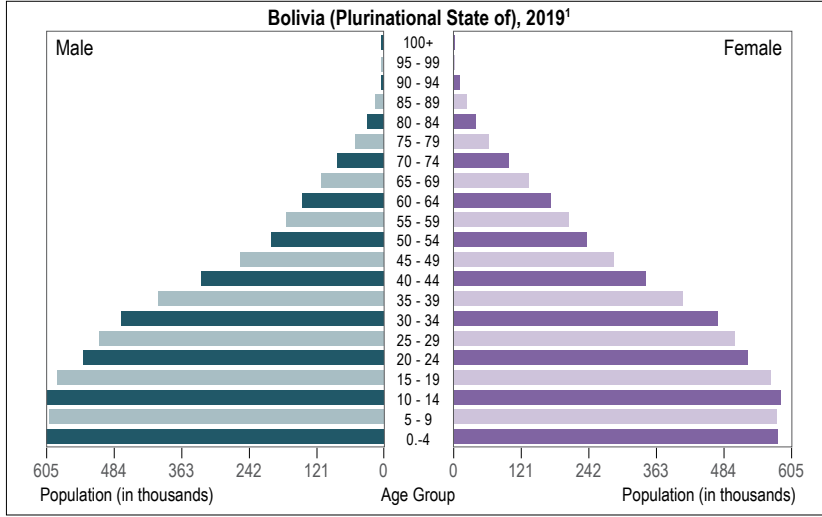
Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/bh>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Bolivia (Plurinational State of)

POPULATION
Population (thousands) ² : 11,353
Population density (per km ²) ³ : 10.5
Percentage of population < 5 years ⁴ : 10.5%
Percentage of population ≥ 65 years ⁴ : 7.2%



MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 7.3
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 29.0
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 145.9

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 10.3
Current health expenditure per capita, PPP* (current international \$) ⁶ : 496.0
National health expenditure as % of GDP 2016 ⁵ : 4.5

*PPP – Purchasing Power Parity

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	NA	NA	NA	9	PAHOFlu	Yes	Yes
ILI	Yes	Sentinel	All cases/ (3 times/week)	Varies	Annually	1			
INFLUENZA	NA	NA	NA	NA	NA	NA			

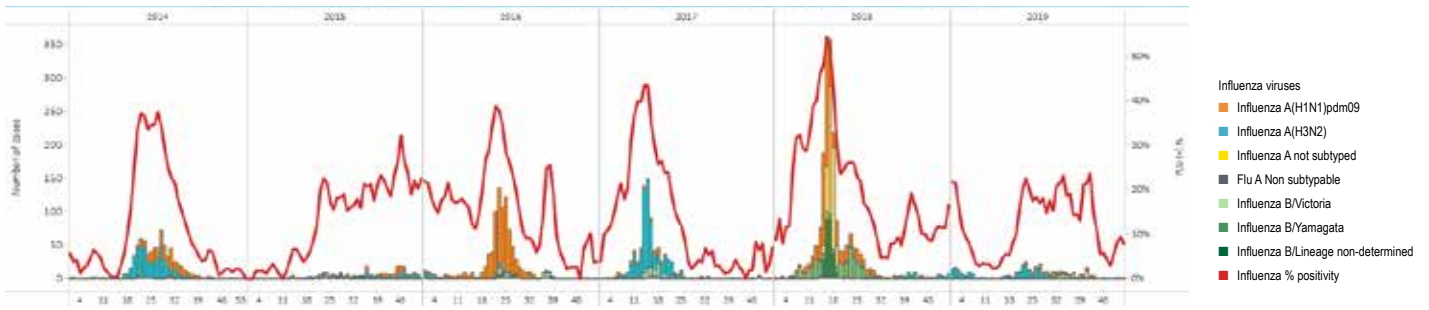
- **SARI Hospitals (N=9)**
 1. Hospital del Niño Mario Ortiz Suárez (Santa Cruz)
 2. Hospital Obrero No. 3 (Santa Cruz)
 3. Hospital Universitario San Juan de Dios (Santa Cruz)
 4. Hospital Materno Infantil CNS (Santa Cruz)
 5. Hospital del Niño (La Paz)
 6. Instituto Nacional del Torax (La Paz)
 7. Hospital Arco Iris (La Paz)
 8. Hospital Materno Infantil CNS (La Paz)
 9. Hospital Boliviano Holandés (La Paz)
- ▲ **Laboratories with PCR capacity (N=1)**
 1. Instituto Nacional de Laboratorios de Salud (La Paz)
 - Technical capacity: IF, RT-PCR, viral isolation
- ◆ **National Influenza Centers (N=1)**
 1. Centro de Enfermedades Tropicales (Center for Tropical Diseases) (Santa Cruz, Bolivia)
 - Technical capacity: IF, RT-PCR, viral isolation
 - Average samples processed/year: 3,717

* The data in the sentinel surveillance map are updated as of January 2019.
The population is a projection, as of 2018, by the Bolivia National Institute of Statistics

Influenza and Respiratory Syncytial Virus

Virologic data

Bolivia (Plurinational State of): Distribution of influenza viruses by epidemiological week

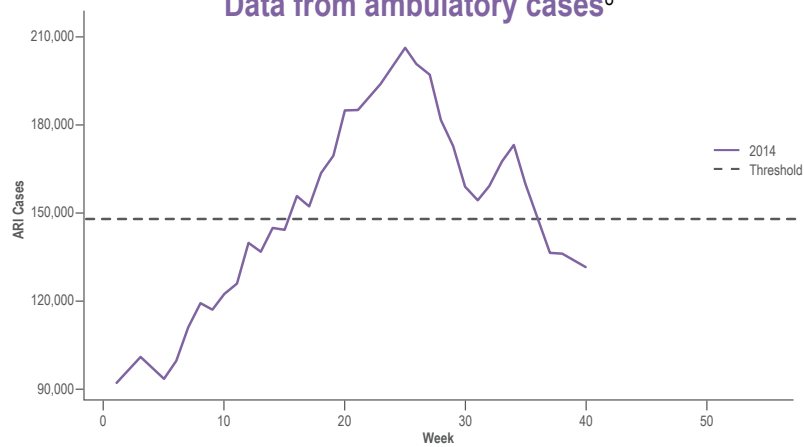


Bolivia (Plurinational State of): Cumulative percent positivity for influenza and respiratory syncytial virus



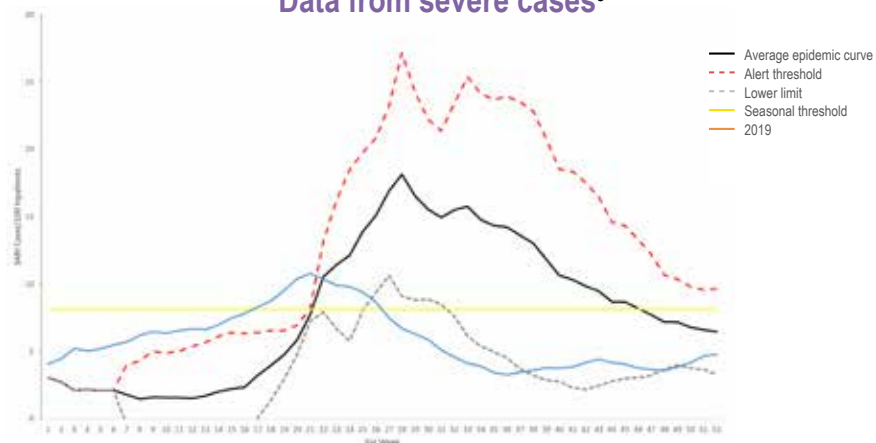
Acute Respiratory Infection (ARI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



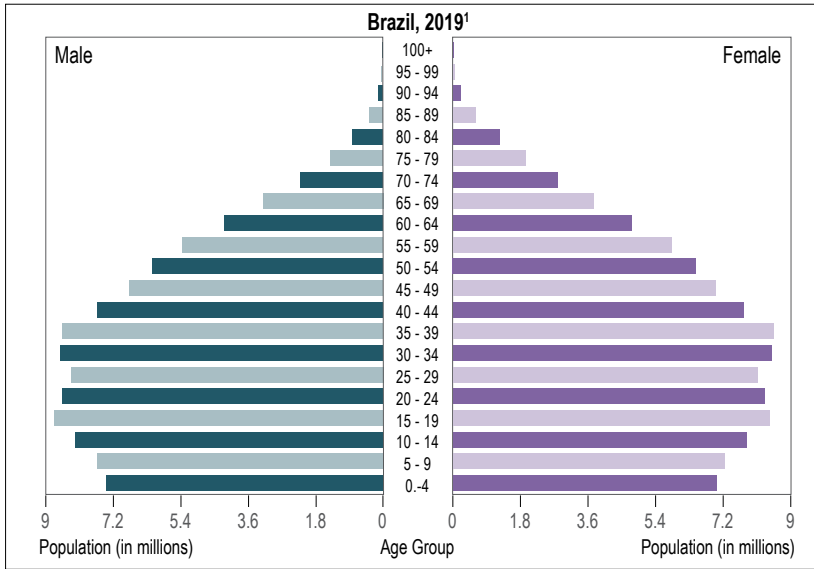
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	April/May
Year of original publication	2005	Percentage of older adults vaccinated ⁷	72%
Year of last revision/update	2009	Percentage of children under 5 vaccinated ⁷	84% (age of vaccinated children is 6–23 months. 2018)
Simulations	NA	Percentage of pregnant women vaccinated ⁷	87% (2017)
Drills	NA	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	Yes
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: Yes Seriousness of disease: Yes Impact: No
Number of samples analyzed during 2017–2018	3,913		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, coronavirus, parainfluenza		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	In progress	Estimation of medical burden for influenza	Yes
Information sharing between sectors	In progress (2017)	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	Yes (2017)	Publication of influenza burden of disease	Online

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/b>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Brazil



POPULATION
Population (thousands) ² : 209,469
Population density (per km ²) ³ : 25.0
Percentage of population < 5 years ⁴ : 6.9%
Percentage of population ≥ 65 years ⁴ : 8.9%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 6.1
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 15.6
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 87.5

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 18.9
Current health expenditure per capita, PPP* (current international \$) ⁶ : 1,777
National health expenditure as % of GDP 2016 ⁵ : 3.9

*PPP – Purchasing Power Parity

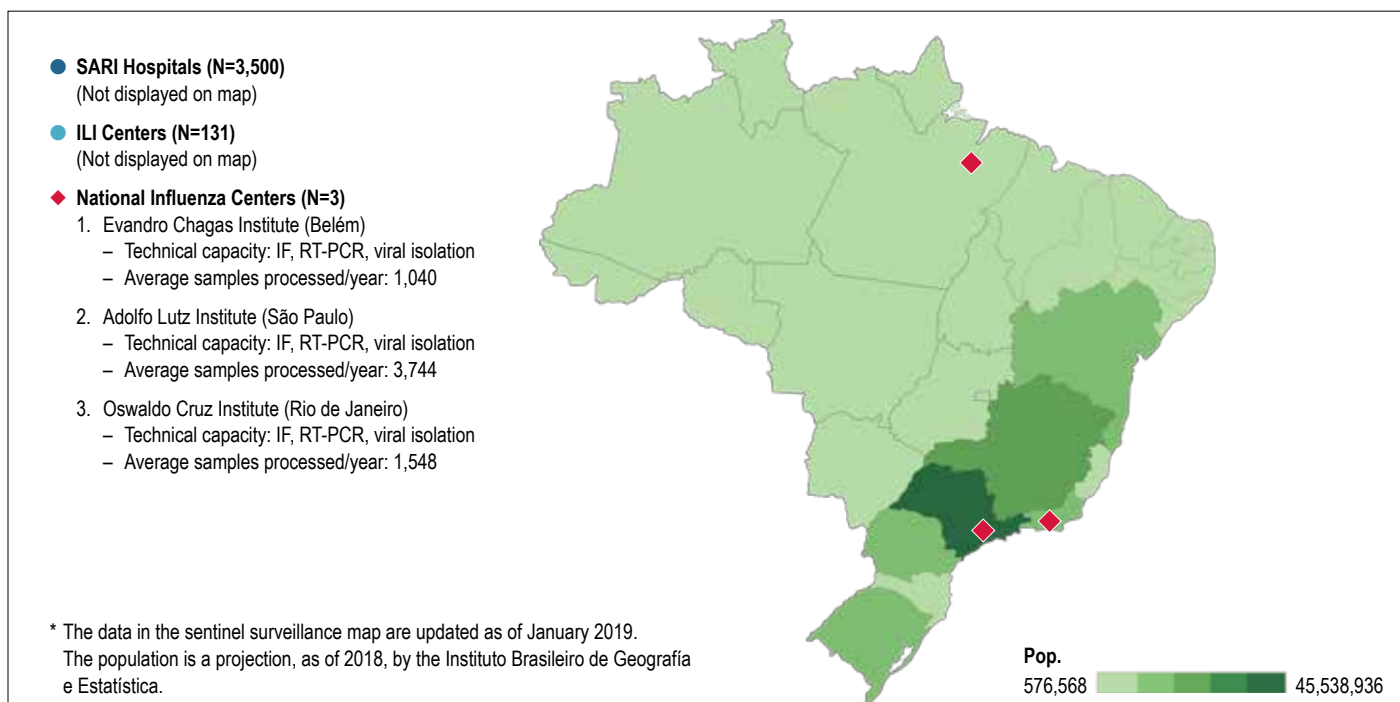
Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	No*	National	100%	Daily	Annually	3,500	Sivep-gripe	Yes	Online
ILI	No**	Sentinel	Quota/5 samples per week	Weekly	Annually	131		Yes	
INFLUENZA	NA	National	100%	Varies	NA	NA		Yes	Yes

* SARI: Individual hospitalized with fever, history of fever, accompanied by cough, or sore throat with dyspnea or O₂ saturation < 95% or respiratory distress that evolved due to SARI independent of hospitalization.

** Individual with fever, who was referred, with fever, history of fever, accompanied by cough or sore throat, and presented these two symptoms in the last 7 days.

Surveillance Systems



Surveillance Map

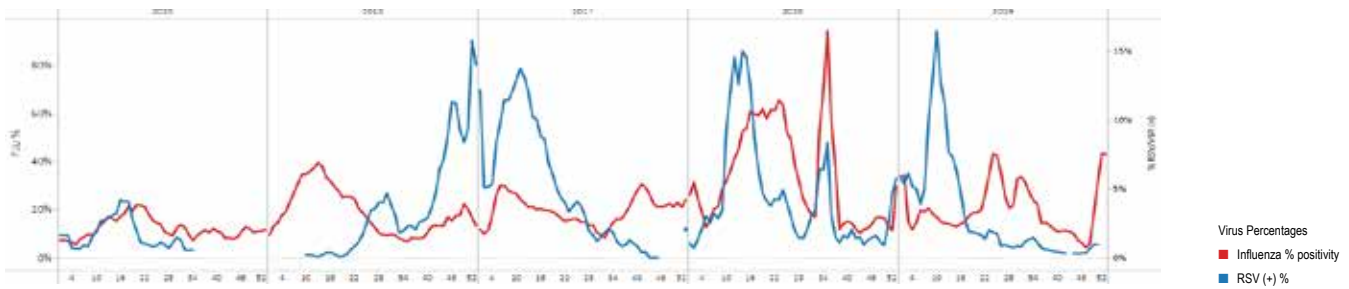
Influenza and Respiratory Syncytial Virus

Virologic data

Brazil: Distribution of influenza viruses by epidemiological week

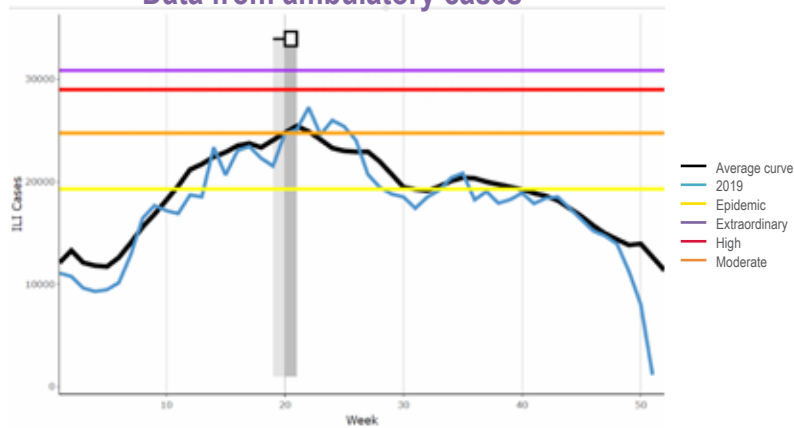


Brazil: Cumulative percent positivity for influenza and respiratory syncytial virus



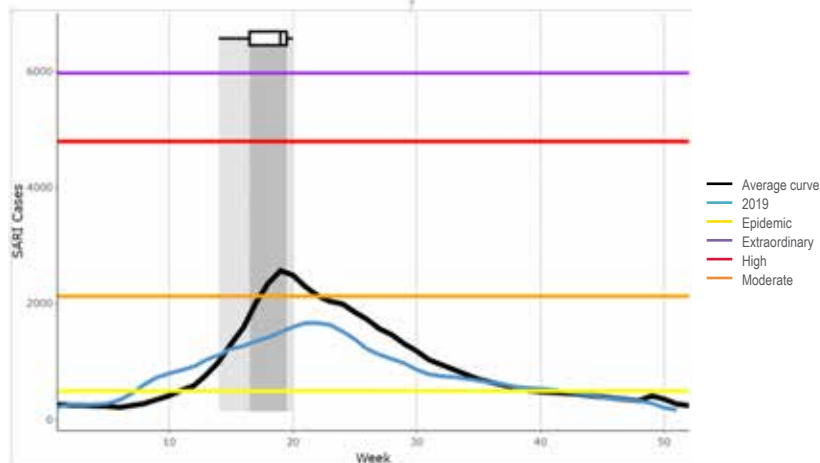
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	April
Year of original publication	2010	Percentage of older adults vaccinated ⁷	97% (adults over 60 years. 2018)
Year of last revision/update	2010	Percentage of children under 5 vaccinated ⁷	88% (age of vaccinated children is 6 m – < 5 years. 2018)
Simulations	Yes	Percentage of pregnant women vaccinated ⁷	81% (2018)
Drills	Yes	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	95% (2018)
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	60,000		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	Yes
Information-sharing between sectors	In progress	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	Yes	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/br>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



British Virgin Islands

POPULATION

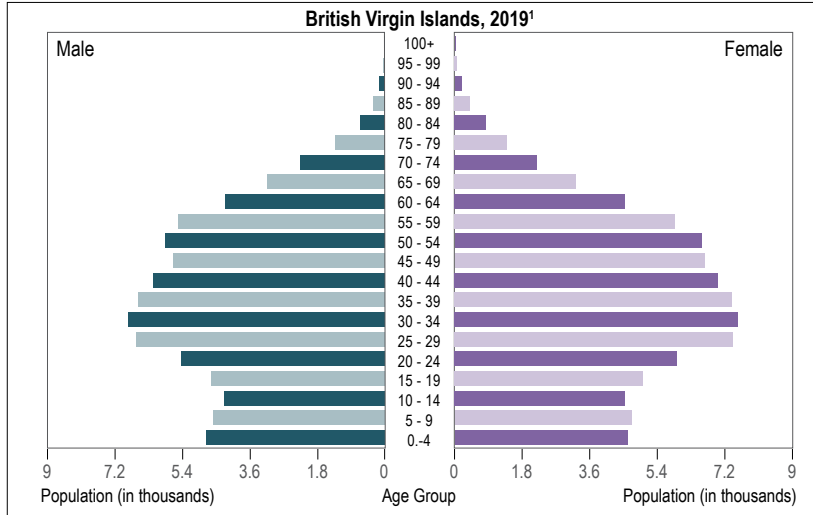
Population (thousands)²: **29.8**
 Population density (per km²)³: **199.0**
 Percentage of population < 5 years⁴: **NA**
 Percentage of population ≥ 65 years⁴: **NA**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **NA**
 Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **20.3**
 Mortality rate due to communicable diseases (per 100,000 population)⁵: **NA**

PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **18.6**
 Current health expenditure per capita, PPP* (current international \$)⁶: **NA**
 National health expenditure as % of GDP 2016⁵: **NA**
 *PPP – Purchasing Power Parity



Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
INFLUENZA	NA	Sentinel	NA	3 times/week	NA	14	NA	NA	Yes

● **SARI Hospitals (N=1)**

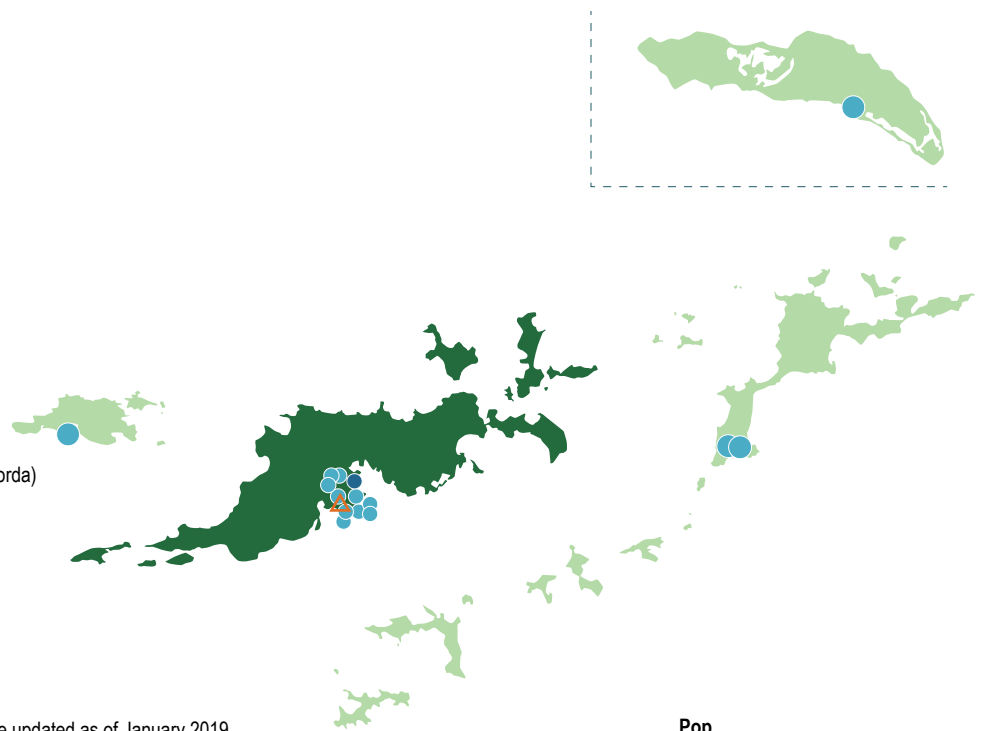
1. Tortola

△ **Laboratories with IF capacity (N=1)**

1. Tortola

● **ILI Centers (N=13)**

1. Road Town Clinic (Road Town)
2. Eureka (Road Town)
3. BNF (Road Town)
4. Penn Medical (Road Town)
5. Pic-Smith Medical (Road Town)
6. Bain Medical (Road Town)
7. Appex Medical (Virgin Gorda)
8. Iris O'Neal (Virgin Gorda-The Valley)
9. North Sound Clinic (North Sound-Virgin Gorda)
10. Iris Penn (East End)
11. Theresa Smith-Blyden (Caboons Bay)
12. Jost Van Dyke
13. Romalia Smith (Anegada)



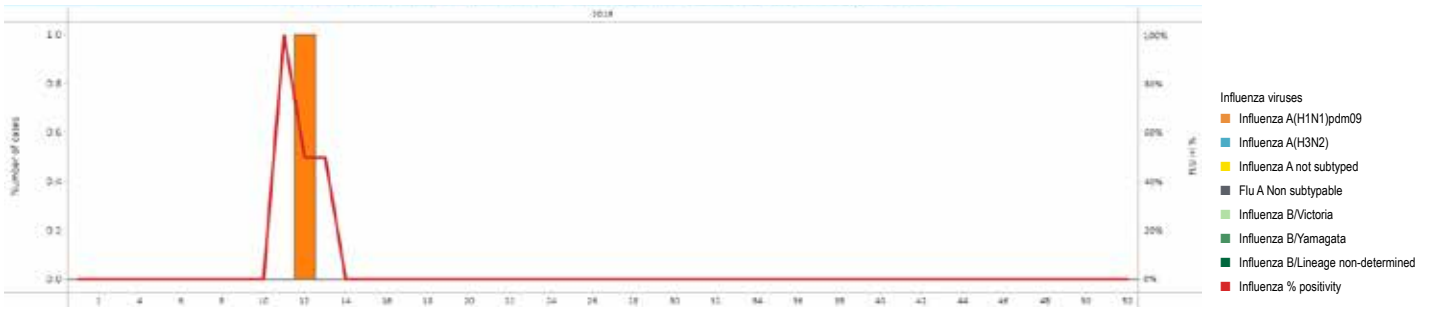
* The data in the sentinel surveillance map are updated as of January 2019. The population is a projection, as of 2018, by the BVI Central Statistics Office.

Pop.
122 23,419

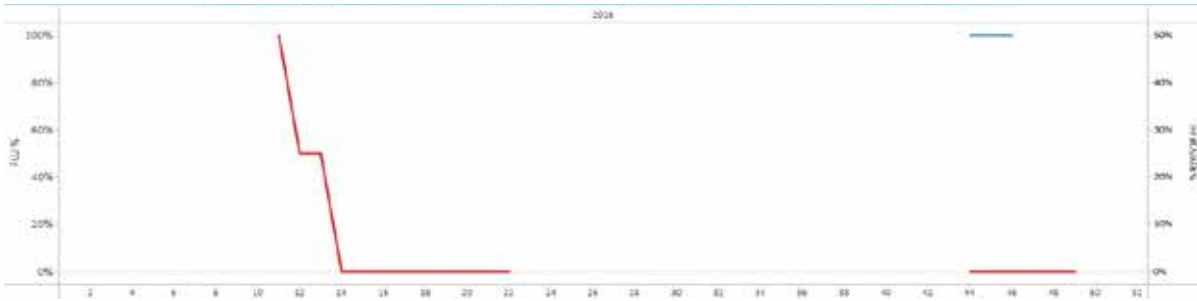
Influenza and Respiratory Syncytial Virus

Virologic data

British Virgin Islands: Distribution of influenza viruses by epidemiological week

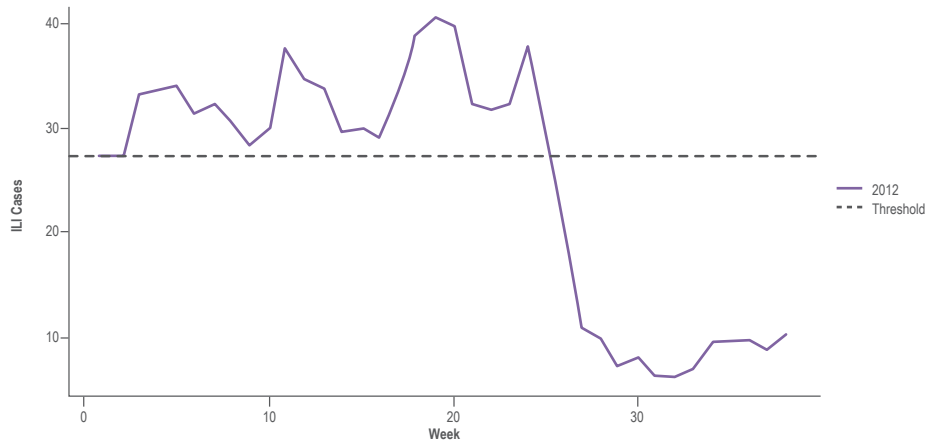


British Virgin Islands: Cumulative percent positivity for influenza and respiratory syncytial virus



Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

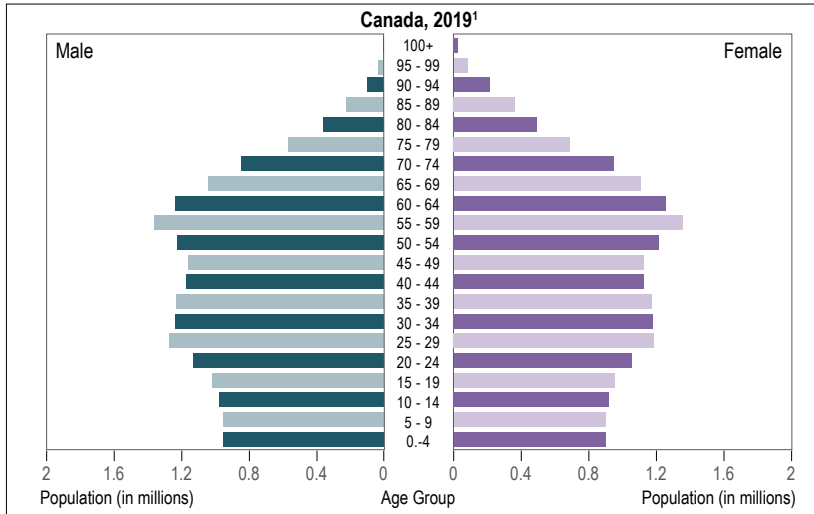
Data from severe cases

Not applicable

Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Northern hemisphere
Part of an all-hazards plan	No	Month of vaccine administration	November
Year of original publication	2010	Percentage of older adults vaccinated ⁷	82.6% (≥ 65 years)
Year of last revision/update	In progress	Percentage of children under 5 vaccinated ⁷	NA
Simulations	Yes	Percentage of pregnant women vaccinated ⁷	NA
Drills	No	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	96%
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	6.8%
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	No	FluID	Report: In progress Reported > 33%: In progress Reported to WHO in 2018: In progress
Participation in the latest WHO External Quality Assessment Programme (EQAP)	NA	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	NA	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	NA		
Specimens tested for other respiratory viruses (ORV)	NA		
Other respiratory viruses identified	NA		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	In progress	Estimation of medical burden for influenza	No
Information sharing between sectors	In progress	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	In progress	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/vi>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



POPULATION

Population (thousands)²: **37,059**
 Population density (per km²)³: **4.0**
 Percentage of population < 5 years⁴: **5.3%**
 Percentage of population ≥ 65 years⁴: **17.0%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **3.4**
 Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **5.2**
 Mortality rate due to communicable diseases (per 100,000 population)⁵: **20.4**

PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **27.2**
 Current health expenditure per capita, PPP* (current international \$)⁶: **4,718**
 National health expenditure as % of GDP 2016⁵: **7.7**
 *PPP – Purchasing Power Parity

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	No*	Sentinel	Quota	Varies	Varies	20 sentinel hospital sites 9 jurisdictions	FluWatch	Yes	Online
ILI	No**	Sentinel	NA	NA	No	120	FluWatch - Sentinel Physician ILI Reporting System	No	
ARI	No; ICD-10 codes (J00-J22, J144.0)	National	Quota	NA	NA	NA	Canadian Institute for Health Information - Discharge Abstract Database	Yes	Online
PNEUMONIA	No; ICD-10 codes (J10-J18)	National	Quota	NA	NA	578			
INFLUENZA	NA	National	Quota (6,000 tests/week)	Weekly/monthly	NA	Participating hospitals & provincial public health laboratories	FluWatch	Yes	Online
INFLUENZA MORTALITY	NA	Sentinel	Quota	Varies	NA	29			

* SARI: Hospitalizations with influenza – Any person admitted to hospital with laboratory-confirmed influenza. Intensive care unit admissions with influenza – Any person with laboratory-confirmed influenza admitted to an intensive care unit or requiring mechanical ventilation. Deaths with influenza – A death of any person with laboratory-confirmed influenza with no period of complete recovery between illness and death.

**ILI: Sudden onset of respiratory symptoms with fever and cough and with one or more of the following: sore throat, joint pain, muscle aches, or fatigue which is likely due to influenza. In children under 5 years of age, symptoms such as nausea, vomiting, and diarrhea may also be present. In patients under 5 years of age or 65 years and older, fever may not be present.

◆ **National Influenza Centers (N=1)**

1. National Microbiology Laboratory (Winnipeg)
 - Technical capacity: RT-PCR, viral isolation, phenotypic antiviral sensitivity, genotyping, antigenic characterization by HAI, micro-neutralization, whole-genome sequencing
 - Average samples processed during 2017–18: 4,278



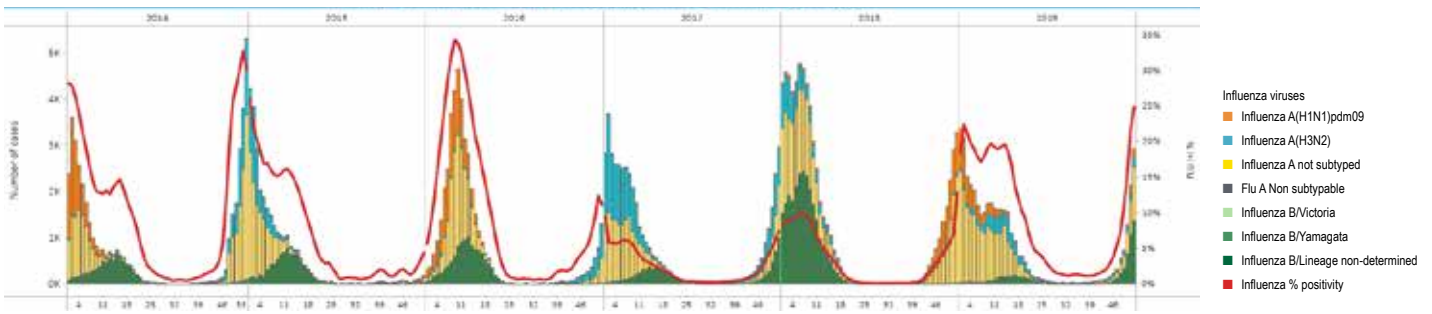
* The data in the sentinel surveillance map are updated as of January 2019. The population is a projection, as of 2018, by Canada's National Statistical Agency-Statistics Canada.



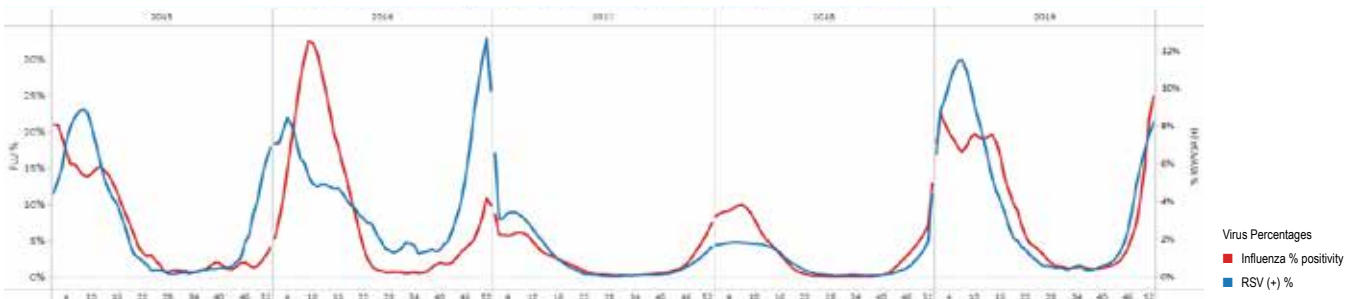
Influenza and Respiratory Syncytial Virus

Virologic data

Canada: Distribution of influenza viruses by epidemiological week

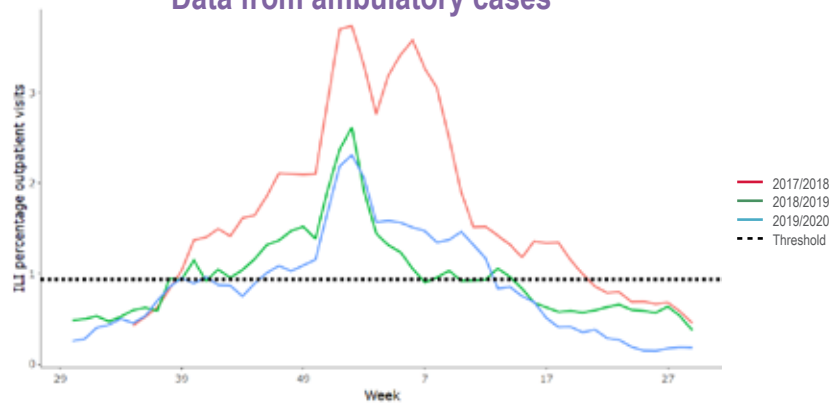


Canada: Cumulative percent positivity for influenza and respiratory syncytial virus



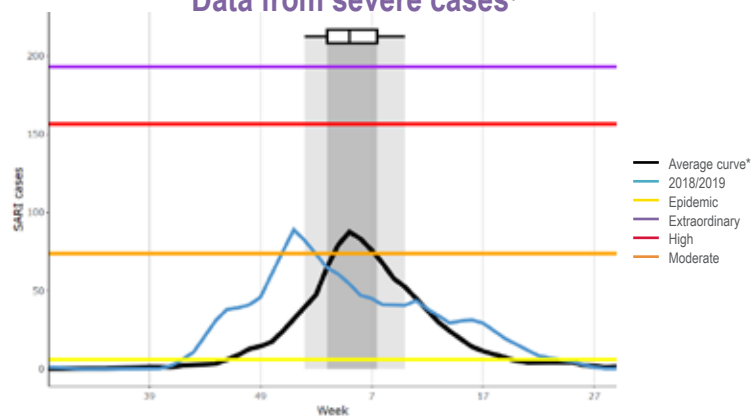
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



*The data in the average curve were extracted from the number of pediatric (≤ 16 years of age) influenza hospitalizations reported by the IMPACT network, by week, Canada. Influenza weekly reports 2015-19 seasons. Available at: <https://www.canada.ca/en/public-health/services/diseases/flu-influenza/influenza-surveillance/weekly-influenza-reports.html>

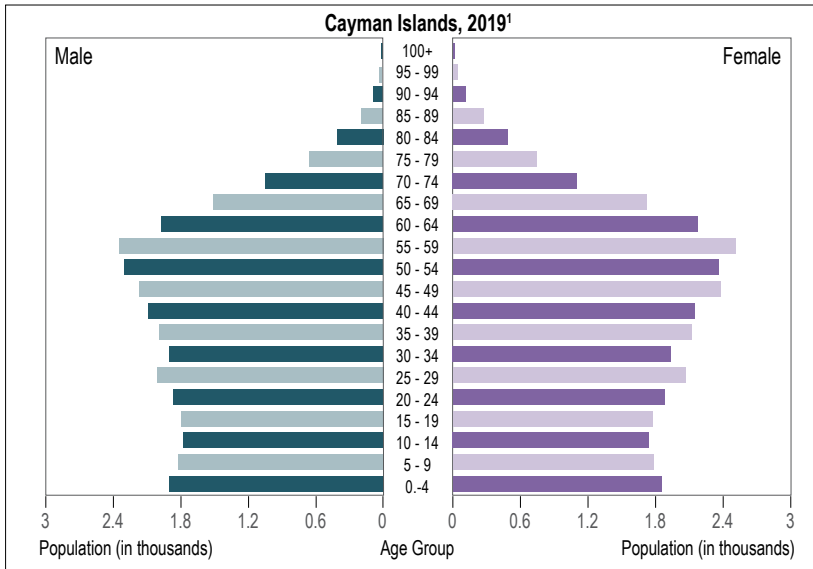
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Northern hemisphere
Part of an all-hazards plan	No	Month of vaccine administration	October
Year of original publication	2004	Percentage of older adults vaccinated ⁷	70% (≥ 65 years)
Year of last revision/update	2014	Percentage of children under 5 vaccinated ⁸	NA
Simulations	No	Percentage of pregnant women vaccinated ⁷	NA
Drills	Yes	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	43%
Rapid response teams composed	No	Percentage of health care workers vaccinated ⁸	NA
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: Yes Seriousness of disease: No Impact: No
Number of samples analyzed during 2017–2018	319,851		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	NA		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	In progress	Estimation of medical burden for influenza	Yes
Information sharing between sectors	In progress	Estimation of economic burden for influenza	Yes
Surveillance of unusual respiratory cases with exposure to animals	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus, coronavirus (MERS-CoV and HCoV-NL63)	Publication of influenza burden of disease	Online

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/ca>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. Vaccine uptake in Canadian Adults 2019 <https://www.canada.ca/en/public-health/services/publications/healthy-living/2018-2019-influenza-flu-vaccine-coverage-survey-results.html>
9. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Cayman Islands



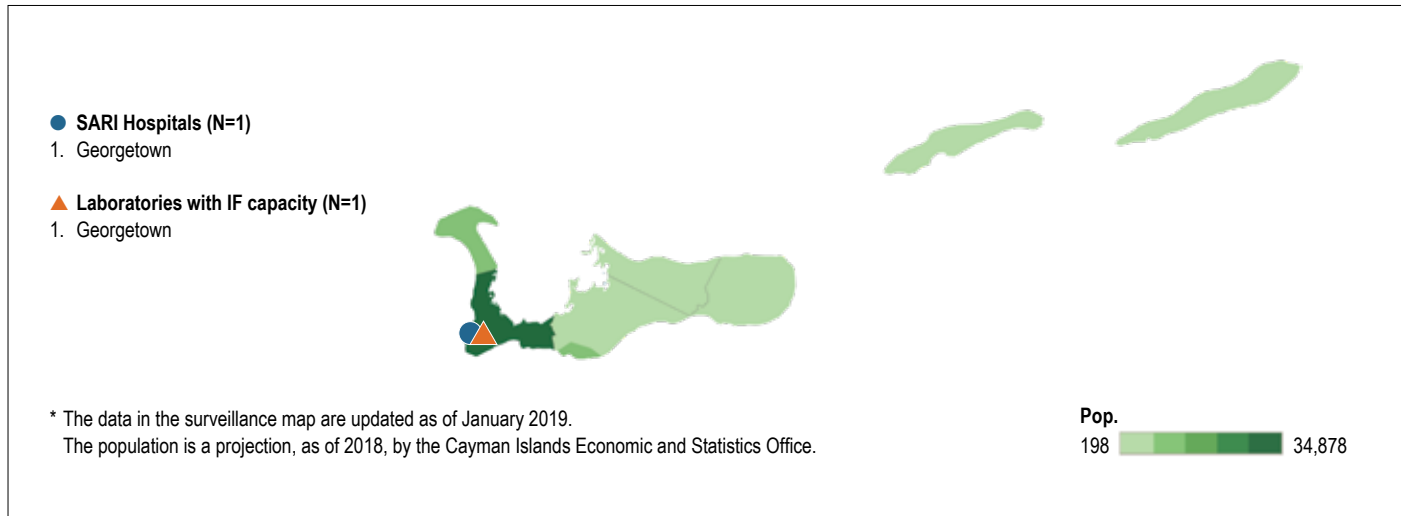
POPULATION
Population (thousands) ² : 64.0
Population density (per km ²) ³ : 4.0
Percentage of population < 5 years ⁴ : NA
Percentage of population ≥ 65 years ⁴ : NA

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 3.4
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 11.0
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : NA

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 36.6
Current health expenditure per capita, PPP* (current international \$) ⁶ : NA
National health expenditure as % of GDP 2016 ⁵ : NA

*PPP – Purchasing Power Parity

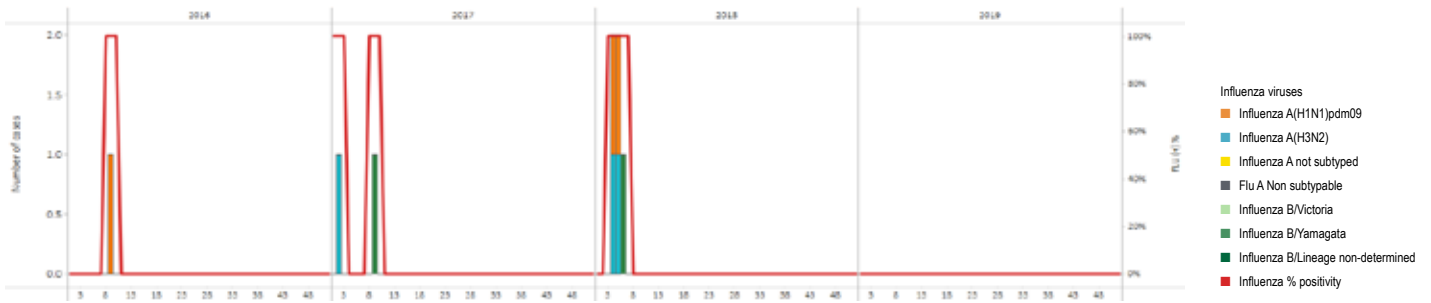
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
ARI	Yes	Sentinel	100%	2/week	No	9	CERNER	No	No
PNEUMONIA	Yes	Sentinel	Quota (1-6 samples/week)	2/week	No	9			
INFLUENZA	No; ICD-10 codes used	Sentinel	Quota (1-6 samples/week)	2/week	NA	9			
INFLUENZA MORTALITY	NA	Sentinel	NA	2/week	NA	9			



Influenza and Respiratory Syncytial Virus

Virologic data

Cayman Islands: Distribution of influenza viruses by epidemiological week

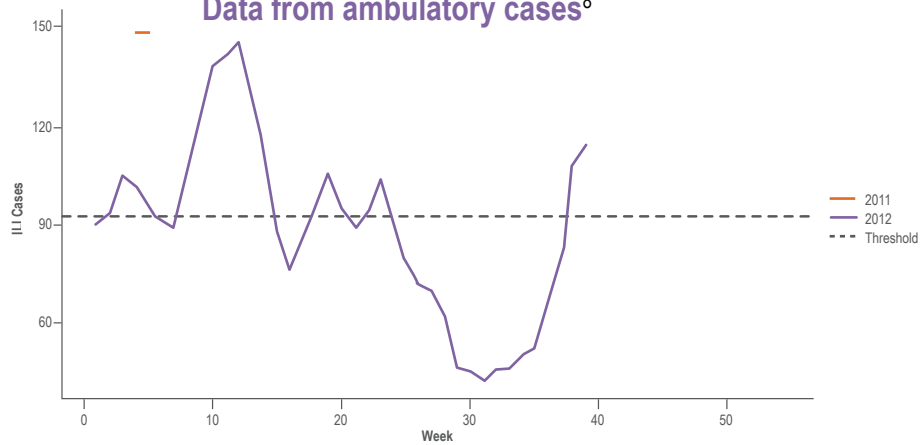


Cayman Islands: Cumulative percent positivity for influenza and respiratory syncytial virus



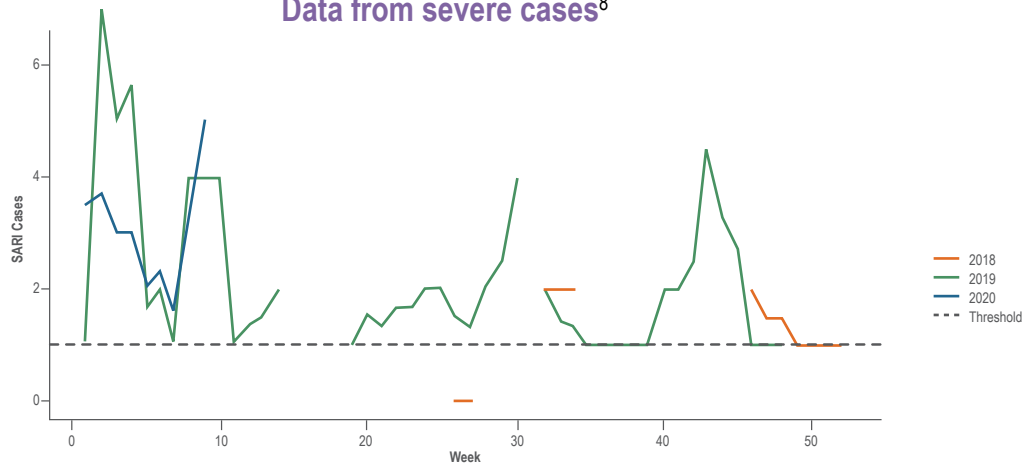
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2007
Year of last revision/update	2009
Simulations	Yes
Drills	No
Rapid response teams composed	No
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	October
Percentage of older adults vaccinated ⁷	NA
Percentage of children under 5 vaccinated ⁷	NA
Percentage of pregnant women vaccinated ⁷	Yes
Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Percentage of health care workers vaccinated ⁷	Yes

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	No
Samples sent to WHO Collaborating Center	No
Number of samples analyzed during 2017–2018	NA
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; rhinovirus

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	Yes
Information-sharing between sectors	Yes
Surveillance of unusual respiratory cases with exposure to animals	No

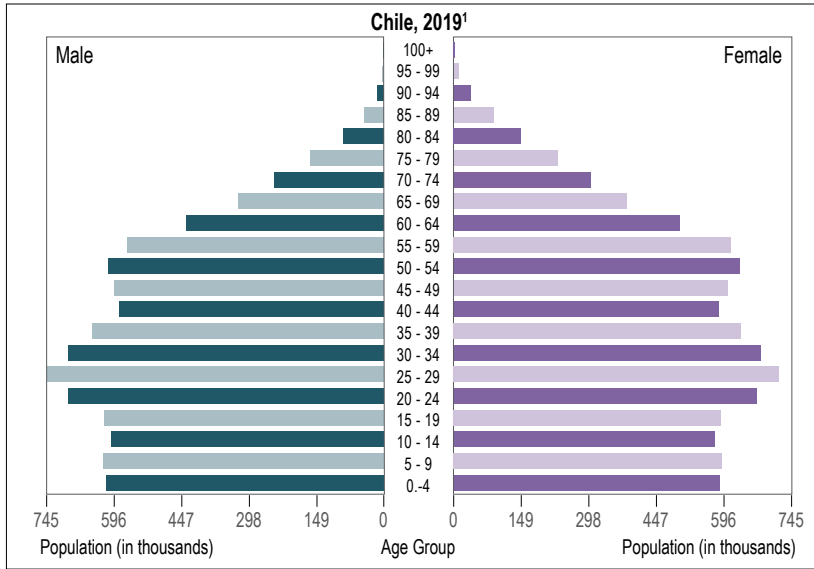
Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	No

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/cj>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Chile



POPULATION
Population (thousands) ² : 19,107
Population density (per km ²) ³ : 267.4
Percentage of population < 5 years ⁴ : 6.4%
Percentage of population ≥ 65 years ⁴ : 11.5%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 6.2
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 8.1
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 38.0

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 9.1
Current health expenditure per capita, PPP* (current international \$) ⁶ : 2,002.0
National health expenditure as % of GDP 2016 ⁵ : 5.0

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	No	Sentinel	100%	Weekly	Annually	7	PAHOFlu	Yes	Online
ILI	No	Sentinel	Quota (5-10 samples/week)	Weekly	Annually	42	Filemaker	No	Online
INFLUENZA	Yes	National	100%	Weekly	NA	31	Filemaker	No	Online

Surveillance Systems

- **SARI Hospitals (N=7)**
 1. Hospital Ernesto Torres Galdamez (Iquique)
 2. Hospital Gustavo Fricke (Viña del Mar)
 3. Hospital San Juan de Dios (Santiago)
 4. Hospital Militar (Santiago)
 5. Hospital Guillermo Grant Benavente (Concepción)
 6. Hospital Hernán Henríquez Aravena (Temuco)
 7. Hospital Eduardo Schütz Schroeder (Puerto Montt)
- **ILI Centers (N=42)**
(Not displayed on map)
- ◆ **National Influenza Centers (N=1)**
 1. Public Health Institute of Chile: Respiratory and Exanthematic Virus Section (Viral Disease Sub Department)
 - Technical capacity: IF, RT-PCR, viral isolation, sequencing
 - Average samples processed during 2017–18: 3,277
- ▲ **Laboratories with IF capacity (N=22)**
Antofagasta, Arica, Atacama, Biobío (2), Coquimbo, Iquique, Los Lagos (2), Los Ríos, Maule, Región Aisén, Región Magallanes (2), Región Metropolitana de Santiago (4), Región O'Higgins, Valparaíso (3).
- ▲ **Laboratories with PCR capacity (N=6)**
Antofagasta, Concepción, Puerto Montt, Santiago, San Felipe, Temuco

* The data in the surveillance map are updated as of January 2019.
The population is a projection, as of 2018, by the National Institute of Statistics.

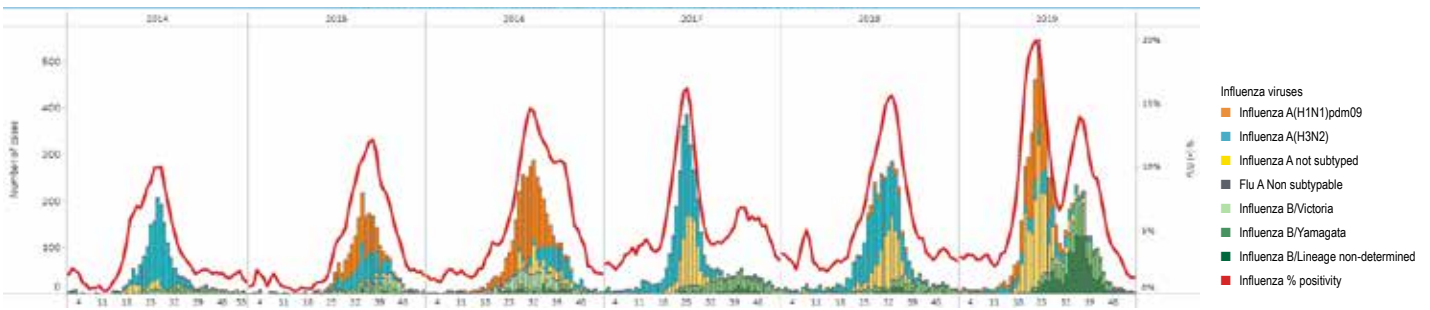
Pop.
106,680 7,915,199

Surveillance Map

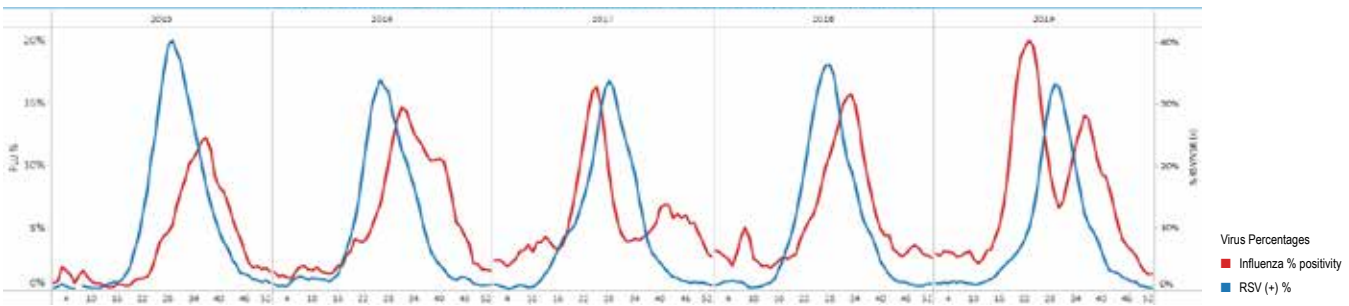
Influenza and Respiratory Syncytial Virus

Virologic data

Chile: Distribution of influenza viruses by epidemiological week

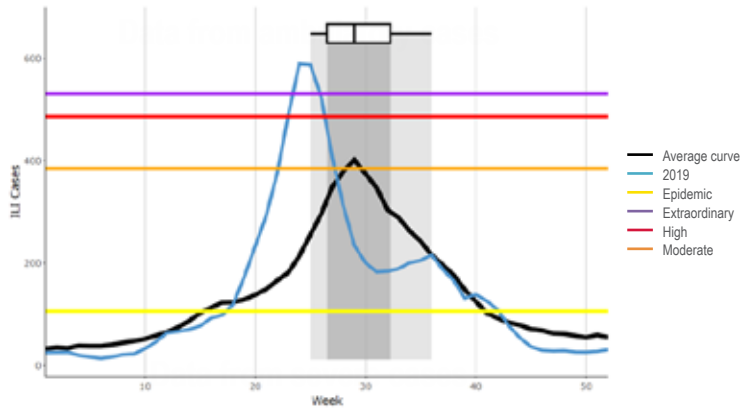


Chile: Cumulative percent positivity for influenza and respiratory syncytial virus



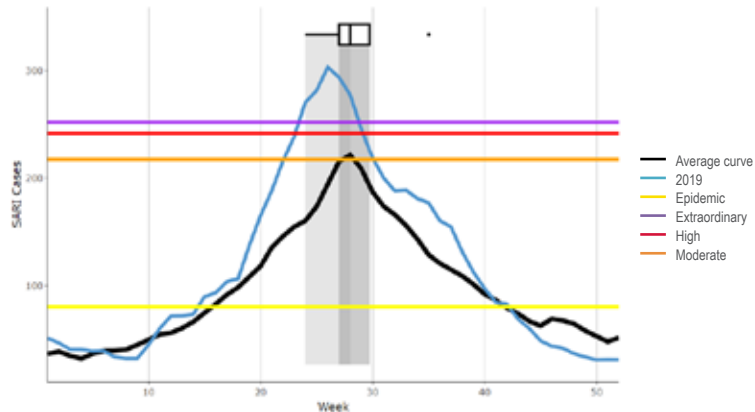
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



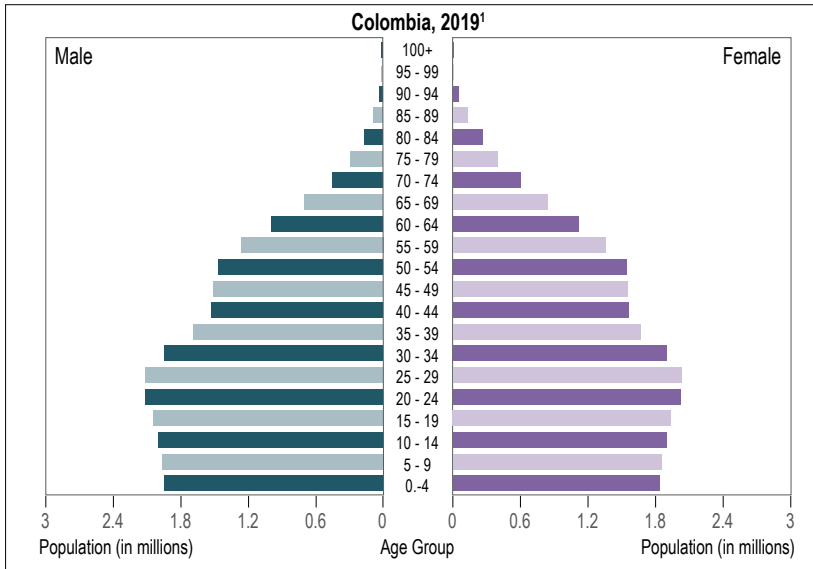
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	April/May
Year of original publication	2009	Percentage of older adults vaccinated ⁷	97% (≥ 75 years)
Year of last revision/update	2011	Percentage of children under 5 vaccinated ⁷	63%
Simulations	Yes	Percentage of pregnant women vaccinated ⁷	88%
Drills	Yes	Percentage of people at higher risk for influenza-related complications vaccinated	85%
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	97%
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	No	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	3,329		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus, enterovirus, coronavirus NL63, OC43, 229E, HKU1		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	Yes
Information sharing between sectors	Yes	Estimation of economic burden for influenza	Yes
Surveillance of unusual respiratory cases with exposure to animals	Yes	Publication of influenza burden of disease	Online

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/ci>
2. Instituto Nacional de Estadísticas Chile. Estimaciones y proyecciones de la población de Chile 2002-2035 a nivel comunal. Documento metodológico. Nov. 2019. Available from: INE - Chile
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization. Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. Health Situation in the Americas: Core Indicators 2018. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. Immunization in the Americas [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Colombia



POPULATION	
Population (thousands) ² :	49,649
Population density (per km ²) ³ :	45.0
Percentage of population < 5 years ⁴ :	7.5%
Percentage of population ≥ 65 years ⁴ :	8.4%

MORTALITY	
Gross mortality rate (per 1,000 population) ⁵ :	6.1
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ :	18.2
Mortality rate due to communicable diseases (per 100,000 population) ⁵ :	62.6

PUBLIC HEALTH	
Number of medical doctors working in the public system (per 10,000 population) ⁵ :	21.1
Current health expenditure per capita, PPP* (current international \$) ⁶ :	830
National health expenditure as % of GDP 2016 ⁵ :	3.7

*PPP – Purchasing Power Parity

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	Weekly	Annually	11	SIVIGILA	Yes	Online
ILI	Yes	Sentinel	100%	Weekly	Annually	2		No	Online
ARI	No; ICD-10 codes (J00 to J069)	National	NA	No	NA	5,000		No	Online
PNEUMONIA	No; ICD-10 codes (J00 to J22)	National	No	No	NA	5,000		No	Online
INFLUENZA MORTALITY	NA	National	100%	Weekly	NA	NA		Yes	Online

- **SARI Hospitals (N=11)**
 1. Fundación Hospitalaria San Vicente de Paúl (Antioquia)
 2. Clínica General del Norte (Barranquilla)
 3. Hospital el Tunal (Bogotá)
 4. Fundación Cardioinfantil (Bogotá)
 5. Laboratorio Departamental de Salud Pública (Guaviare)
 6. Hospital Departamental de Villavicencio (Meta)
 7. Fundación Hospital San Pedro (Nariño)
 8. Hospital Infantil Los Ángeles (Nariño)
 9. Hospital Universitario Erasmo Meoz, (Norte de Santander)
 10. Hospital Federico Lleras Acosta (Tolima)
 11. Fundación Valle del Lili (Valle del Cauca)
- **ILI Centers (N=2)**
 1. Laboratorio Departamental de Salud Pública (Guaviare)
 2. Hospital Infantil Napoleón Franco Pareja (Bolívar)
- ◆ **National Influenza Centers (N=1)**
 1. National Institute of Health (Bogotá)
 - Technical capacity: IFI, RT-PCR, viral isolation, sequencing
 - Average samples processed/year: 17,850

- ▲ **Laboratories with PCR capacity (N=3)**
Pasto, Bogotá, Medellín
– Technical capacity: IF, RT-PCR
- ▲ **Laboratories with IF capacity (N=10)**
 1. Antioquia
 2. Atlántico
 3. Boyacá
 4. Caldas
 5. Cundinamarca
 6. Bogotá
 7. Nariño
 8. Norte de Santander
 9. Meta
– Technical capacity: IF
 10. Valle del Cauca

* The data in the sentinel surveillance map are updated as of January 2019. The population is a projection, as of 2018, by the Colombia National Administrative Department of Statistics.

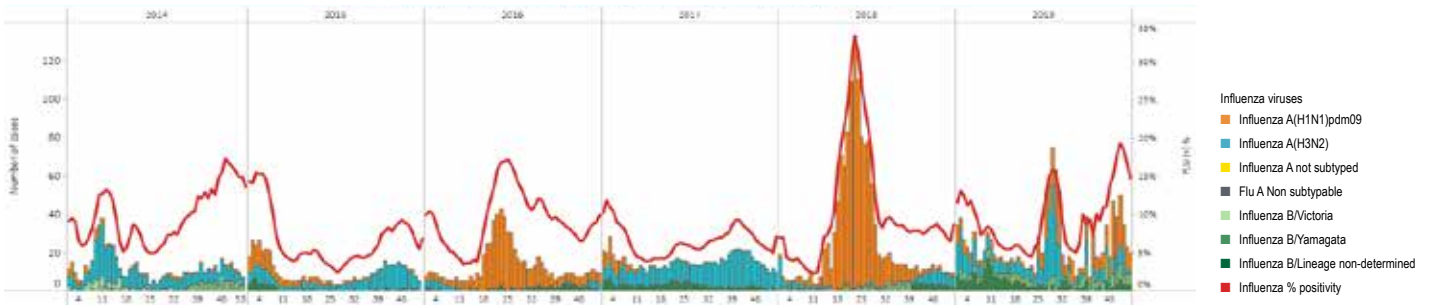
Pop.

42,815 7,412,566

Influenza and Respiratory Syncytial Virus

Virologic data

Colombia: Distribution of influenza viruses by epidemiological week

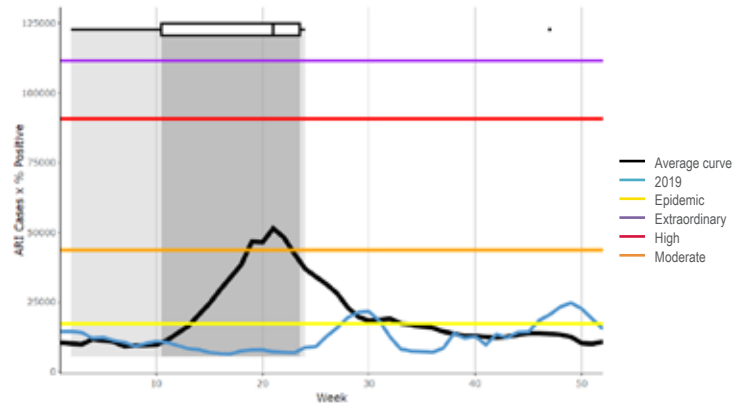


Colombia: Cumulative percent positivity for influenza and respiratory syncytial virus



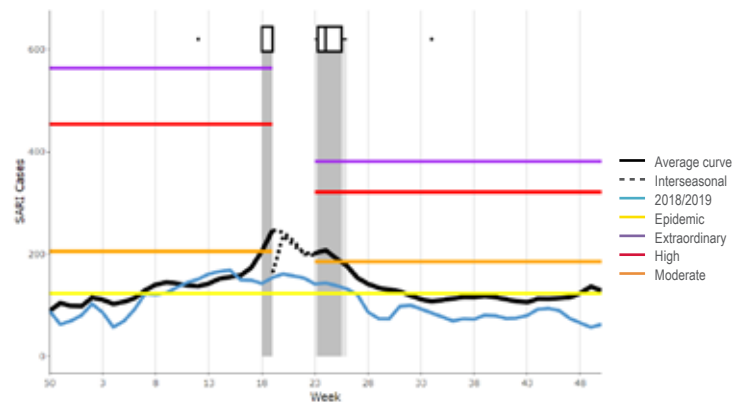
Acute Respiratory Infection (ARI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	No
Year of original publication	2006
Year of last revision/update	2010
Simulations	Yes
Drills	Yes
Rapid response teams composed	Yes
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Southern hemisphere
Month of vaccine administration	May
Percentage of older adults vaccinated	14% (≥ 50 years)
Percentage of children under 5 vaccinated ⁷	66%
Percentage of pregnant women vaccinated ⁷	69%
Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Percentage of health care workers vaccinated ⁷	NA

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	17,850
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus, enterovirus, coronavirus, RSV subtypes, adenovirus subtypes, MERSCoV

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: Yes Seriousness of disease: Yes Impact: Yes

Human-Animal Interface for Influenza	
Intersectoral meetings	In progress
Information sharing between sectors	In progress
Surveillance of unusual respiratory cases with exposure to animals	Yes

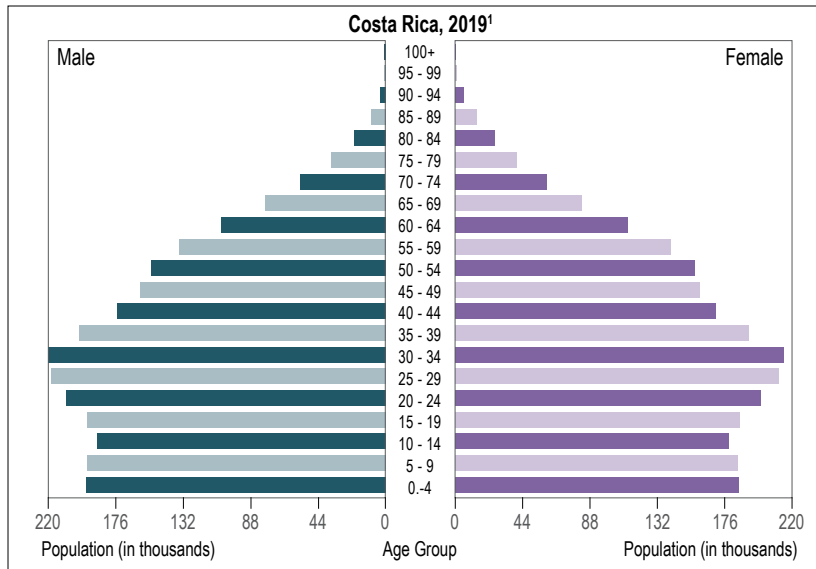
Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	Yes
Publication of influenza burden of disease	In progress

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/co>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Costa Rica



POPULATION
Population (thousands) ² : 4,999
Population density (per km ²) ³ : 98.0
Percentage of population < 5 years ⁴ : 7.1%
Percentage of population ≥ 65 years ⁴ : 9.5%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 4.4
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 9.4
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 30.5

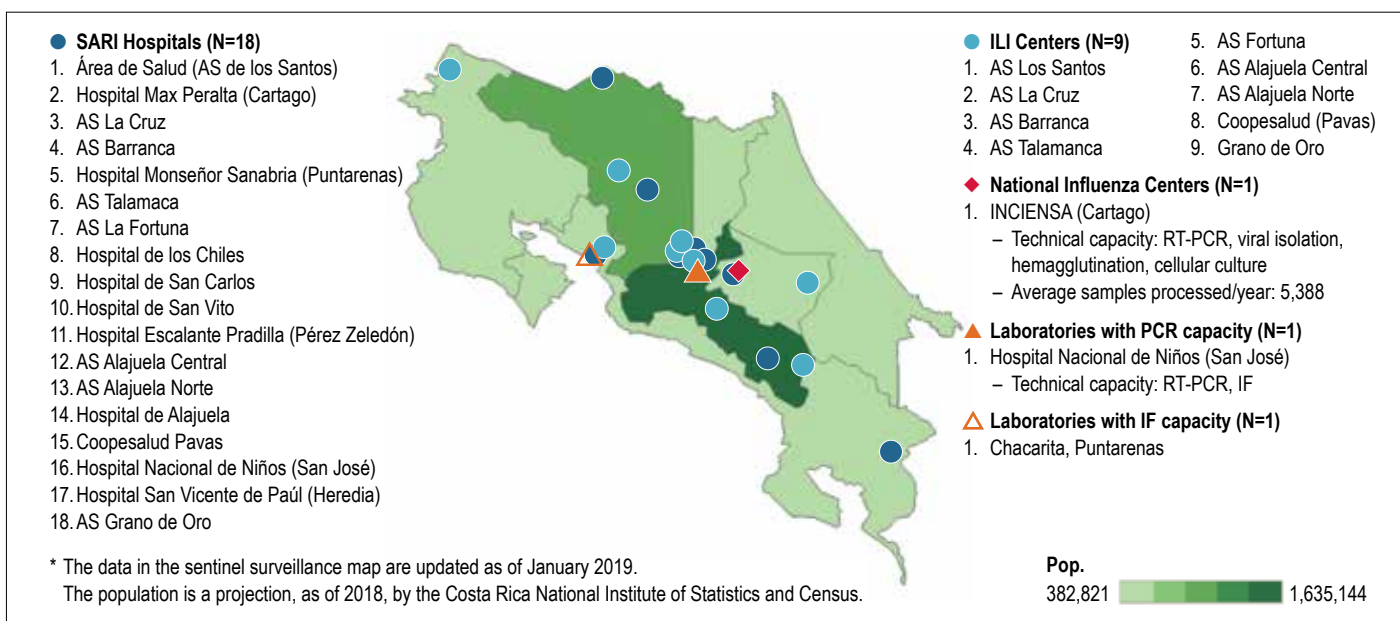
PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 30.7
Current health expenditure per capita, PPP* (current international \$) ⁶ : 1,249
National health expenditure as % of GDP 2016 ⁵ : 5.6

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	Weekly	Quarterly	18	PAHOFlu	Yes	Online
ILI	Yes	Sentinel	Quota (29 samples/week)	Weekly	Quarterly	9			
ARI	No; ICD-10 codes (J000-J006)	National	No	No	NA	All facilities	Compulsory notification bulletin VE-02	No	
PNEUMONIA	No; ICD-10 codes (J12)	National	Quota (medical criteria)	NA	NA	All facilities	Surveillance bulletin VE-01		
INFLUENZA	NA	Sentinel	Quota (29 samples/week)	Daily	NA	18	PAHOFlu	Yes	
INFLUENZA MORTALITY	NA	National	Quota (medical criteria)	NA	NA	All facilities	Mortality registry	No	No

Surveillance Systems

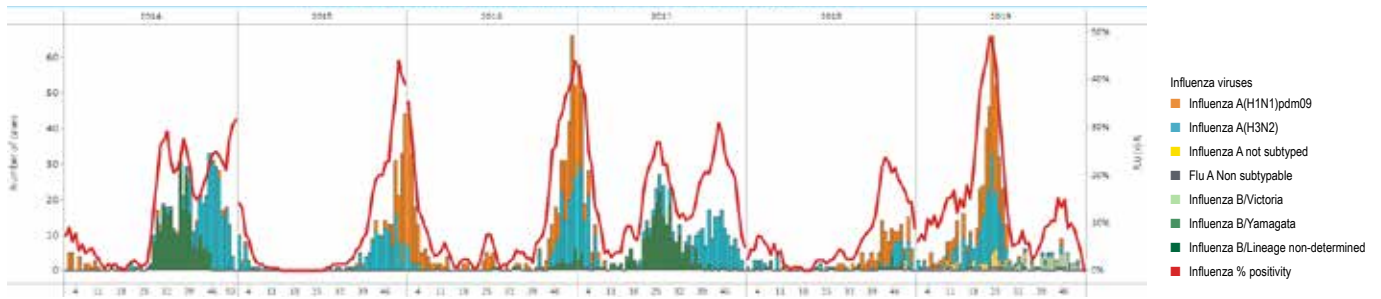


Surveillance Map

Influenza and Respiratory Syncytial Virus

Virologic data

Costa Rica: Distribution of influenza viruses by epidemiological week

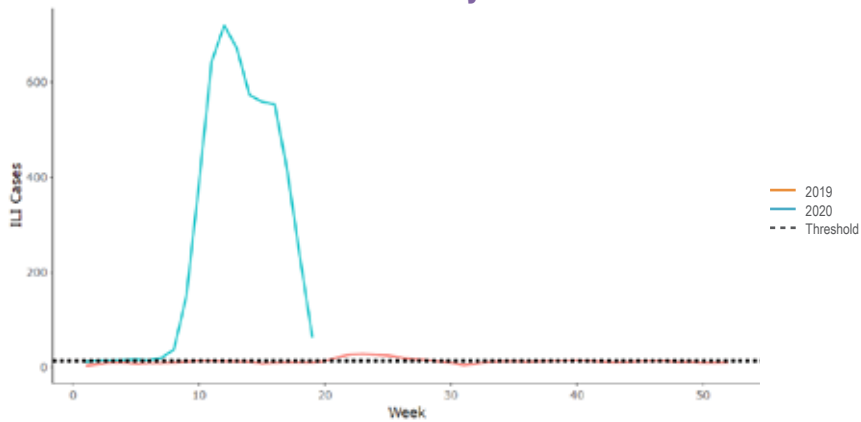


Costa Rica: Cumulative percent positivity for influenza and respiratory syncytial virus



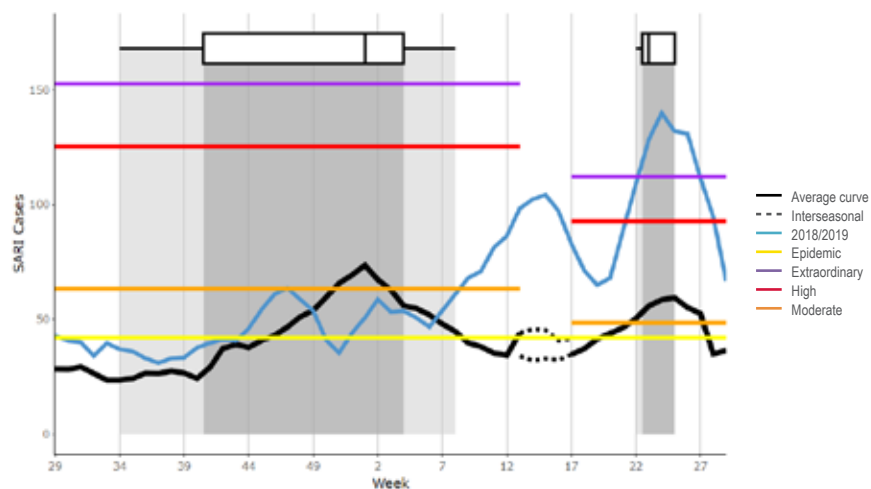
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	June (2019)
Year of original publication	2009	Percentage of older adults vaccinated	81% (≥ 65 years)
Year of last revision/update	2016	Percentage of children under 5 vaccinated ⁷	77%
Simulations	Yes	Percentage of pregnant women vaccinated ⁷	73%
Drills	NA	Percentage of people at higher risk for influenza-related complications vaccinated	68%
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	72%
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	5,388		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	Yes
Information sharing between sectors	Yes	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	Yes	Publication of influenza burden of disease	Online

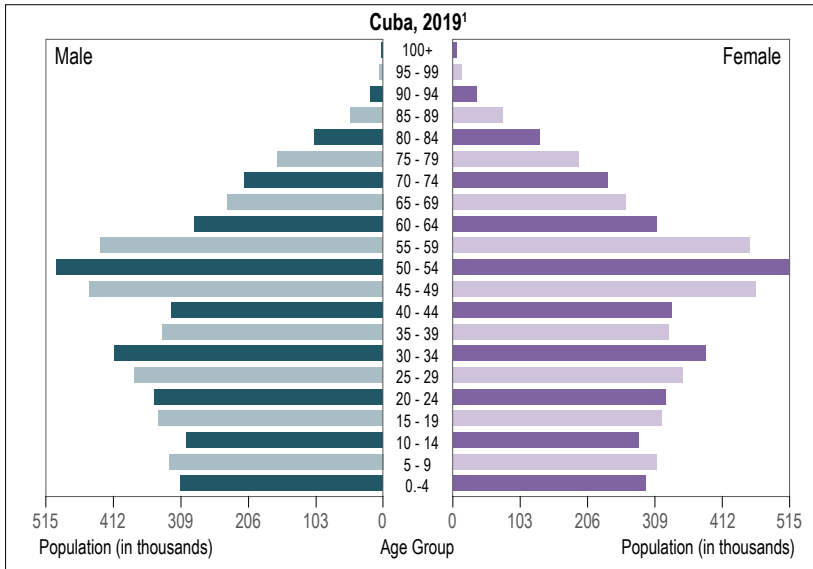
Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/cs>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization. Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. Health Situation in the Americas: Core Indicators 2018. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. Immunization in the Americas [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Cuba

Sociodemographic Indicators



POPULATION

Population (thousands)²: **11,338**

Population density (per km²)³: **109.0**

Percentage of population < 5 years⁴: **5.4%**

Percentage of population ≥ 65 years⁴: **15.2%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **4.8**

Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **5.3**

Mortality rate due to communicable diseases (per 100,000 population)⁵: **41.1**

PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **84.2**

Current health expenditure per capita, PPP* (current international \$)⁶: **2,458**

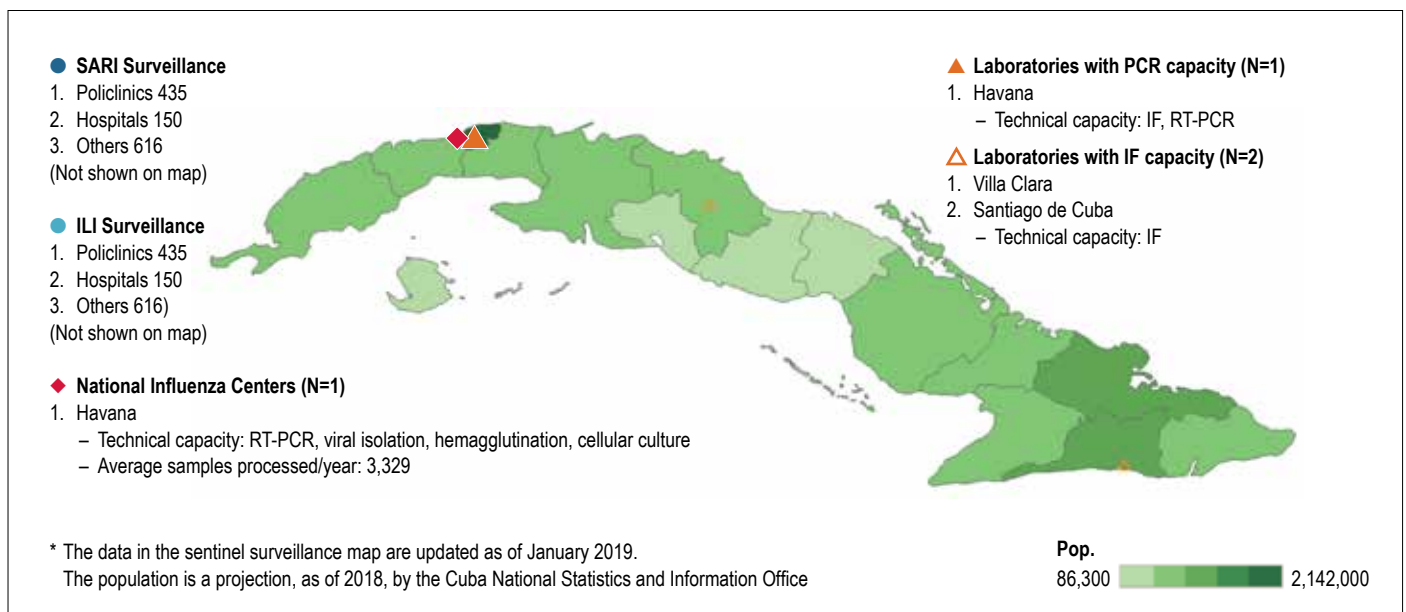
National health expenditure as % of GDP 2016⁵: **10.9**

*PPP – Purchasing Power Parity

Surveillance Systems

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	National	100%	Daily	Monthly	1,201	EDO	NA	Online
ILI	Yes	National	100%	Daily	Monthly	1,201			
ARI	No; ICD-10 codes (J00-J22)	National	100%	Daily	NA	1,201			
PNEUMONIA	No; ICD-10 codes (J09-J18)	National	100%	NA	NA	1,201			
INFLUENZA	NA	National	100%	NA	NA	150			
INFLUENZA MORTALITY	NA	National	100%	Daily	NA	1,201		Yes	

Surveillance Map



Influenza and Respiratory Syncytial Virus

Virologic data

Cuba: Distribution of influenza viruses by epidemiological week

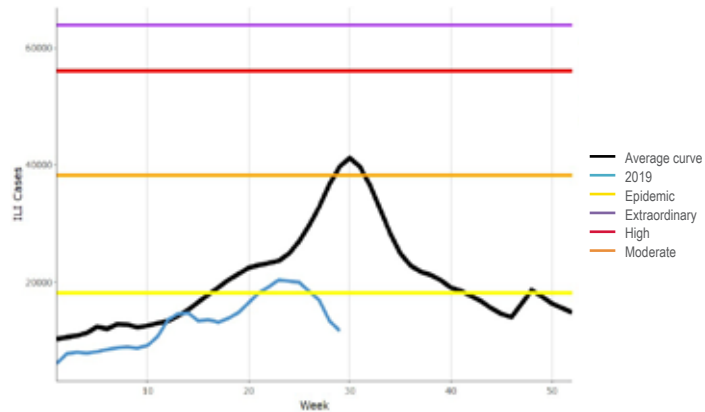


Cuba: Cumulative percent positivity for influenza and respiratory syncytial virus



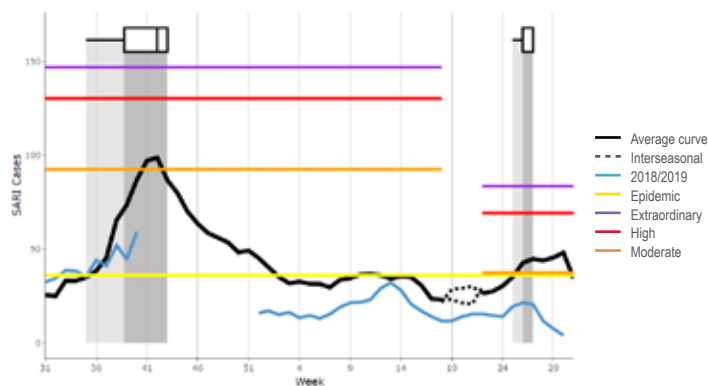
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



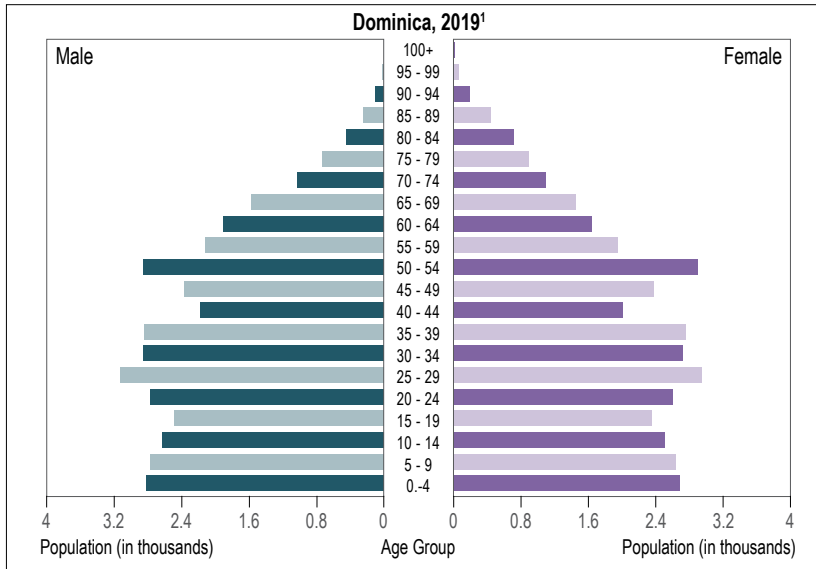
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	April/May
Year of original publication	2009	Percentage of older adults vaccinated ⁷	97% (≥ 75 years)
Year of last revision/update	2011	Percentage of children under 5 vaccinated ⁷	63%
Simulations	Yes	Percentage of pregnant women vaccinated ⁷	88%
Drills	Yes	Percentage of people at higher risk for influenza-related complications vaccinated	85%
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	97%
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	No	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	3,329		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus, enterovirus, coronavirus NL63, OC43, 229E, HKU1		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	No
Information sharing between sectors	Yes	Estimation of economic burden for influenza	NA
Surveillance of unusual respiratory cases with exposure to animals	Yes	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/cu>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Dominica



POPULATION
Population (thousands) ² : 72
Population density (per km ²) ³ : 96
Percentage of population < 5 years ⁴ : NA
Percentage of population ≥ 65 years ⁴ : 13.0%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 6.8
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 13.8
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 94.1

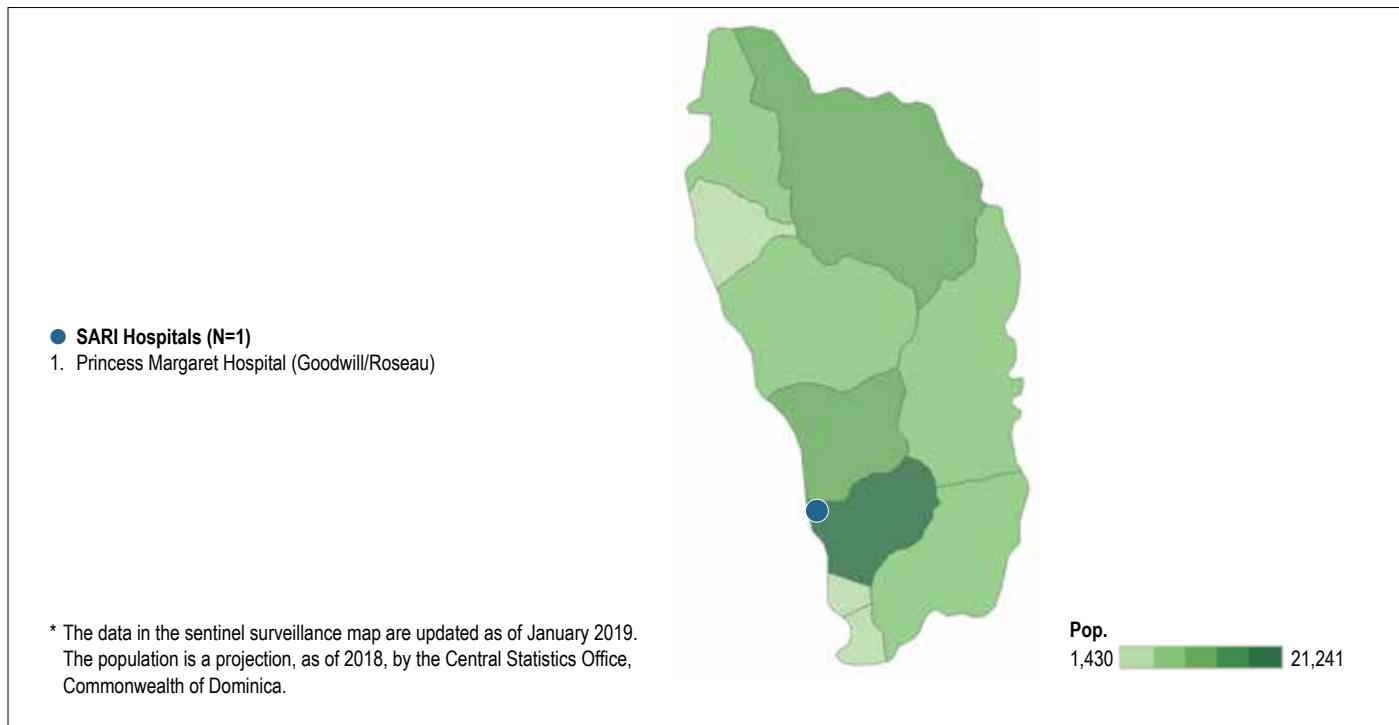
PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 11.1
Current health expenditure per capita, PPP* (current international \$) ⁶ : 581.0
National health expenditure as % of GDP 2016 ⁵ : 3.4

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS					INFORMATION SYSTEM			
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	Weekly	Weekly	1	PAHOFlu	Yes	No
INFLUENZA MORTALITY	NA	National	No	No	NA	All public health facilities	MORT-BASE	No	No

Surveillance Systems

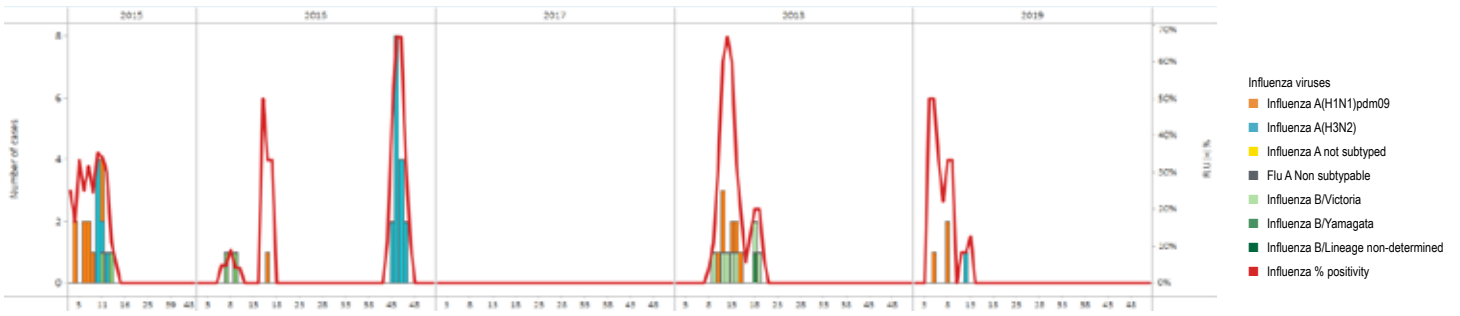


Surveillance Map

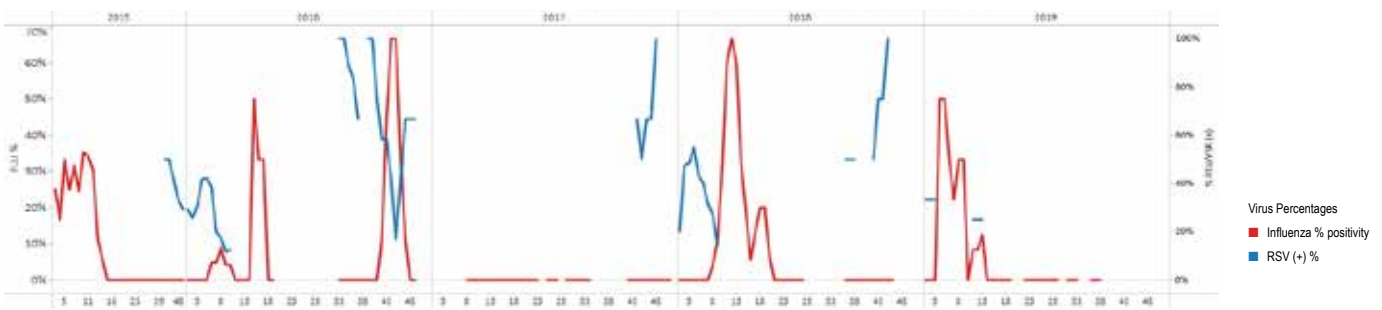
Influenza and Respiratory Syncytial Virus

Virologic data

Dominica: Distribution of influenza viruses by epidemiological week



Dominica: Cumulative percent positivity for influenza and respiratory syncytial virus



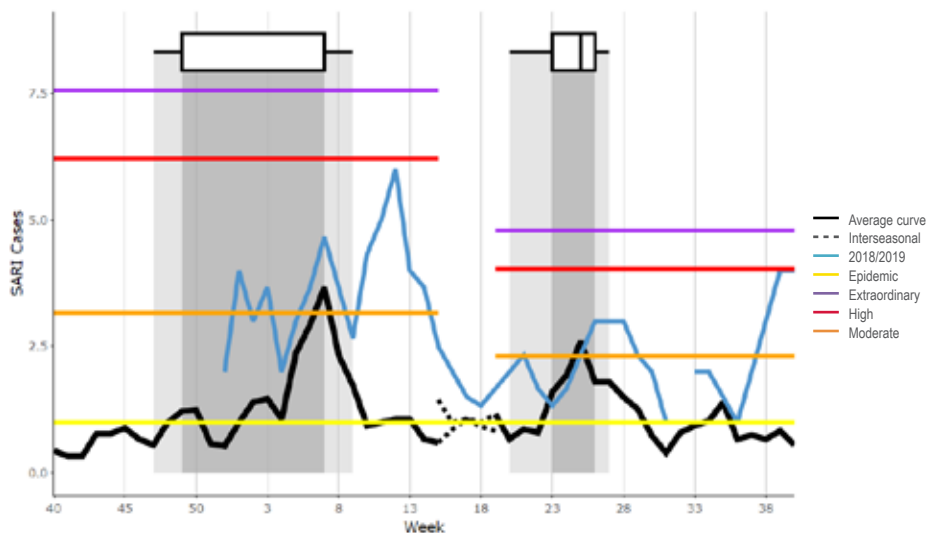
Influenza-Like Illness (ILI)

Data from ambulatory cases

Not applicable

Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	No
Year of original publication	2013
Year of last revision/update	2013
Simulations	Yes
Drills	No
Rapid response teams composed	No
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	September
Percentage of older adults vaccinated ⁷	29% (≥ 65 years)
Percentage of children under 5 vaccinated ⁷	NA
Percentage of pregnant women vaccinated ⁷	Yes
Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Percentage of health care workers vaccinated ⁷	19%

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	No
Samples sent to WHO Collaborating Center	No
Number of samples analyzed during 2017–2018	NA
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; rhinovirus

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	Yes
Information sharing between sectors	Yes
Surveillance of unusual respiratory cases with exposure to animals	Yes

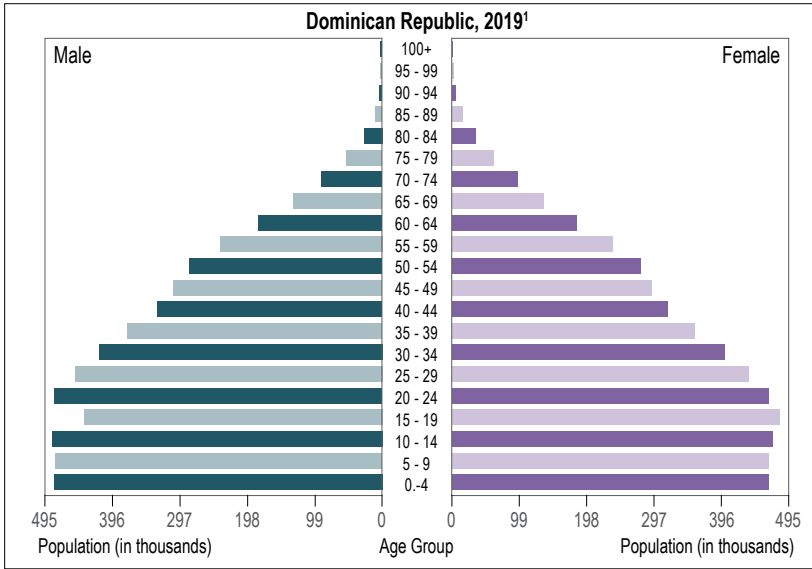
Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	No

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/do>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Dominican Republic



POPULATION
Population (thousands) ² : 10,627
Population density (per km ²) ³ : 220.0
Percentage of population < 5 years ⁴ : 9.5%
Percentage of population ≥ 65 years ⁴ : 7.1%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 6.6
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 24.5
Mortality rate due to communicable diseases (per 100,000 population) ⁶ : 96.2

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 14.1
Current health expenditure per capita, PPP* (current international \$) ⁶ : 937
National health expenditure as % of GDP 2016 ⁵ : 2.8

*PPP – Purchasing Power Parity

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	Quota (5 samples/week)	Weekly	Annually	7	Sistema Nacional de Vigilancia Epidemiológica (SINAVE)	Yes	Online
ILI	Yes	Sentinel	Quota (5 samples/week)	Weekly	1-2 each year	1		NA	NA
ARI	No; ICD-10 codes (J00/J02, A36/A37/J10/J18/J20/J21)	National	No	No	NA	2,566		NA	Online

- **SARI Hospitals (N=7)**
 - Hospital Regional Taiwan (Azua)
 - Hospital Infantil Robert Reid Cabral (Distrito Nacional)
 - Hospital Dr. Antonio Musa (San Pedro de Macoris)
 - Hospital Infantil Dr. Arturo Grullón (Santiago)
 - Hospital José María Cabral y Báez (Santiago)
 - Hospital Santo Domingo (Distrito Nacional)
 - Centro Médico Punta Cana (La Altagracia)
- **ILI Centers (N=1)**
 - Hospital Municipal José Contreras (Españillat)
- ◆ **National Influenza Centers (N=1)**
 - Laboratorio Nacional de Salud Pública Dr. Defilló (Distrito Nacional)
 - Technical capacity: IF, RT-PCR
 - Average samples processed/year: 2,041
- △ **Laboratories with IF capacity (N=1)**
 - José María Cabral y Báez (Santiago)
 - Technical capacity: IF

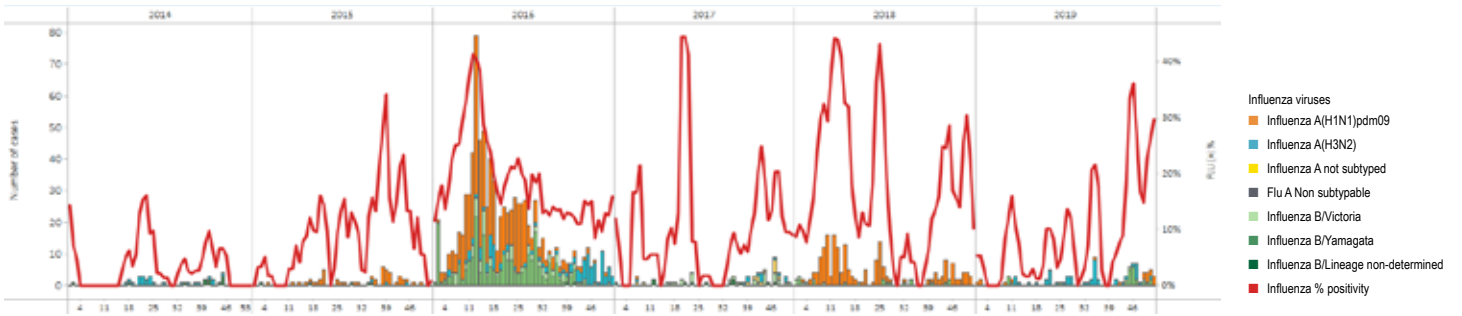
* The data in the sentinel surveillance map are updated as of January 2019.
The population is a projection, as of 2018, by the Dominican Republic National Statistics Office.

Pop.
34,391 2,805,228

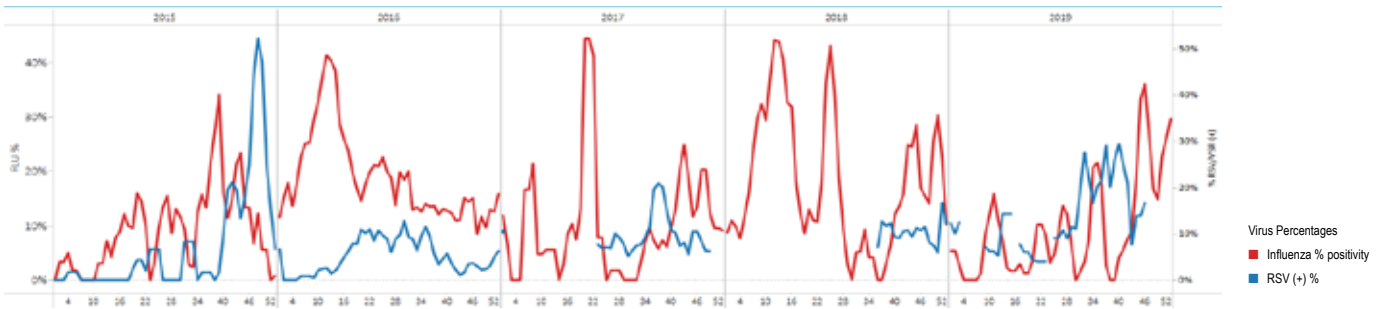
Influenza and Respiratory Syncytial Virus

Virologic data

Dominican Republic: Distribution of influenza viruses by epidemiological week

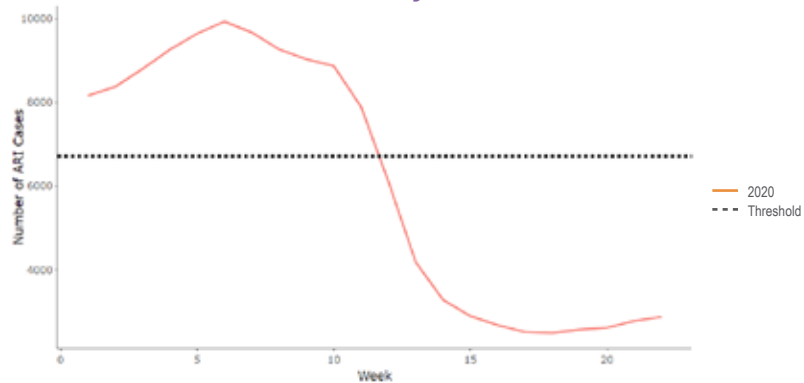


Dominican Republic: Cumulative percent positivity for influenza and respiratory syncytial virus



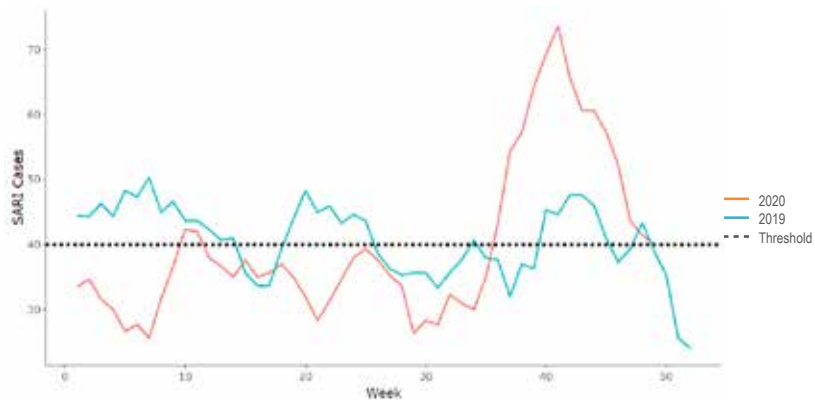
Acute Respiratory Infection (ARI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2007
Year of last revision/update	2007
Simulations	Yes
Drills	No
Rapid response teams composed	Yes
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	October
Percentage of older adults vaccinated	4% (≥ 65 years)
Percentage of children under 5 vaccinated ⁷	19% (age of vaccinated children is 6-23 months. November to December of 2018)
Percentage of pregnant women vaccinated ⁷	87%
Percentage of people at higher risk for influenza-related complications vaccinated	Yes
Percentage of health care workers vaccinated ⁷	Yes

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	1,688
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	In progress
Information sharing between sectors	In progress
Surveillance of unusual respiratory cases with exposure to animals	Yes

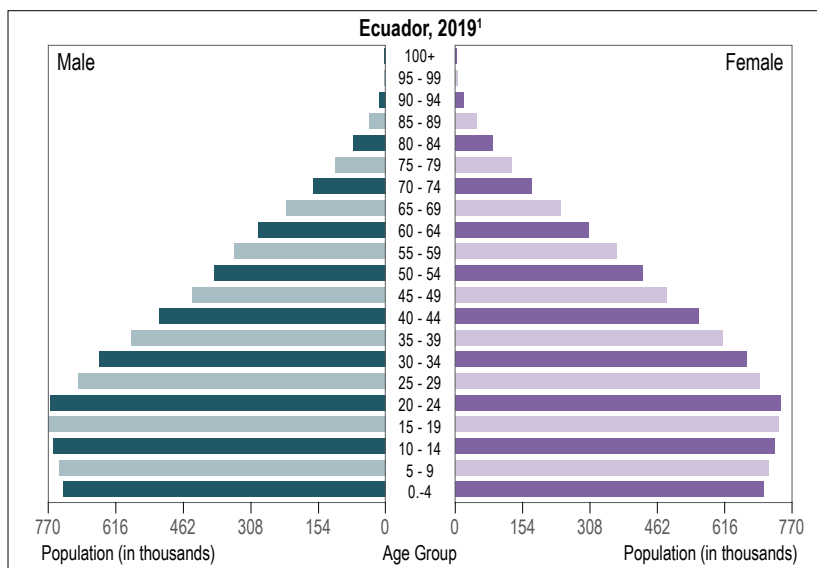
Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/dr>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Ecuador



POPULATION
Population (thousands) ² : 17,084.3
Population density (per km ²) ³ : 69.0
Percentage of population < 5 years ⁴ : 9.7%
Percentage of population ≥ 65 years ⁴ : 7.2%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 5.5
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 13.8
Mortality rate due to communicable diseases (per 100,000 population) ⁶ : 78.0

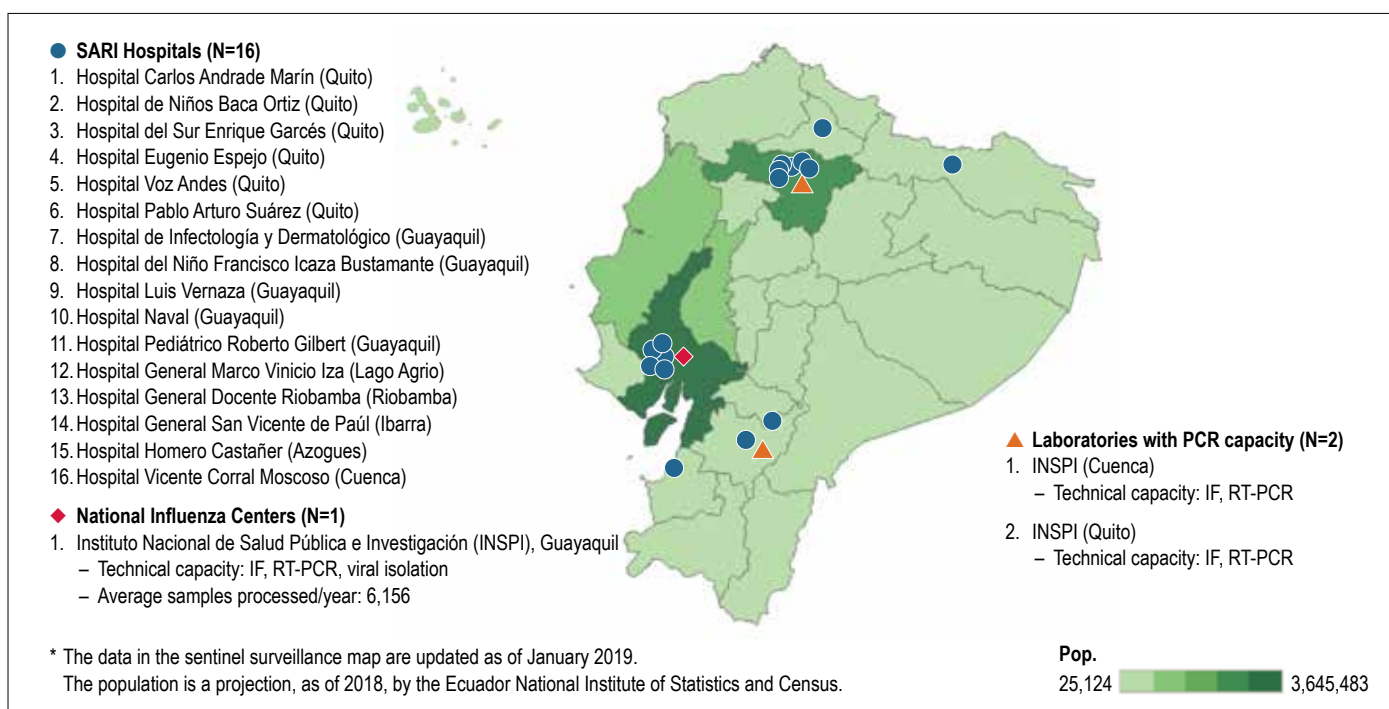
PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 22.2
Current health expenditure per capita, PPP* (current international \$) ⁶ : 943
National health expenditure as % of GDP 2016 ⁵ : 4.3

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	3 times a week	Annually	16 hospitals	Sistema de Vigilancia de Infecciones Respiratorias Agudas Graves	Yes	Online
PNEUMONIA	No; ICD-10 codes (J09-J18, J20-J22X)	National	No	No	NA	2,969	Sistema Nacional de Vigilancia en Salud Pública		Online
INFLUENZA	NA	National	100%	3 times a week	NA	2,969	Sistema de Vigilancia de Infecciones Respiratorias Agudas Graves		Online

Surveillance Systems

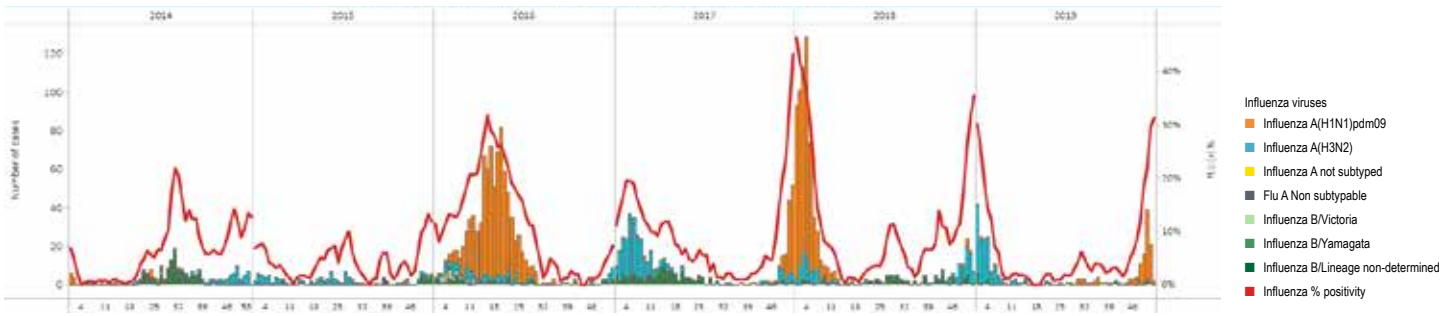


Surveillance Map

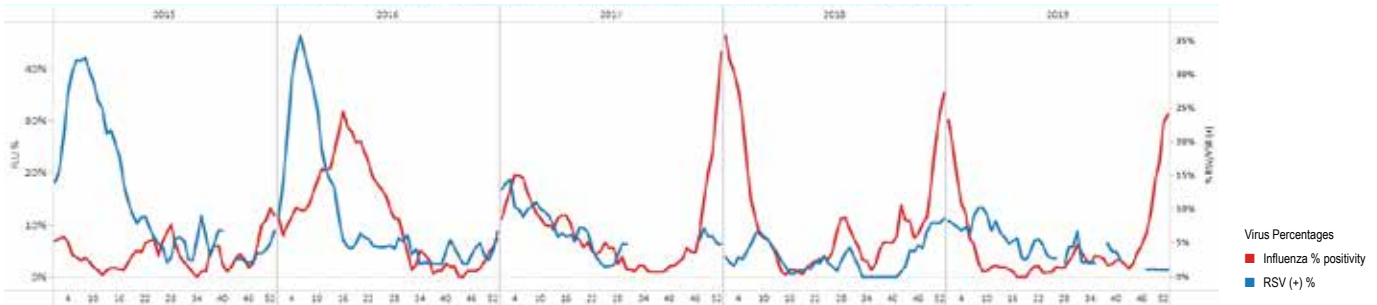
Influenza and Respiratory Syncytial Virus

Virologic data

Ecuador: Distribution of influenza viruses by epidemiological week



Ecuador: Cumulative percent positivity for influenza and respiratory syncytial virus



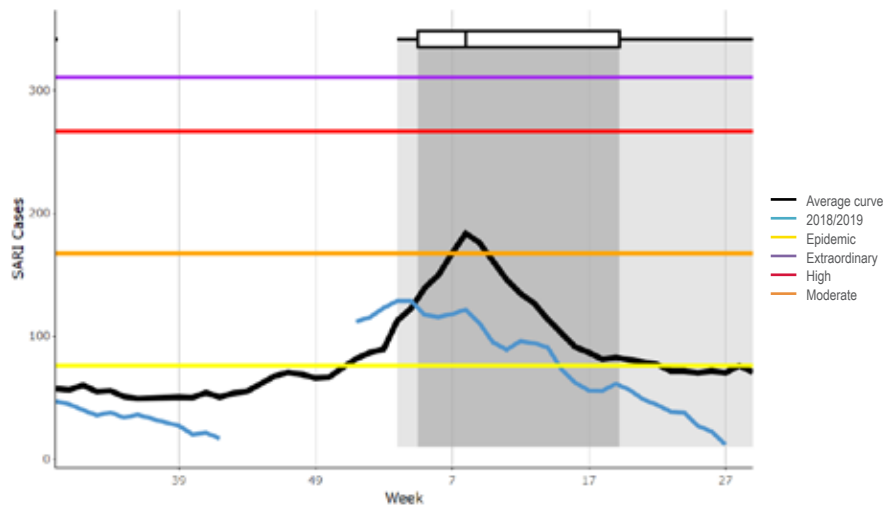
Influenza-Like Illness (ILI)

Data from ambulatory cases

Not applicable

Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	No
Year of original publication	2014
Year of last revision/update	2014
Simulations	Yes
Drills	Yes
Rapid response teams composed	Yes
Risk communication strategy in place	No

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	November to December
Percentage of older adults vaccinated ⁷	100% (age of vaccinated adults is > 65 years. 2018)
Percentage of children under 5 vaccinated ⁷	94% (age of vaccinated children is 6-59 months. 2018)
Percentage of pregnant women vaccinated ⁷	67% (2018)
Percentage of people at higher risk for influenza-related complications vaccinated	100% (2018)
Percentage of health care workers vaccinated ⁷	65% (2018)

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	3821
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	In progress
Information sharing between sectors	In progress
Surveillance of unusual respiratory cases with exposure to animals	Yes

Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/ec>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



El Salvador

POPULATION

Population (thousands)²: **6,421**

Population density (per km²)³: **310.0**

Percentage of population < 5 years⁴: **9.0%**

Percentage of population ≥ 65 years⁴: **8.3%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **6.7**

Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **10.9**

Mortality rate due to communicable diseases (per 100,000 population)⁵: **71.9**

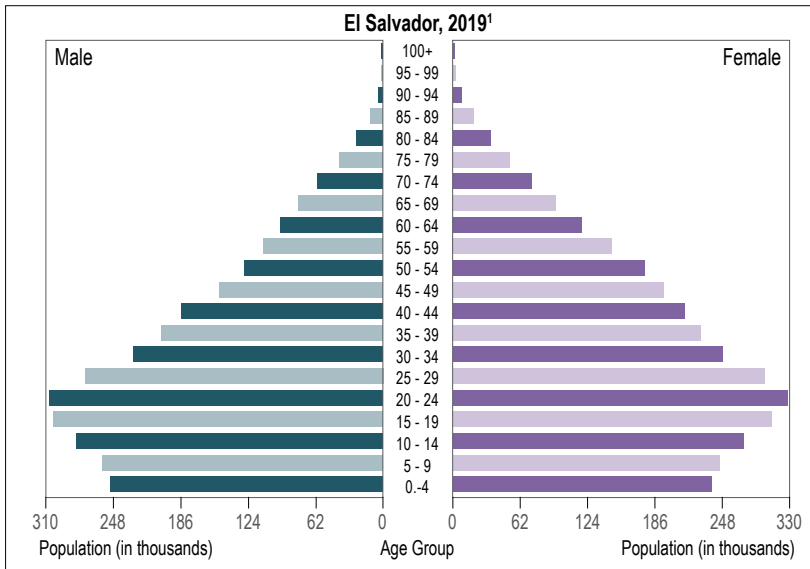
PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **28.7**

Current health expenditure per capita, PPP* (current international \$)⁶: **600**

National health expenditure as % of GDP 2016⁵: **4.5**

*PPP – Purchasing Power Parity



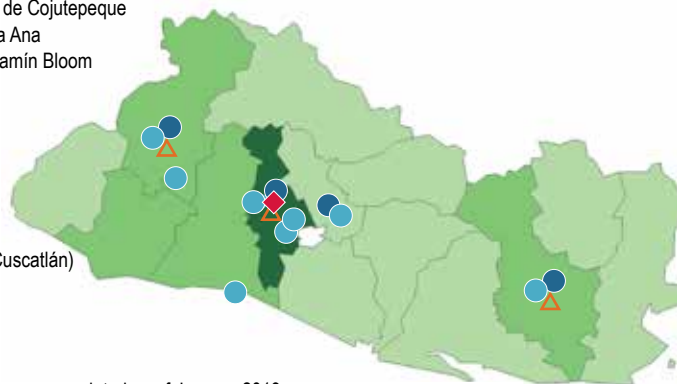
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	Quota (12 samples/week)	Weekly	2/year	4	Vigepes centinela	Yes	Online
ILI	Yes	Sentinel	Quota (40 samples/week)	Weekly	2/year	8			Online
ARI	No; ICD-10 codes (J.00-J06)	National	No	No	NA	1,238	Vigepes	No	No
PNEUMONIA	No; ICD-10 codes (J12.0-J18.9)	National	No	No	NA	1,238		No	Online
INFLUENZA	NA	Sentinel	Quota	Weekly	NA	12		Yes	No
INFLUENZA MORTALITY	NA	National	Quota	Varies	NA	38	Sistema de morbimortalidad en línea (SIMMOW)	No	NA

● SARI Hospitals (N=4)

- Hospital San Juan de Dios de San Miguel
- Hospital Nuestra Señora de Fátima de Cojutepeque
- Hospital San Juan de Dios de Santa Ana
- Hospital Nacional de Niños de Benjamín Bloom

● ILI Centers (N=8)

- UCSF La Presita (San Miguel)
- UCSF Díaz del Pinal (La Libertad)
- UCSF Barrios (San Salvador)
- UCSF Unicentro (San Salvador)
- UCSF Zacamil (San Salvador)
- UCSF Periférica de Cojutepeque (Cuscatlán)
- UCSF San Rafael (Santa Ana)
- UCSF Tomás Pineda (Santa Ana)



◆ National Influenza Centers (N=1)

- Laboratorio Nacional de Referencia Doctor Max Bloch
 - Technical capacity: IF, RT-PCR, viral isolation
 - Average samples processed/year: 4,529

▲ Laboratories with IF capacity (N=3)

- Hospital regional de San Miguel
 - Technical capacity: IF
- Hospital de niños Benjamín Bloom
 - Technical capacity: IF
- Hospital regional de Santa Ana
 - Technical capacity: IF

* The data in the sentinel surveillance map are updated as of January 2019.

The population is a projection, as of 2018, by the El Salvador Directorate of Statistics and Census.

Pop.

149,326 1,567,156

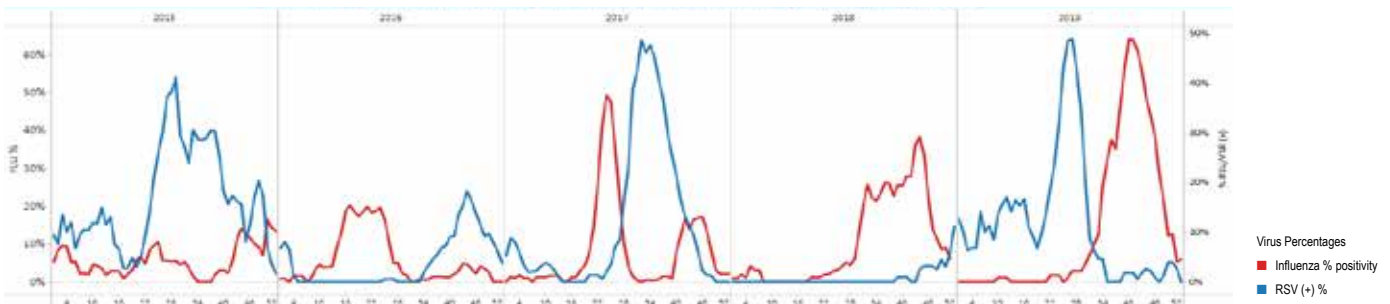
Influenza and Respiratory Syncytial Virus

Virologic data

El Salvador: Distribution of influenza viruses by epidemiological week

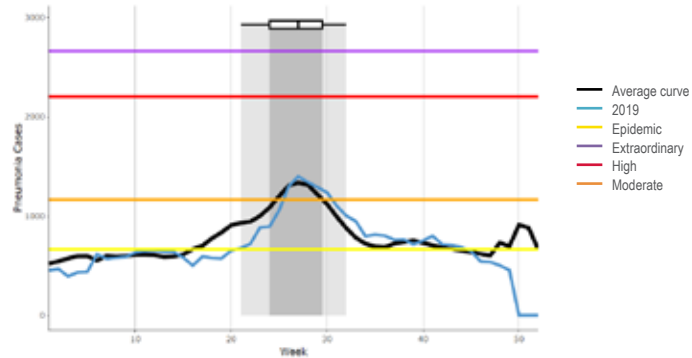


El Salvador: Cumulative percent positivity for influenza and respiratory syncytial virus



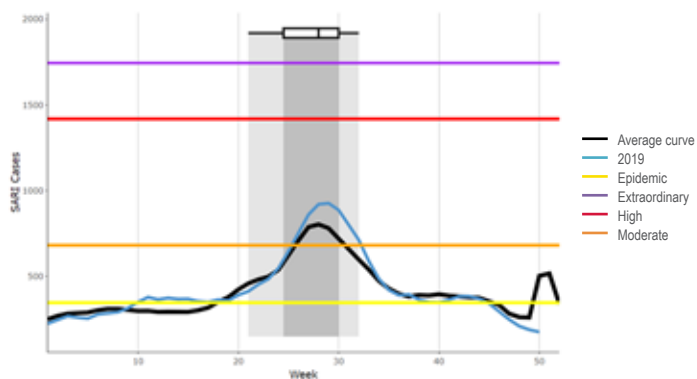
Pneumonia Data

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



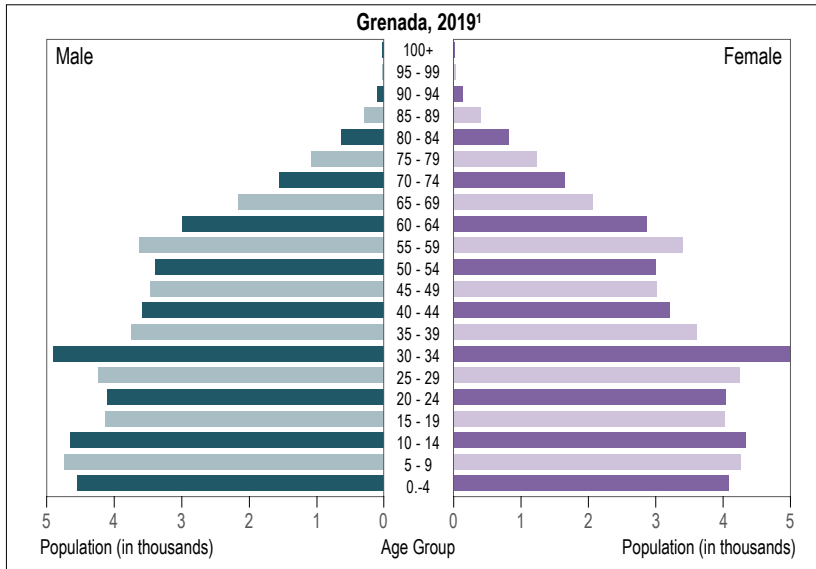
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere
Part of an all-hazards plan	No	Month of vaccine administration	May
Year of original publication	2009	Percentage of older adults vaccinated ⁷	27% (age of vaccinated older adults is ≥ 65 years, 2018)
Year of last revision/update	2013	Percentage of children under 5 vaccinated ⁷	64% (age of vaccinated children is 6–48 months, 2018)
Simulations	NA	Percentage of pregnant women vaccinated ⁷	78%
Drills	NA	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	84%
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	4,259		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	In progress	Estimation of medical burden for influenza	No
Information sharing between sectors	No	Estimation of economic burden for influenza	NA
Surveillance of unusual respiratory cases with exposure to animals	No	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/es>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Grenada



POPULATION

Population (thousands)²: **111**

Population density (per km²)³: **328.0**

Percentage of population < 5 years⁴: **8.0%**

Percentage of population ≥ 65 years⁴: **9.6%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **7.4**

Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **15.1**

Mortality rate due to communicable diseases (per 100,000 population)⁵: **83.5**

PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **14.4**

Current health expenditure per capita, PPP* (current international \$)⁶: **745.0**

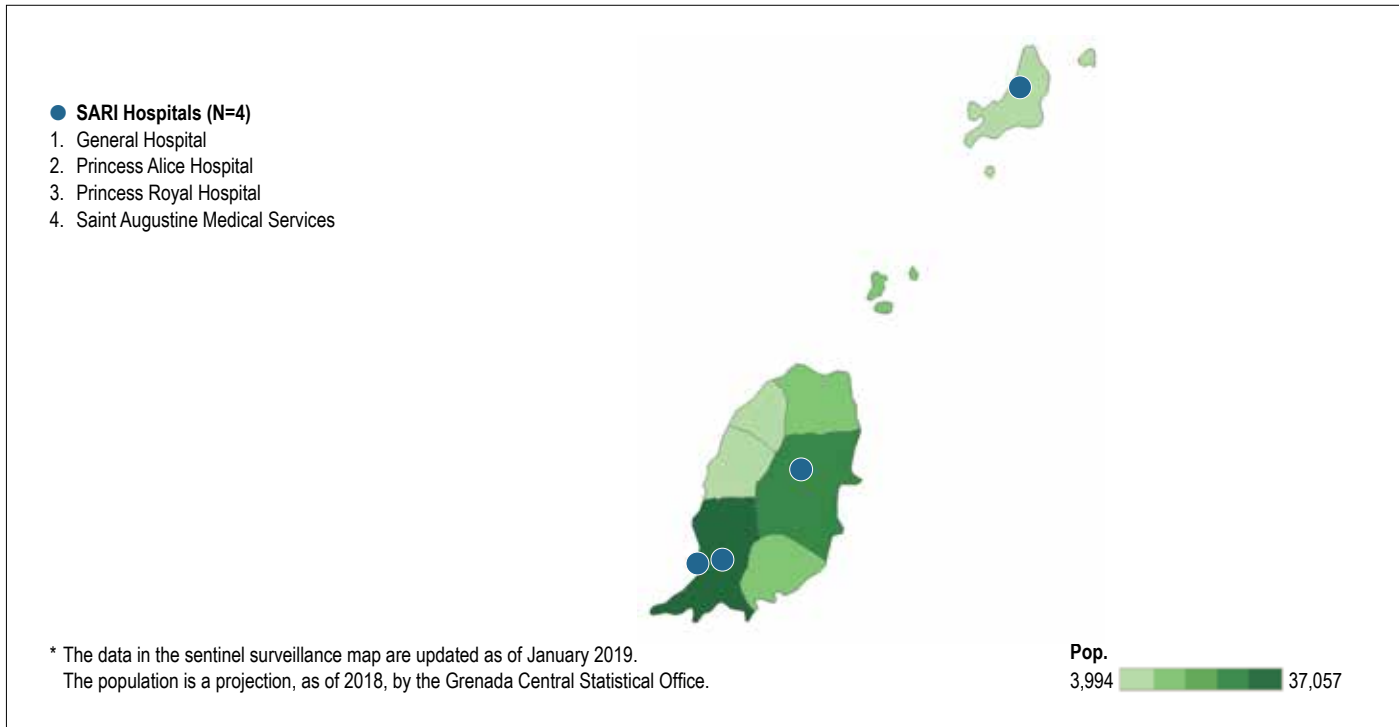
National health expenditure as % of GDP 2016⁵: **2.2**

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	Quota	Varies	No	4	NA	NA	No
ILI	Yes	National	No	Varies	No	60			
ARI	No	National	No	NA	NA	NA			

Surveillance Systems

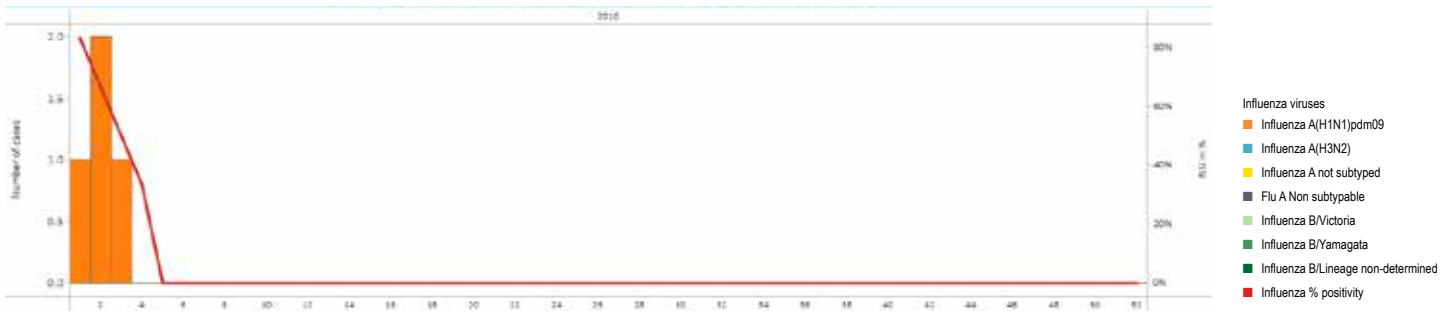


Surveillance Map

Influenza and Respiratory Syncytial Virus

Virologic data

Grenada: Distribution of influenza viruses by epidemiological week

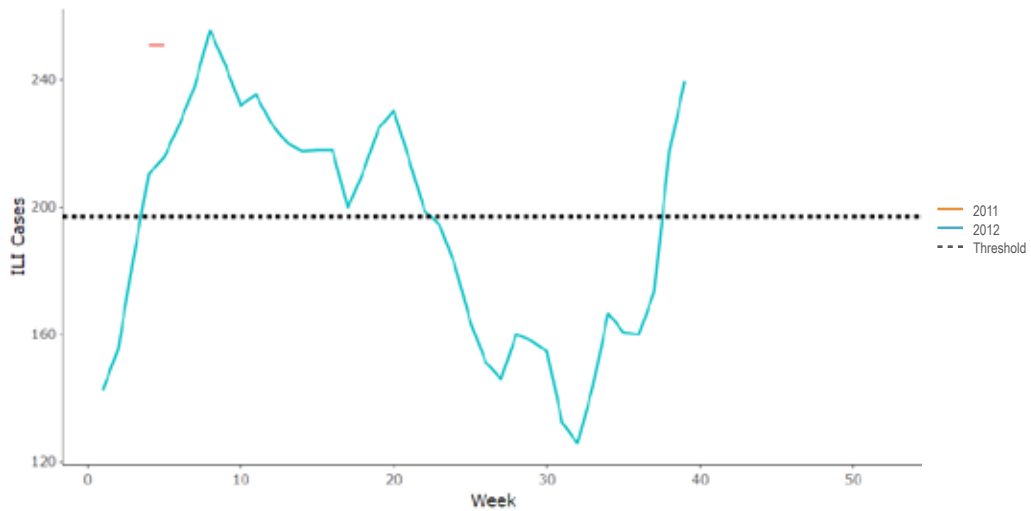


Grenada: Cumulative percent positivity for influenza and respiratory syncytial virus



Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases

Not applicable

Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Northern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	October
Year of original publication	2009	Percentage of older adults vaccinated ⁷	NA (≥ 65 years)
Year of last revision/update	2009	Percentage of children under 5 vaccinated ⁷	NA
Simulations	Yes	Percentage of pregnant women vaccinated ⁷	Yes
Drills	No	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	No	Percentage of health care workers vaccinated ⁷	Yes
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	No	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: No
Participation in the latest WHO External Quality Assessment Programme (EQAP)	NA	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: No
Samples sent to WHO Collaborating Center	No	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	NA		
Specimens tested for other respiratory viruses (ORV)	No		
Other respiratory viruses identified	NA		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	No
Information sharing between sectors	In progress	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	No	Publication of influenza burden of disease	No

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/gj>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



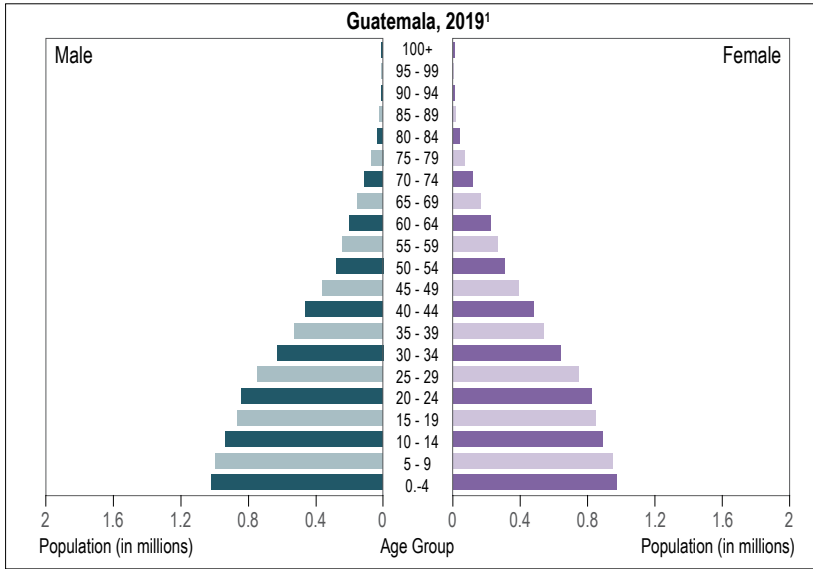
Guatemala

POPULATION
Population (thousands) ² : 17,248
Population density (per km ²) ³ : 161.0
Percentage of population < 5 years ⁴ : 11.9%
Percentage of population ≥ 65 years ⁴ : 4.8%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 6.8
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 26.0
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 141.1

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 2.8
Current health expenditure per capita, PPP* (current international \$) ⁶ : 462.0
National health expenditure as % of GDP 2016 ⁵ : 2.2

*PPP – Purchasing Power Parity



Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	Quota (24 samples/week)	Varies	Annually	4	Epiweb	Yes	Online
ILI	Yes	Sentinel	Quota (24 samples/week)	Varies	Annually	4			Online
INFLUENZA	NA	Sentinel	Quota (48 samples/week)	Varies	NA	8			Online

- **SARI Hospitals (N=4)**
 - Hospital General San Juan de Dios (Guatemala)
 - Hospital Infantil de Infectología y Rehabilitación (Guatemala)
 - Hospital Nacional de San Marcos (San Marcos)
 - Hospital Nacional de Cobán (Alta Verapaz)
- **ILI Centers (N=4)**
 - Clínica Periférica Primero de Julio (Mixco Guatemala)
 - Centro de Salud San Marcos (San Marcos)
 - Centro de Salud San Pedro Sacatepéquez (San Marcos)
 - Centro de Salud de Cobán (Alta Verapaz)
- ◆ **National Influenza Centers (N=1)**
 - Laboratorio Nacional de Salud (Barcenas)
 - Technical capacity: IF, RT-PCR, viral isolation
 - Average samples processed/year: 3,609
- △ **Laboratories with IF capacity (N=3)**
 - Guatemala City
 - San Marcos
 - Cobán

* The data in the sentinel surveillance map are updated as of January 2019.
The population is a projection, as of 2018, by the Guatemala National Institute of Statistics.

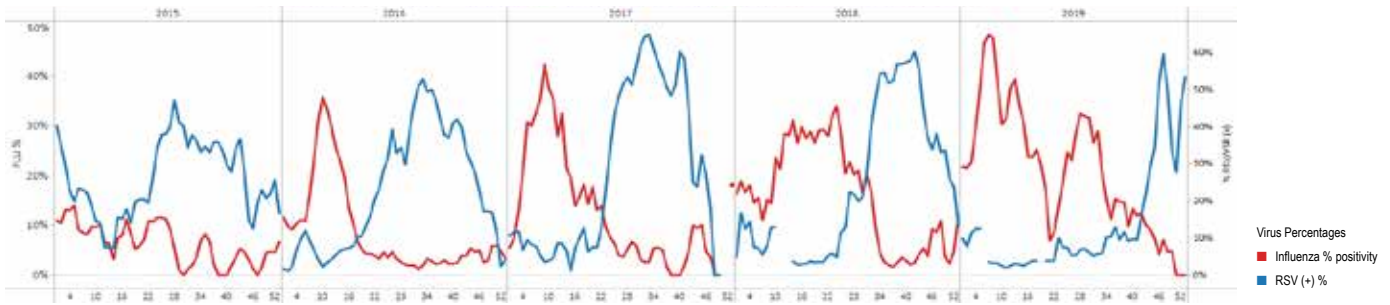
Influenza and Respiratory Syncytial Virus

Virologic data

Guatemala: Distribution of influenza viruses by epidemiological week

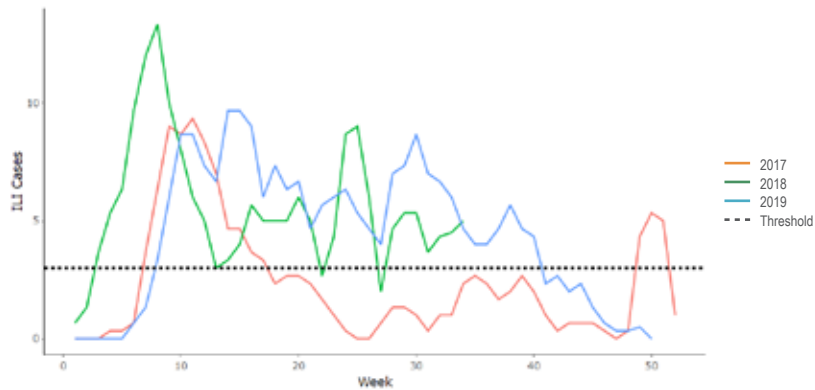


Guatemala: Cumulative percent positivity for influenza and respiratory syncytial virus



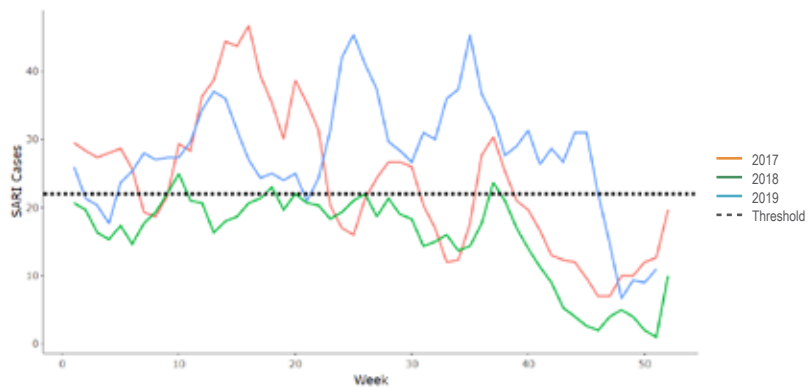
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



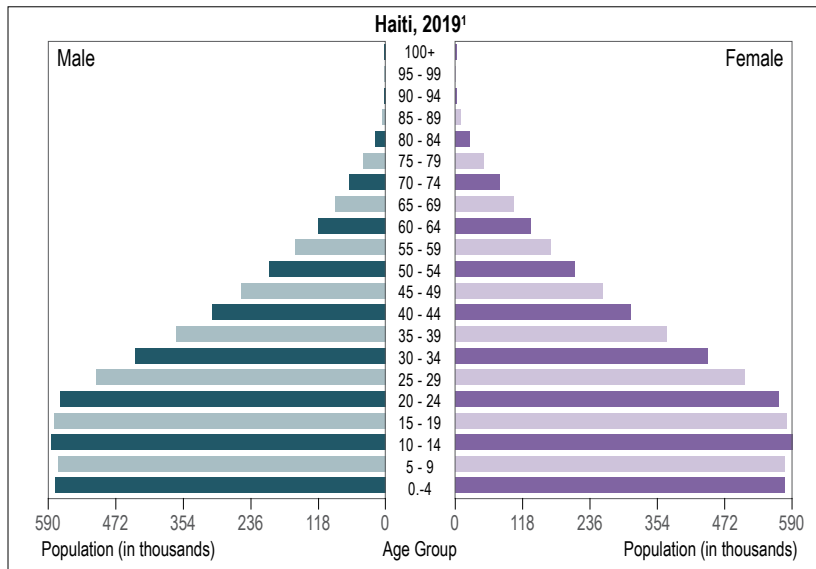
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Northern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	October
Year of original publication	2007	Percentage of older adults vaccinated ⁷	NA
Year of last revision/update	2007	Percentage of children under 5 vaccinated ⁷	NA
Simulations	No	Percentage of pregnant women vaccinated ⁷	Yes
Drills	No	Percentage of people at higher risk for influenza-related complications vaccinated	Yes
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	90%
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: Yes Seriousness of disease: No Impact: No
Number of samples analyzed during 2017–2018	3,609		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	In progress	Estimation of medical burden for influenza	Yes
Information sharing between sectors	No	Estimation of economic burden for influenza	Yes
Surveillance of unusual respiratory cases with exposure to animals	In progress	Publication of influenza burden of disease	Online

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/gt>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Haiti



POPULATION
Population (thousands) ² : 11,263
Population density (per km ²) ³ : 404.0
Percentage of population < 5 years ⁴ : 11.4%
Percentage of population ≥ 65 years ⁴ : 4.9%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 11.2
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 81.0
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 263.7

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 2.3
Current health expenditure per capita, PPP* (current international \$) ⁶ : 95
National health expenditure as % of GDP 2016 ⁵ : 0.8

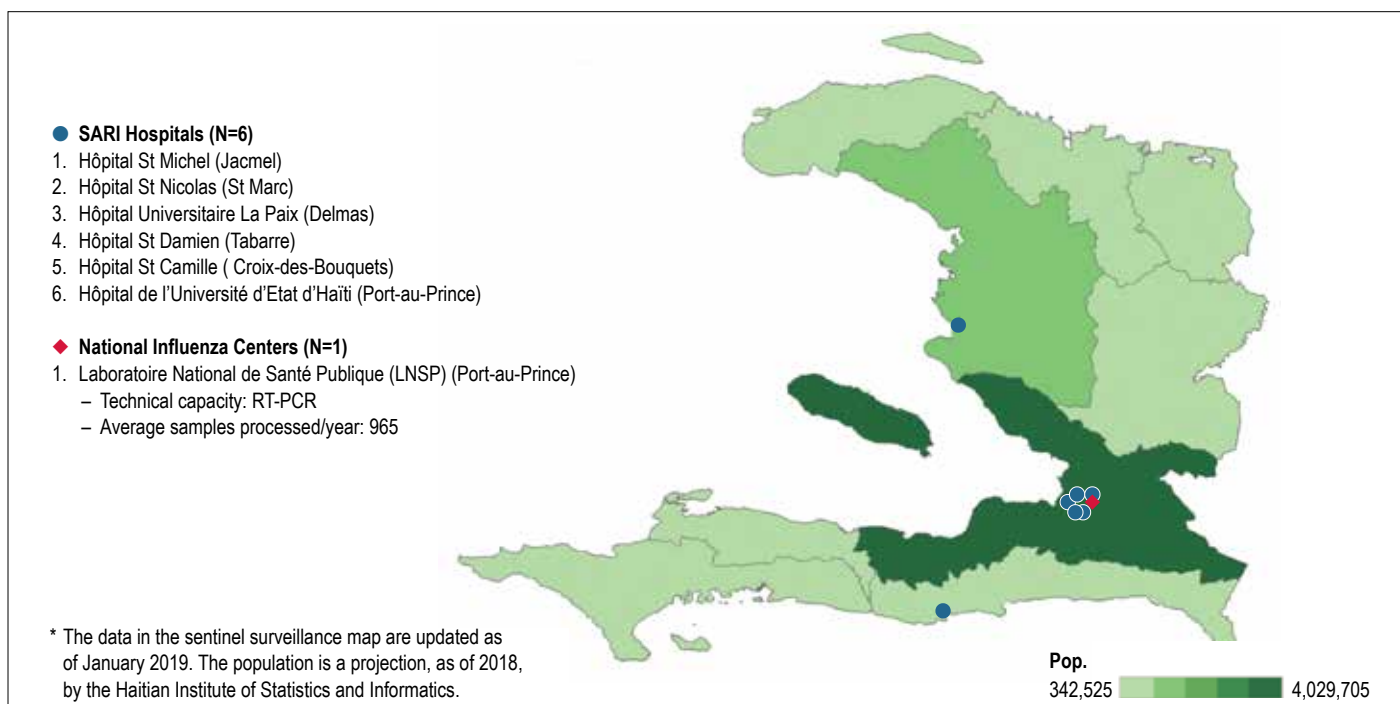
*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	Weekly	Quarterly	6	EXCELL, DHIS2	Yes	Yes
ILI	Yes	Sentinel	Quota (10 samples/week)	Weekly	Quarterly	10	EXCELL, DHIS3		
ARI	No*	National	100%	No	NA	NA	Monitoring Evaluation System Integrated (MESI)	No	Online

*ARI: Fever > 38 °C and at least one of the following symptoms: rhinitis, cough, redness in throat, throat pain; or Fever > 38 °C and rapid breathing with either a cough or difficulty breathing.

Surveillance Systems



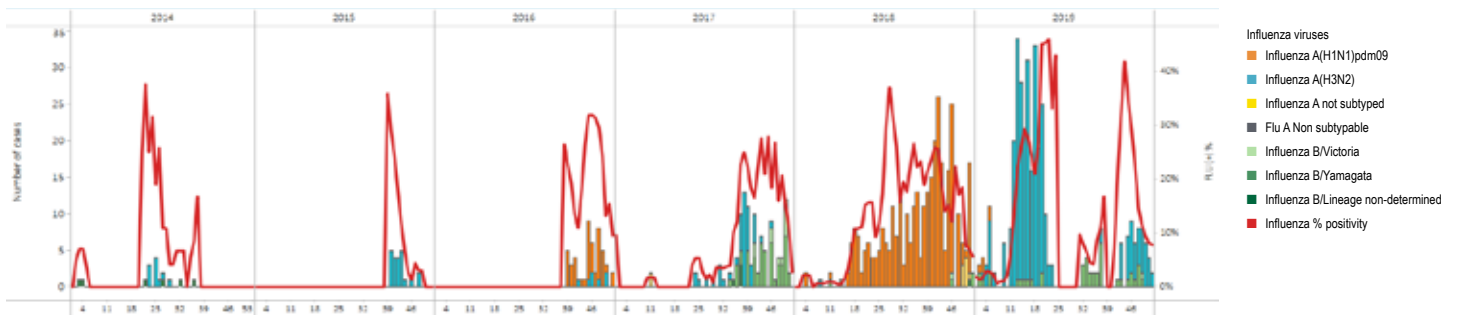
* The data in the sentinel surveillance map are updated as of January 2019. The population is a projection, as of 2018, by the Haitian Institute of Statistics and Informatics.

Surveillance Map

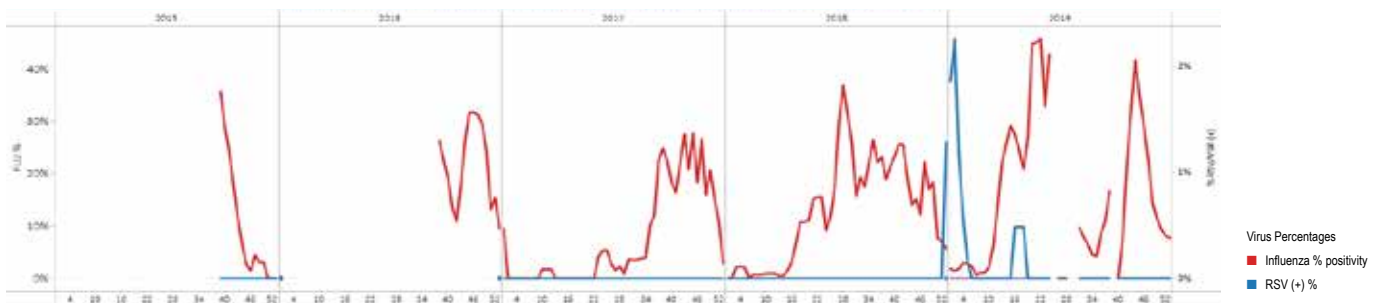
Influenza and Respiratory Syncytial Virus

Virologic data

Haiti: Distribution of influenza viruses by epidemiological week



Haiti: Cumulative percent positivity for influenza and respiratory syncytial virus



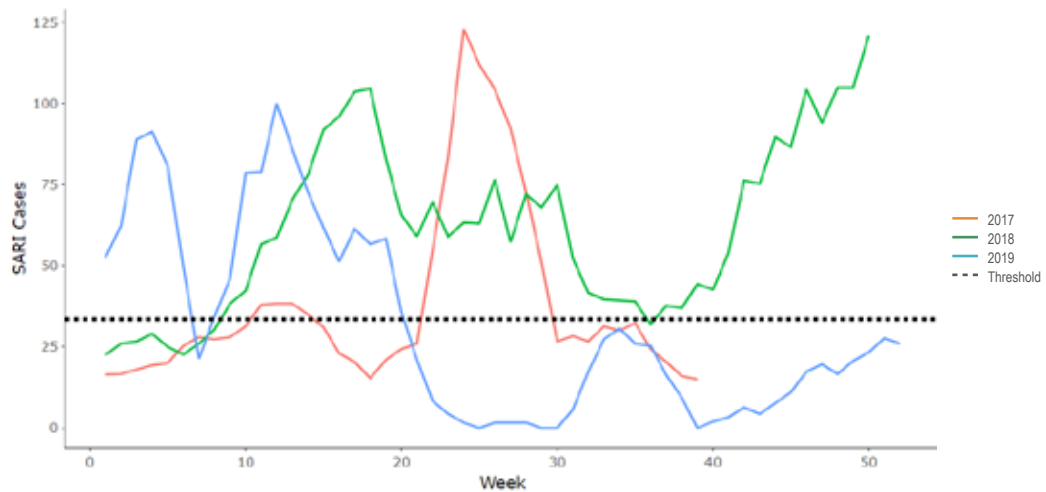
Influenza-Like Illness (ILI)

Data from ambulatory cases

Not applicable

Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2009
Year of last revision/update	2019
Simulations	Yes
Drills	No
Rapid response teams composed	No
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	In transition from one composition to another
Month of vaccine administration	NA
Percentage of older adults vaccinated ⁷	NA
Percentage of children under 5 vaccinated ⁷	NA
Percentage of pregnant women vaccinated ⁷	NA
Percentage of people at higher risk for influenza-related complications vaccinated	NA
Percentage of health care workers vaccinated ⁷	NA

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	965
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	In progress
Information sharing between sectors	In progress
Surveillance of unusual respiratory cases with exposure to animals	In progress

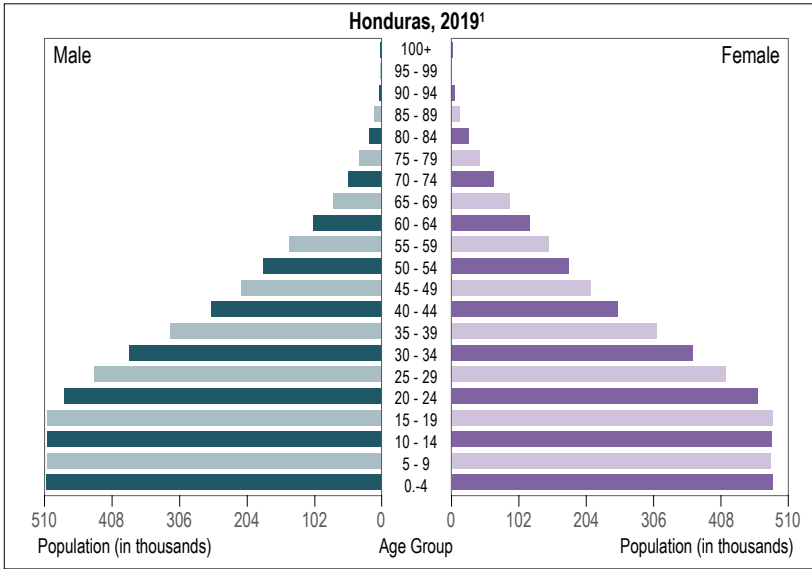
Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/ha>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Honduras



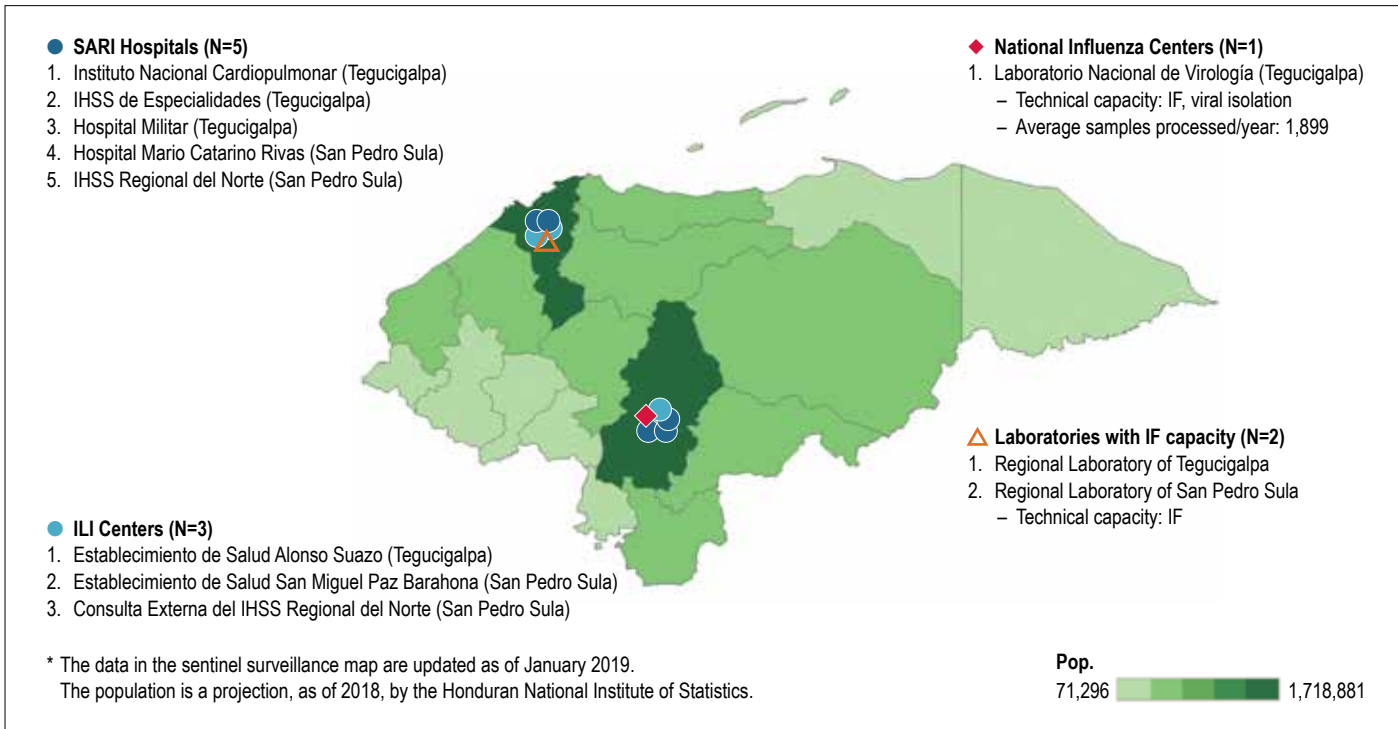
POPULATION
Population (thousands) ² : 9,588
Population density (per km ²) ³ : 86.0
Percentage of population < 5 years ⁴ : 10.5%
Percentage of population ≥ 65 years ⁴ : 4.7%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 6.0
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : NA
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 67.3

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 10.0
Current health expenditure per capita, PPP* (current international \$) ⁶ : 400.0
National health expenditure as % of GDP 2016 ⁵ : 3.9

*PPP – Purchasing Power Parity

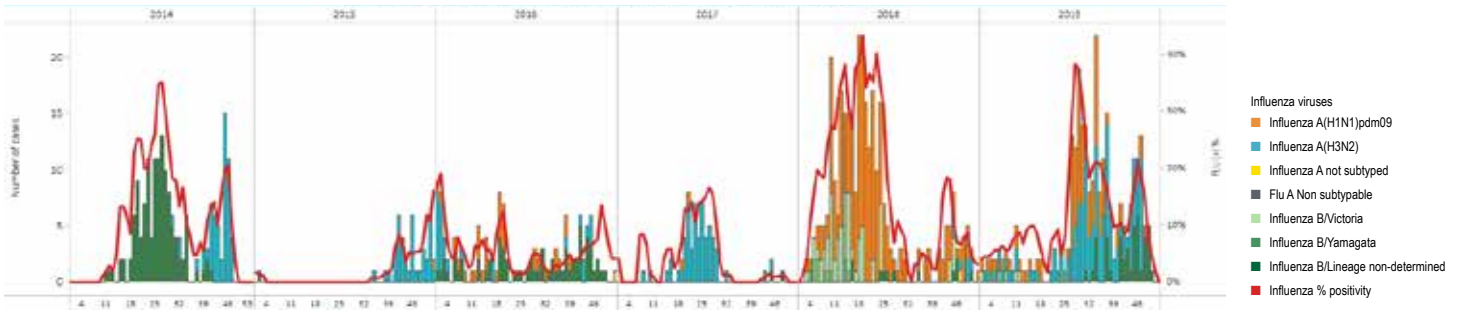
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
ARI	Yes	Sentinel	100%	Weekly	Quarterly	5	PAHOFlu	Yes	Online
PNEUMONIA	Yes	Sentinel	Quota (21 samples/week)	Weekly	Quarterly	3			
INFLUENZA	NA	Sentinel	100%	Weekly	NA	8			



Influenza and Respiratory Syncytial Virus

Virologic data

Honduras: Distribution of influenza viruses by epidemiological week

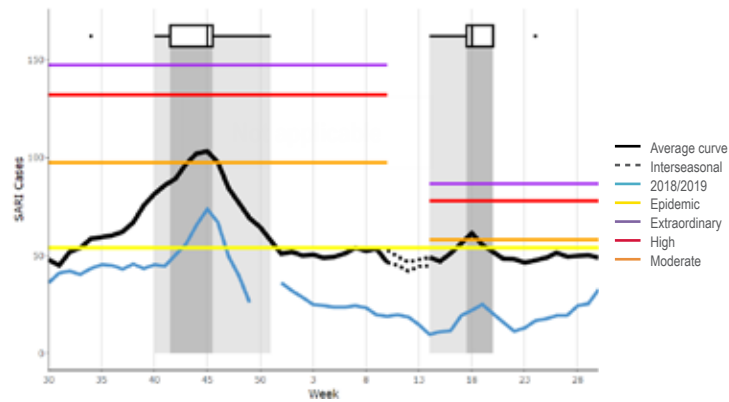


Honduras: Cumulative percent positivity for influenza and respiratory syncytial virus



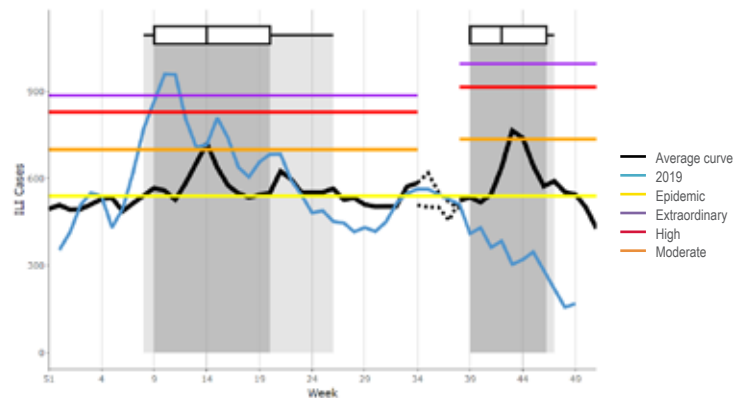
Influenza-Like Illness (ILI)

Data from ambulatory cases⁷



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁷



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2011
Year of last revision/update	2013
Simulations	No
Drills	No
Rapid response teams composed	Yes
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Southern hemisphere
Month of vaccine administration	May
Percentage of older adults vaccinated	79% (> 68.5 years)
Percentage of children under 5 vaccinated	57.3% (age of vaccinated children is 6-23 months)
Percentage of pregnant women vaccinated	85%
Percentage of people at higher risk for influenza-related complications vaccinated	100% (persons 3 to 59 years with underlying conditions)
Percentage of health care workers vaccinated	84.6%

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	3,777
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	In progress
Information sharing between sectors	No
Surveillance of unusual respiratory cases with exposure to animals	Yes

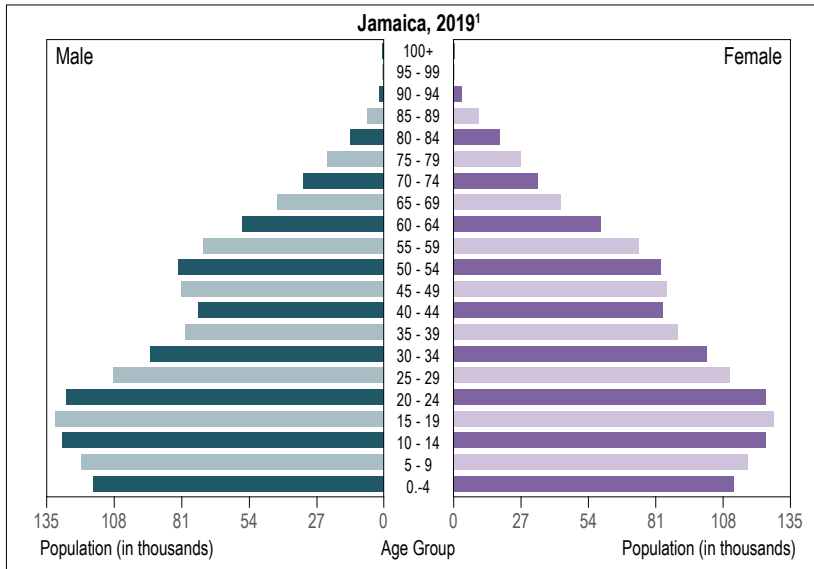
Influenza Disease Burden	
Estimation of medical burden for influenza	Yes
Estimation of economic burden for influenza	Yes
Publication of influenza burden of disease	In progress

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts; influenza bulletins published/shared by the countries; country presentations in regional influenza meetings; consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/ho>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Jamaica



POPULATION
Population (thousands) ² : 2,935
Population density (per km ²) ³ : 271.0
Percentage of population < 5 years ⁴ : 8.1%
Percentage of population ≥ 65 years ⁴ : 8.8%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 5.7
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 22.0
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 75.0

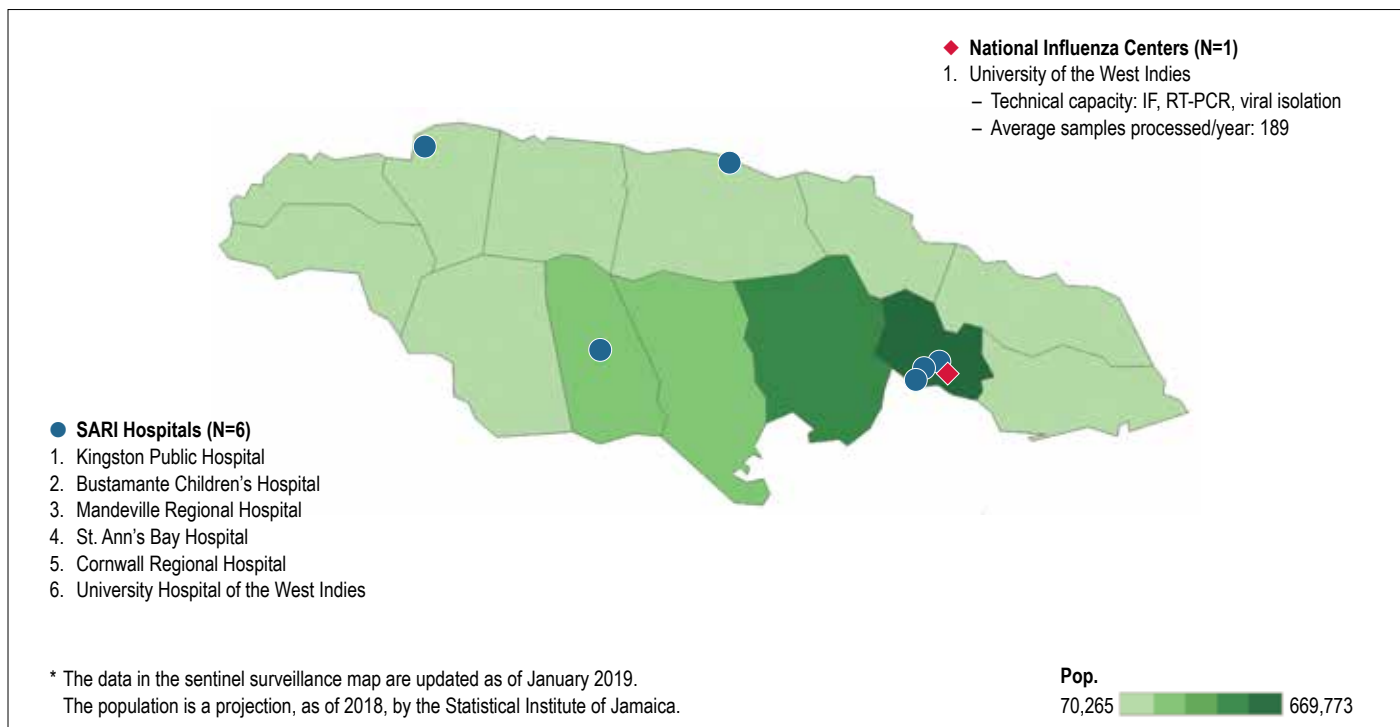
PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 13.2
Current health expenditure per capita, PPP* (current international \$) ⁵ : 536.0
National health expenditure as % of GDP 2016 ⁵ : 3.7

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	5 days/week	Annually	6	PAHO/WHO Online System for Sentinel Surveillance of Severe Acute Respiratory Infection	Yes	Online
ILI	Yes	Sentinel	Quota	5 days/week	Annually	78		No	
INFLUENZA	NA	National	100%	Daily	NA	NA		Yes	

Surveillance Systems

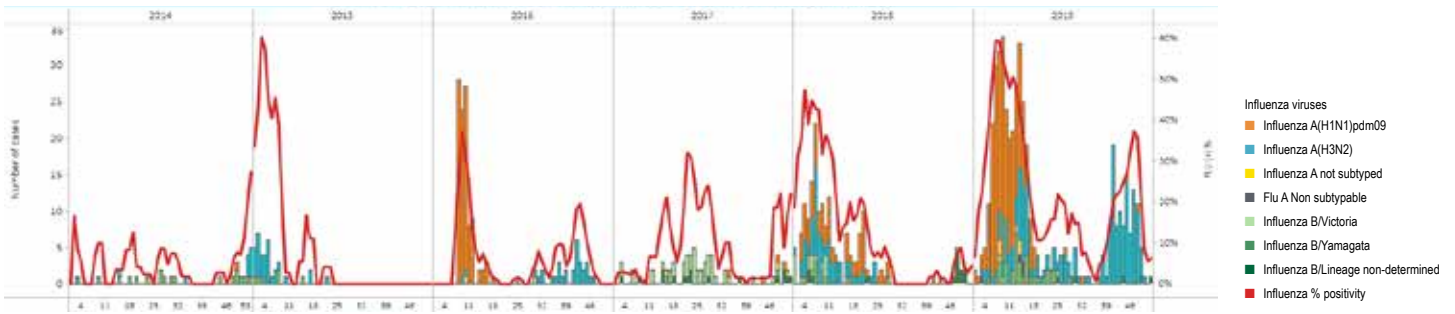


Surveillance Map

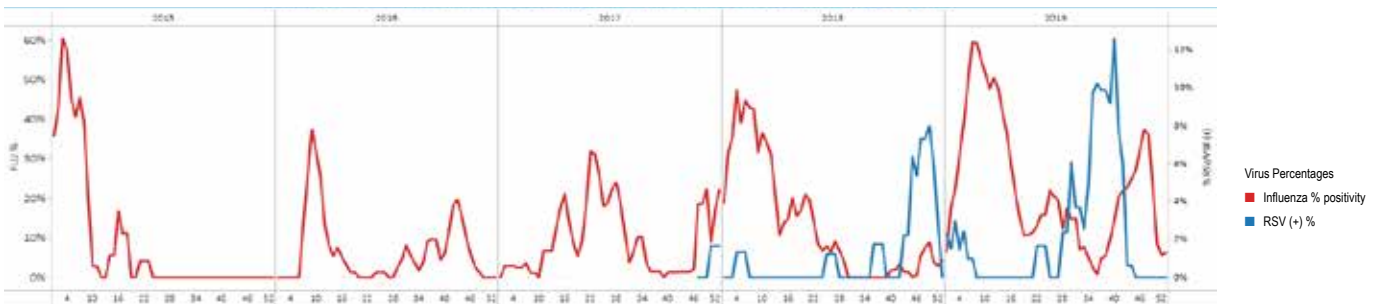
Influenza and Respiratory Syncytial Virus

Virologic data

Jamaica: Distribution of influenza by epidemiological week

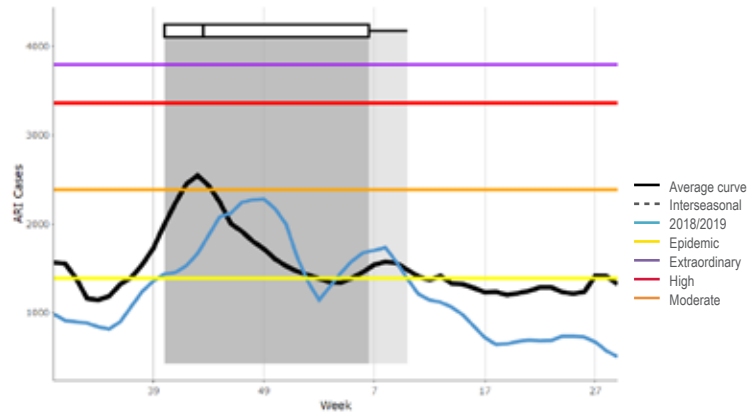


Jamaica: Cumulative percent positivity for influenza and respiratory syncytial virus



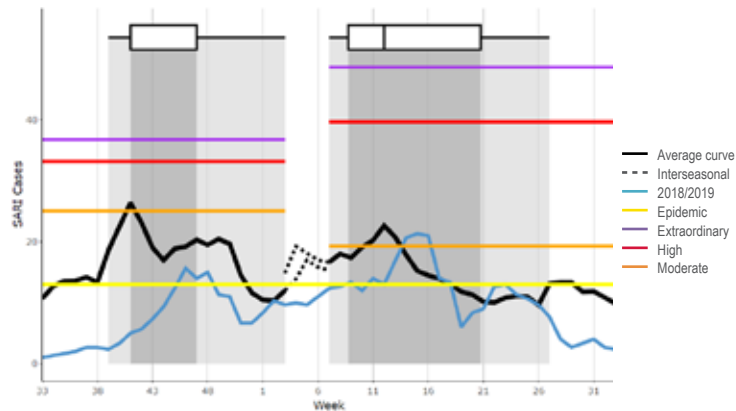
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2007
Year of last revision/update	2017/2018
Simulations	Yes
Drills	Yes
Rapid response teams composed	Yes
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	October
Percentage of older adults vaccinated	2.3% (for elderly enrolled in the Program of Advancement Through Health and Education)
Percentage of children under 5 vaccinated ⁷	Yes
Percentage of pregnant women vaccinated ⁷	7.8% (for women enrolled in the Program of Advancement Through Health and Education)
Percentage of people at higher risk for influenza-related complications vaccinated	Yes
Percentage of health care workers vaccinated ⁷	23%

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	2,029
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	Yes
Information sharing between sectors	Yes
Surveillance of unusual respiratory cases with exposure to animals	Yes

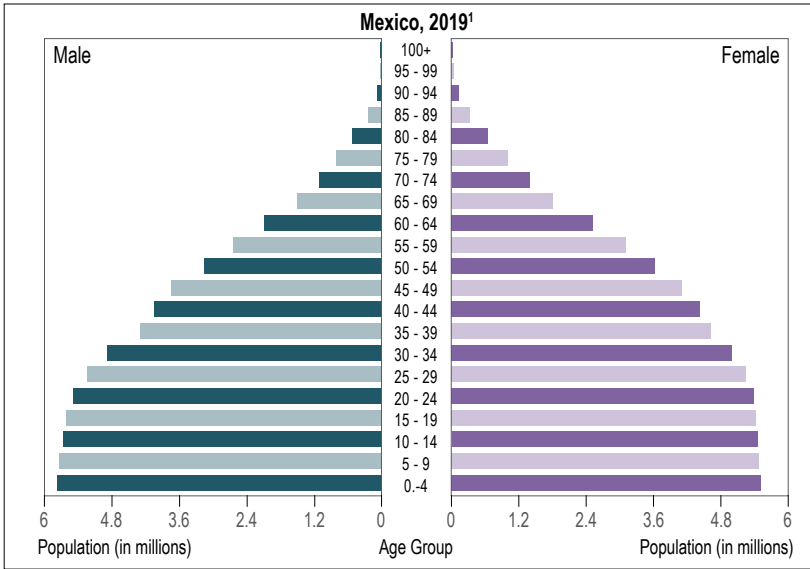
Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/jm>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Mexico



POPULATION	
Population (thousands) ² :	126,000
Population density (per km ²) ³ :	65.0
Percentage of population < 5 years ⁴ :	9.0%
Percentage of population ≥ 65 years ⁴ :	7.2%

MORTALITY	
Gross mortality rate (per 1,000 population) ⁵ :	5.6
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ :	14.5
Mortality rate due to communicable diseases (per 100,000 population) ⁵ :	52.0

PUBLIC HEALTH	
Number of medical doctors working in the public system (per 10,000 population) ⁵ :	25.5
Current health expenditure per capita, PPP* (current international \$) ⁶ :	972.0
National health expenditure as % of GDP 2016 ⁵ :	2.9

*PPP – Purchasing Power Parity

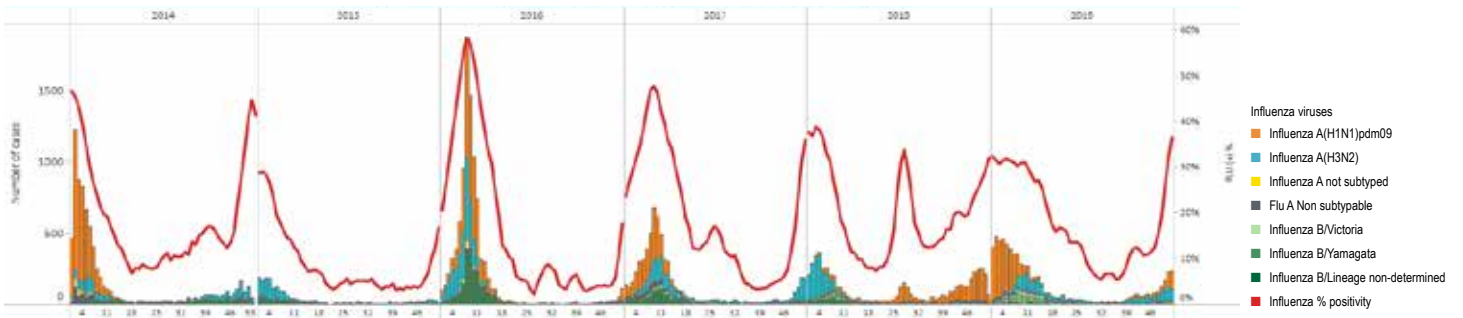
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
ARI	Yes	Sentinel	100%	No	Semiannually	363	Sistema de Vigilancia Epidemiológica de Influenza-SISVEFLU	Yes	Online
PNEUMONIA	Yes	Sentinel	Quota (323 samples/week)	Daily	Semiannually	115			
INFLUENZA	NA	Sentinel	NA	Daily	NA	478			



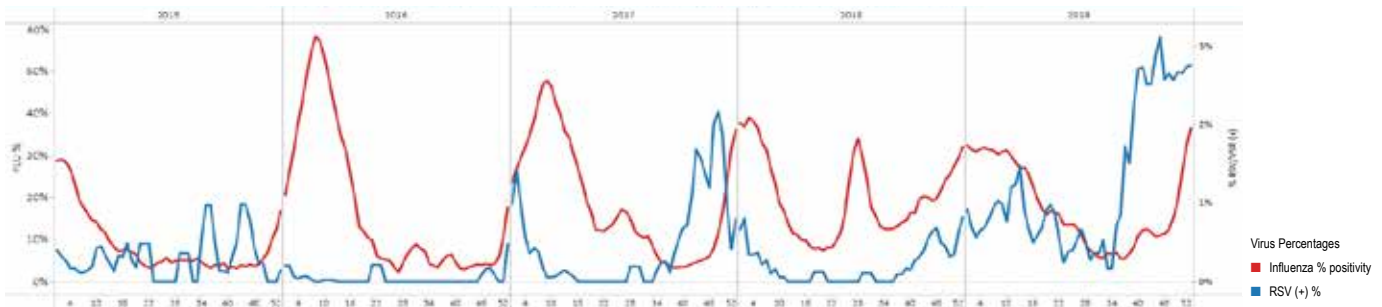
Influenza and Respiratory Syncytial Virus

Virologic data

Mexico: Distribution of influenza viruses by epidemiological week

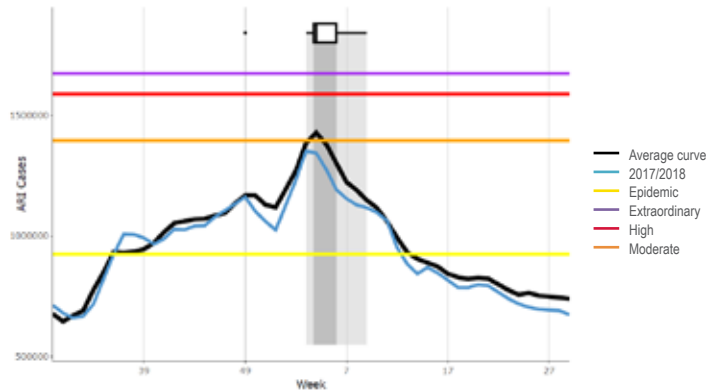


Mexico: Cumulative percent positivity for influenza and respiratory syncytial virus



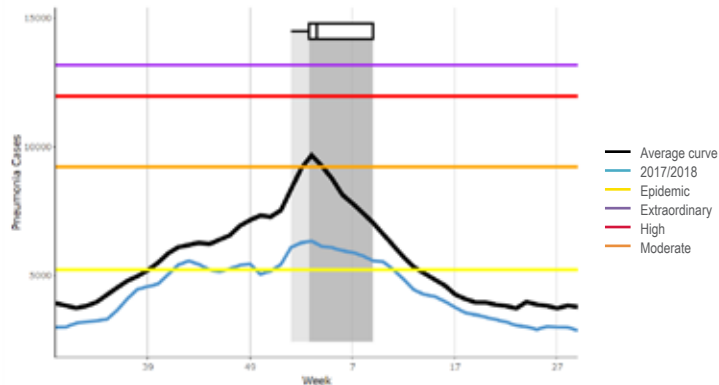
Acute Respiratory Infection (ARI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2006
Year of last revision/update	2018
Simulations	Yes
Drills	No
Rapid response teams composed	Yes
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	October
Percentage of older adults vaccinated ⁷	94%* (* ≥ 60 years)
Percentage of children under 5 vaccinated ⁷	88%* (*age of vaccinated children is 6-59 months)
Percentage of pregnant women vaccinated ⁷	81%
Percentage of people at higher risk for influenza-related complications vaccinated	100%
Percentage of health care workers vaccinated ⁷	100%

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	16,974
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus, coronavirus NL63, OC43, HKU1, 229E, parainfluenza 4, enterovirus, enterovirus D68, MERS-CoV

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: Yes Seriousness of disease: Yes Impact: Yes

Human-Animal Interface for Influenza	
Intersectoral meetings	Yes
Information sharing between sectors	In progress
Surveillance of unusual respiratory cases with exposure to animals	In progress

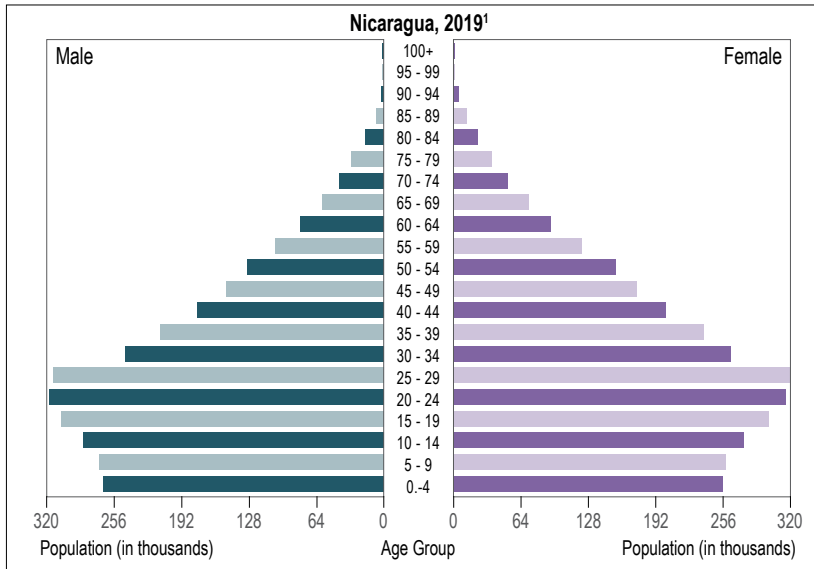
Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/mx>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Nicaragua



POPULATION
Population (thousands) ² : 6,466
Population density (per km ²) ³ : 54.0
Percentage of population < 5 years ⁴ : 10.3%
Percentage of population ≥ 65 years ⁴ : 5.2%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 5.9
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 13.9
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 53.6

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 9.9
Current health expenditure per capita, PPP* (current international \$) ⁶ : 485.0
National health expenditure as % of GDP 2016 ⁵ : 5.4

*PPP – Purchasing Power Parity

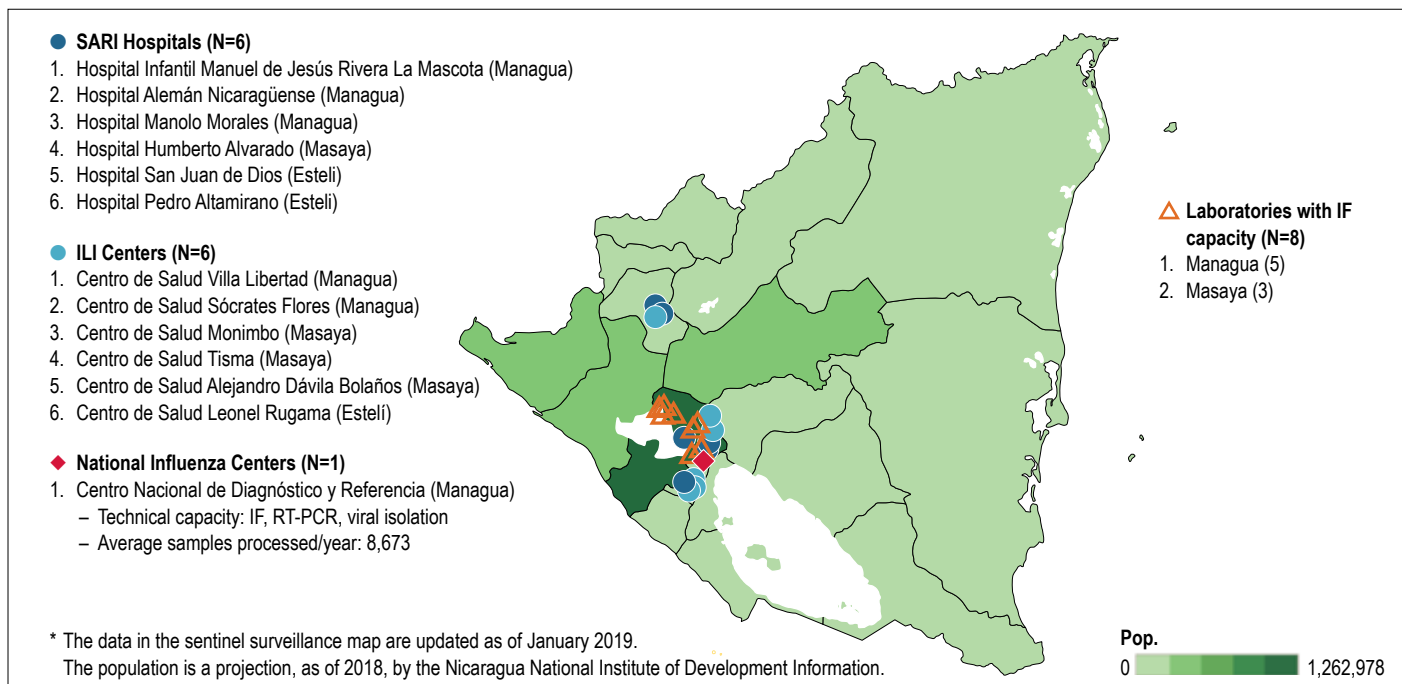
Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	No*	Sentinel	100%	3 times/week	Weekly	6	ALERTA	Yes	Online
ILI	No**	Sentinel	Quota (18 samples/week)	3 times/week	Weekly	6			
ARI	No; ICD-10 codes (J00-J06)	National	No	No	NA	1,698	SIVE	No	
PNEUMONIA	No; ICD-10 codes (J09-J18)	National	No	No	NA	1,698			

* SARI: All patients of any age with a history of sudden onset of fever greater than 38 °C within the last 10 days, cough or sore throat or respiratory distress and in need of hospitalization.

** ILI: All patients of any age with a history of sudden onset of fever above 38 °C, cough or sore throat in the last 10 days and absence of other diagnoses.

Surveillance Systems

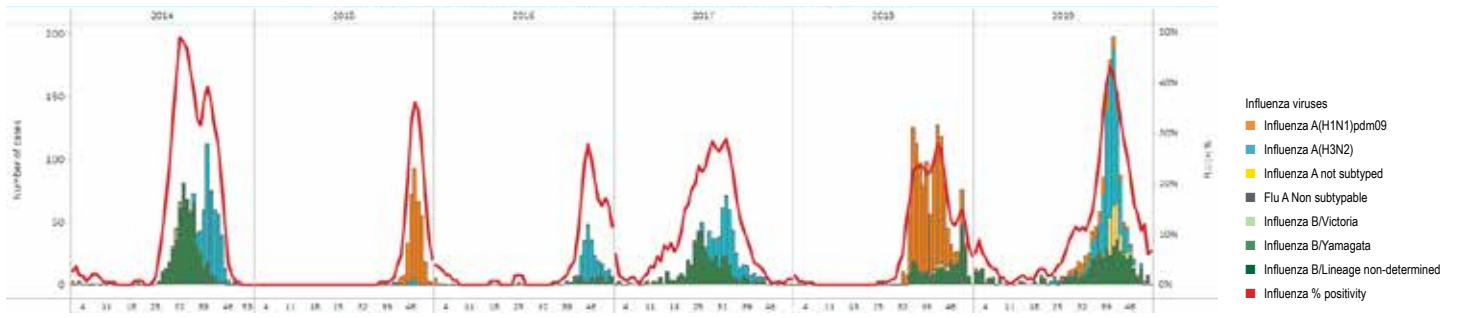


Surveillance Map

Influenza and Respiratory Syncytial Virus

Virologic data

Nicaragua: Distribution of influenza viruses by epidemiological week

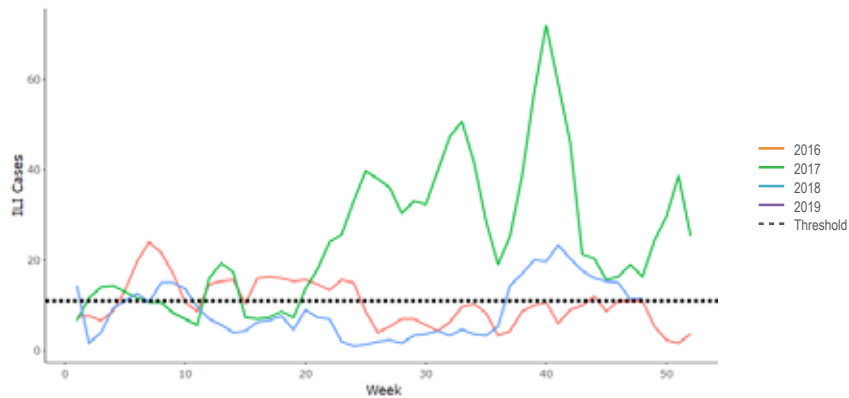


Nicaragua: Cumulative percent positivity for influenza and respiratory syncytial virus



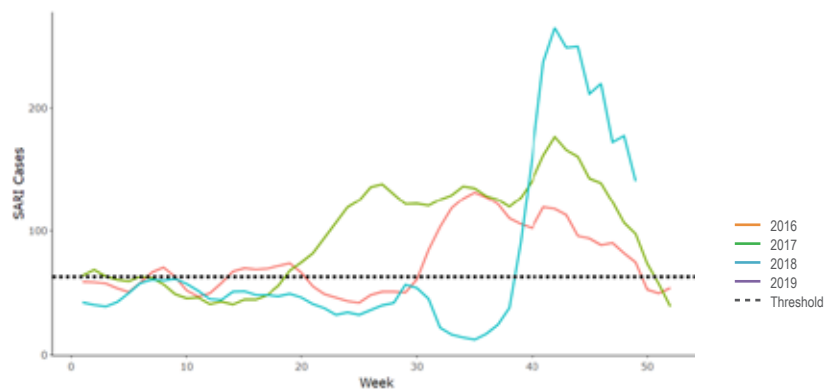
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2009
Year of last revision/update	2019
Simulations	Yes
Drills	Yes
Rapid response teams composed	No
Risk communication strategy in place	Yes

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	8,673
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus, enterovirus, parainfluenza 4

Human-Animal Interface for Influenza	
Intersectoral meetings	Yes
Information sharing between sectors	In progress
Surveillance of unusual respiratory cases with exposure to animals	Yes

Influenza Vaccine	
Composition	Southern hemisphere
Month of vaccine administration	May/June
Percentage of older adults vaccinated	20% (≥ 65 years)
Percentage of children under 5 vaccinated	51% (age of vaccinated children is 6-23 months)
Percentage of pregnant women vaccinated ⁷	91%
Percentage of people at higher risk for influenza-related complications vaccinated	20%
Percentage of health care workers vaccinated ⁷	100%

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	NA

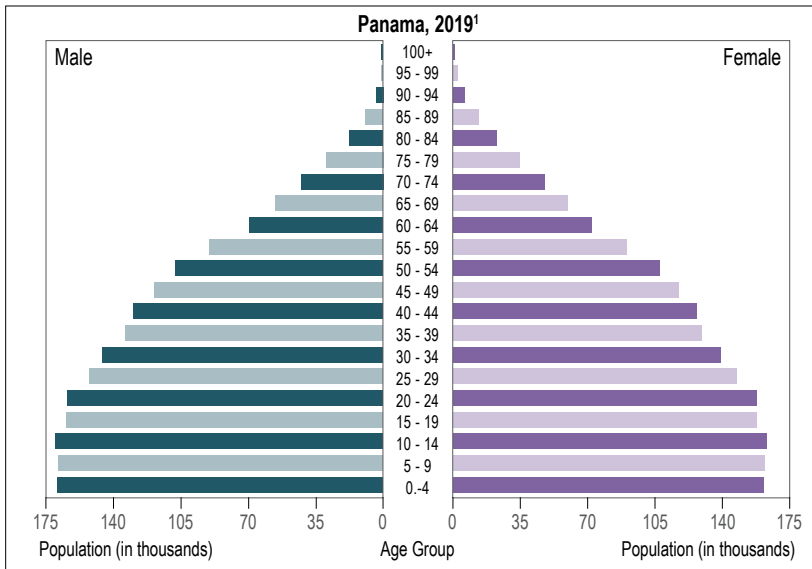
Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/nu>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Panama

Sociodemographic Indicators



POPULATION

Population (thousands)²: **4,177**

Population density (per km²)³: **56.0**

Percentage of population < 5 years⁴: **9.3%**

Percentage of population ≥ 65 years⁴: **8.1%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **4.9**

Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **17.4**

Mortality rate due to communicable diseases (per 100,000 population)⁵: **75.8**

PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **15.9**

Current health expenditure per capita, PPP* (current international \$)⁶: **1,750**

National health expenditure as % of GDP 2016⁵: **4.8**

*PPP – Purchasing Power Parity

Surveillance Systems

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	Quota (50 samples/week)	Weekly	Annually	10	SISVIG	Yes	Online
ILI	Yes	National	Quota (25 samples/week)	Weekly	Annually	317			
PNEUMONIA	No; ICD-10 codes (J09.X-J18.9)	National	No	Weekly	NA	317			
INFLUENZA	NA	Sentinel	Quota (5 samples/week)	Weekly	NA	16			
INFLUENZA MORTALITY	NA	National	100%	Weekly	NA	317	SISVIG-VIGMOR		

Surveillance Map

● SARI Hospitals (N=10)

- Hospital del Niño (Ciudad de Panamá)
- Hospital de Especialidades Pediátrica (Ciudad de Panamá)
- Hospital Regional de Chepo (Chepo)
- Hospital Manuel Amador Guerrero (Ciudad de Colón)
- Hospital Nicolás Solano (La Chorrera)
- Hospital San Miguel Arcángel (San Miguelito)
- Hospital Rafael Estévez (Ciudad de Aguadulce)
- Hospital Luis Chicho Fábrega (Ciudad de Santiago)
- Hospital Joaquín Pablo Franco (Ciudad de las Tablas)
- Hospital José Domingo de Obaldía

● ILI Centers (N=12)

Panama City (5), Chiriquí (2), Veraguas (2), Colón, San Miguelito, Los Santos

▲ Laboratories with PCR capacity (N=1)

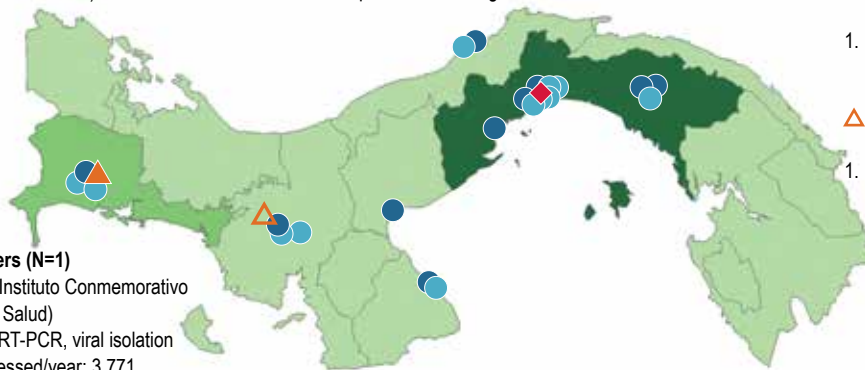
- Hospital José Domingo de Obaldía

△ Laboratories with IF capacity (N=1)

- Hospital Luis Chicho Fábrega

◆ National Influenza Centers (N=1)

- Laboratorio de Virología (Instituto Conmemorativo Gorgas de Estudios de la Salud)
 - Technical capacity: IF, RT-PCR, viral isolation
 - Average samples processed/year: 3,771



* The data in the sentinel surveillance map are updated as of January 2019.

The population is a projection, as of 2018, by the Panama National Institute of Statistics and Census.

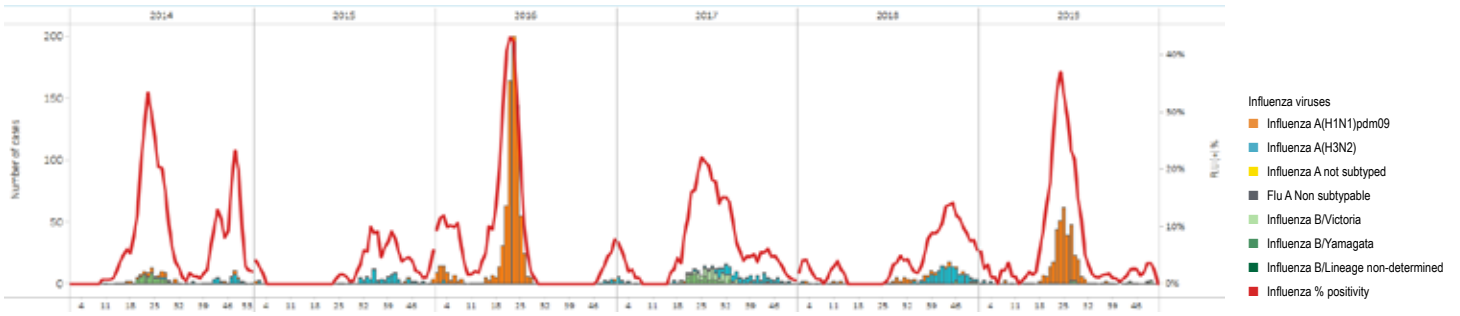
Pop.

12,528 2,186,747

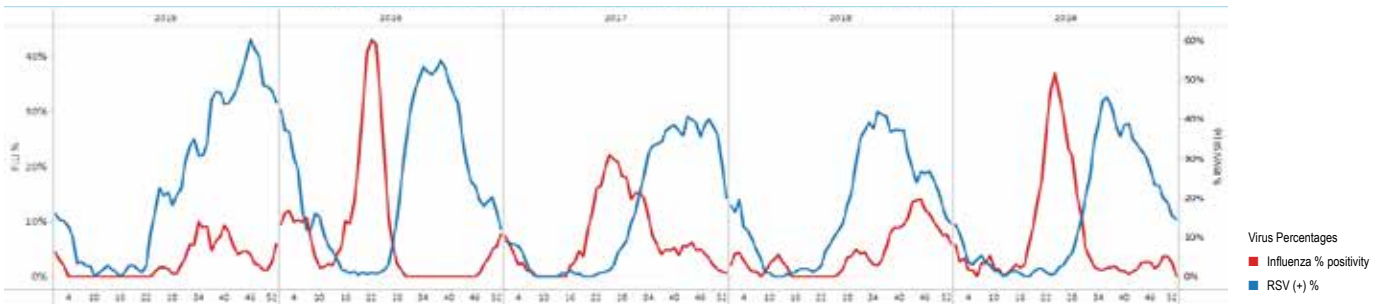
Influenza and Respiratory Syncytial Virus

Virologic data

Panama: Distribution of influenza viruses by epidemiological week

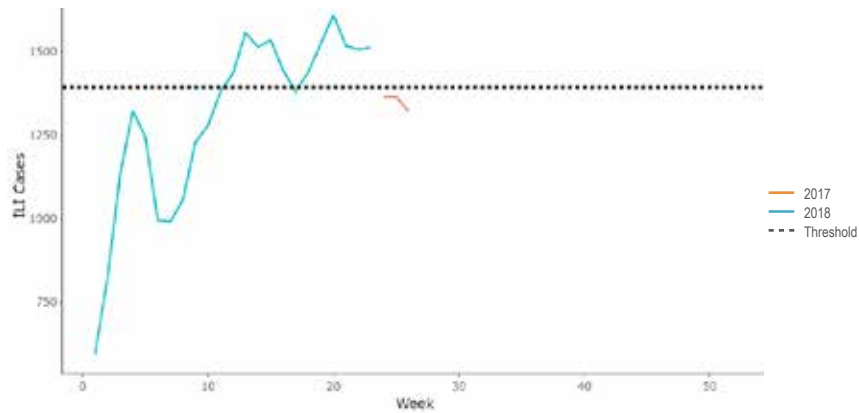


Panama: Cumulative percent positivity for influenza and respiratory syncytial virus



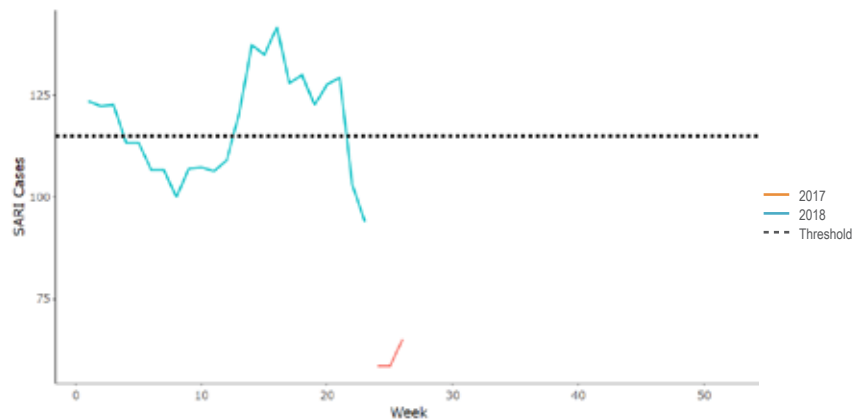
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



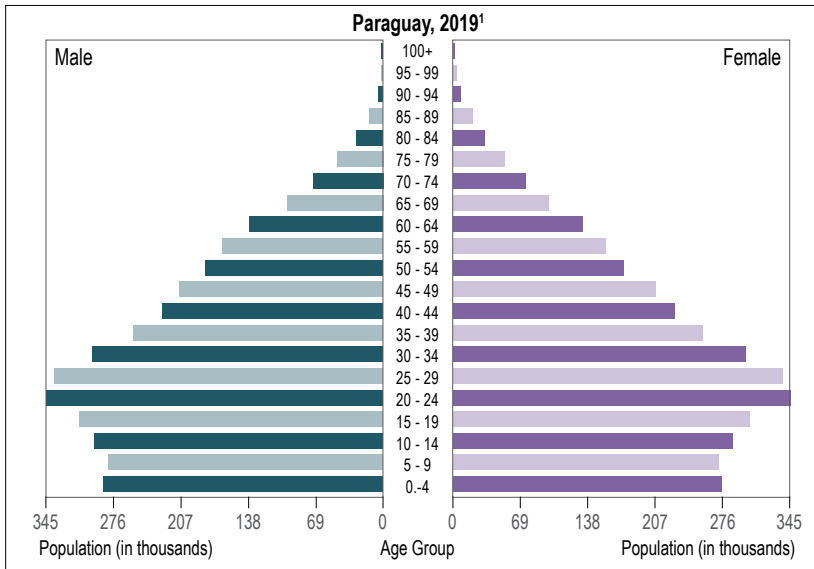
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	April
Year of original publication	2007	Percentage of older adults vaccinated ⁷	100 (≥ 60 years)
Year of last revision/update	2009	Percentage of children under 5 vaccinated ⁷	57% (age of vaccinated children is 6 months to 18 years)
Simulations	Yes	Percentage of pregnant women vaccinated ⁷	64%
Drills	Yes	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	64%
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: In progress Reported > 33%: In progress Reported to WHO in 2018: In progress
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	3,771		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus, enterovirus, coronavirus		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	In progress	Estimation of medical burden for influenza	Yes
Information sharing between sectors	Yes	Estimation of economic burden for influenza	Yes
Surveillance of unusual respiratory cases with exposure to animals	Yes	Publication of influenza burden of disease	Online

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/pm>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Paraguay



POPULATION
Population (thousands) ² : 6,956
Population density (per km ²) ³ : 18.0
Percentage of population < 5 years ⁴ : 10.0%
Percentage of population ≥ 65 years ⁴ : 6.4%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 6.5
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 14.5
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 78.8

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 14.0
Current health expenditure per capita, PPP* (current international \$) ⁶ : 768.0
National health expenditure as % of GDP 2016 ⁵ : 4.1

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	2-3 times/week	Annually	10	ILI and SARI sentinel surveillance	Yes	Online
ILI	Yes	Sentinel	Quota (3-5 samples/week)	2-3 times/week	Annually	5			
ARI	No; ICD-10 codes (J00, J02, J04, J06, J12, J15, J18, J20, J21, J22)	National	No	No	NA	NA	NA	NA	NA
PNEUMONIA	No; ICD-10 codes (J15, J18, J22)	National	No	No	NA	1,253	NA	No	NA
INFLUENZA	NA	Sentinel	100%	No	NA	10	ILI and SARI sentinel surveillance	Yes	NA

Surveillance Systems

- **SARI Hospitals (N=10)**
 1. Hospital Central Instituto Previsión Social (Asunción)
 2. Hospital General de Barrio Obrero (Asunción)
 3. Instituto Nacional de Enfermedades Respiratorias y del Ambiente (Asunción)
 4. Instituto de Medicina Tropical (Asunción)
 5. Hospital Nacional de Itaguá (Itaguá)
 6. Hospital General Pediátrico Niños de Acosta Nú (San Lorenzo)
 7. Hospital Regional de Coronel Oviedo (Coronel Oviedo)
 8. Hospital Regional de Encarnación (Encarnación)
 9. Hospital Regional de la Ciudad del Este (Ciudad del Este)
 10. Hospital Regional de Pedro Juan Caballero (Pedro Juan Caballero)
- **ILI Centers (N=5)**
 1. Hospital General de Barrio Obrero (Asunción – Capital)
 2. Hospital Regional Coronel Oviedo (Coronel Oviedo)
 3. Hospital Regional de Encarnación (Encarnación – Itapúa)
 4. Hospital Regional de Ciudad del Este (Ciudad del Este – Alto Paraná)
 5. Hospital Regional de Pedro Juan Caballero (Pedro Juan Caballero – Amambay)

- ◆ **National Influenza Centers (N=1)**
 1. Laboratorio Central de la Salud Pública (LCSP)
 - Technical capacity: IF, RT-PCR, viral isolation
 - Average samples processed/year: 6,876 (2018)
- △ **Laboratories with IF capacity (N=2)**
 1. Laboratorio Hospital Pediátrico de San Lorenzo
 2. Laboratorio Hospital Ciudad del Este
 - Technical capacity: IF

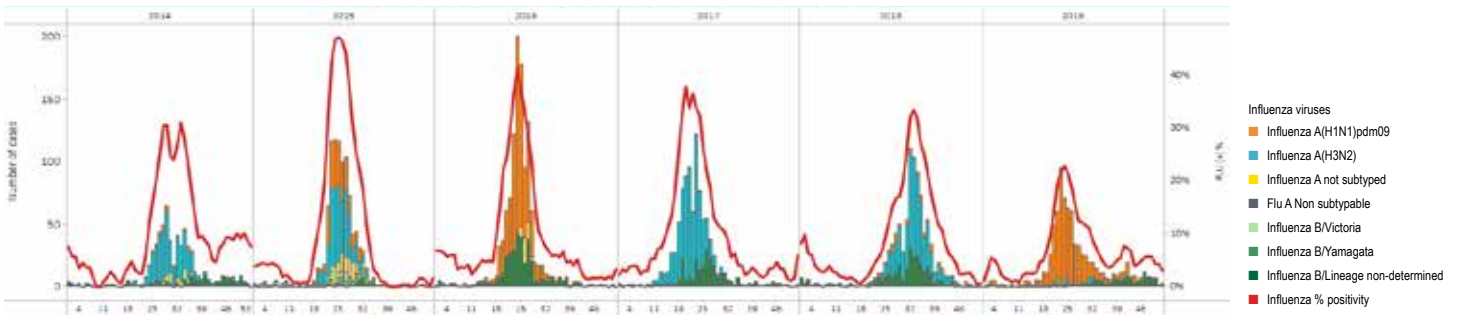
* The data in the sentinel surveillance map are updated as of January 2019. The population is a projection, as of 2018, by the Paraguayan Directorate of Statistics, Surveys and Censuses.

Surveillance Map

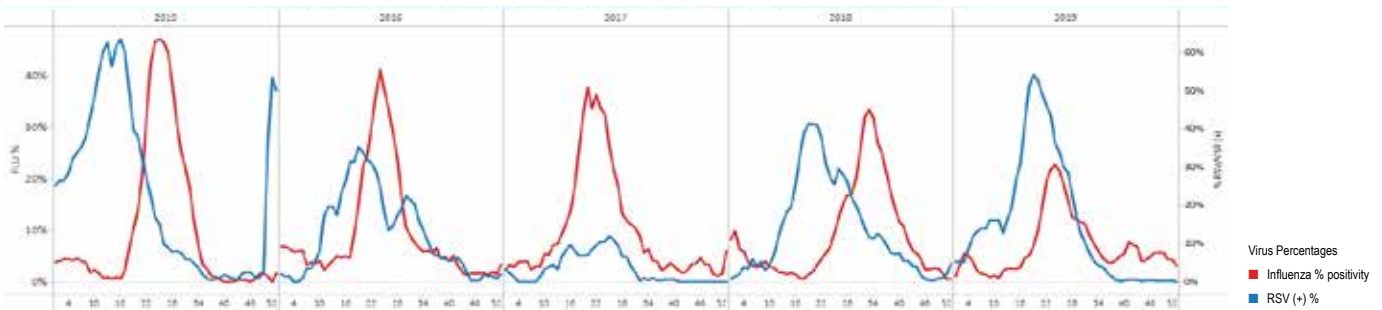
Influenza and Respiratory Syncytial Virus

Virologic data

Paraguay: Distribution of influenza viruses by epidemiological week

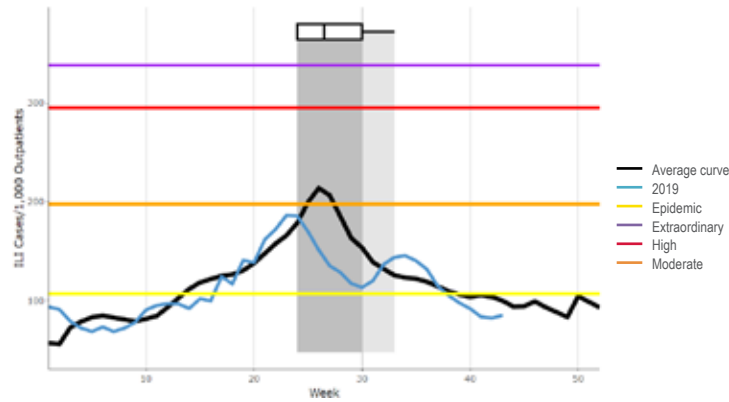


Paraguay: Cumulative percent positivity for influenza and respiratory syncytial virus



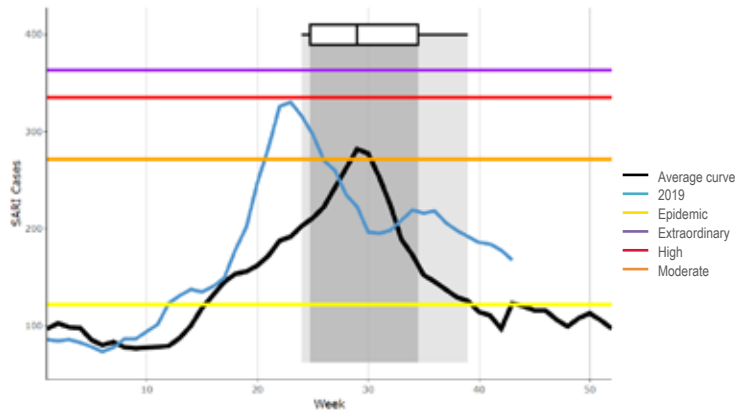
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	No
Year of original publication	2009
Year of last revision/update	2011
Simulations	Yes
Drills	Yes
Rapid response teams composed	Yes
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Southern hemisphere
Month of vaccine administration	April or May
Percentage of older adults vaccinated ⁷	34% (≥ 60 years)
Percentage of children under 5 vaccinated ⁷	24% (age of vaccinated children is 6 to 23 months)
Percentage of pregnant women vaccinated ⁷	28%
Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Percentage of health care workers vaccinated ⁷	54%

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	6,876 (2018 only)
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: Yes Seriousness of disease: Yes Impact: Yes

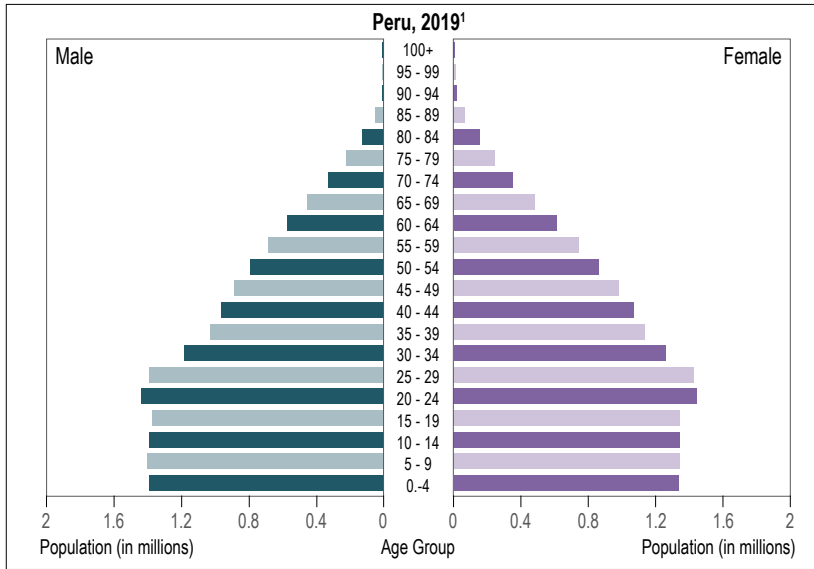
Human-Animal Interface for Influenza	
Intersectoral meetings	No
Information sharing between sectors	Yes
Surveillance of unusual respiratory cases with exposure to animals	Yes

Influenza Disease Burden	
Estimation of medical burden for influenza	Yes
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/pa>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. World Bank. 2018. *World Development Indicators* | DataBank <https://data.worldbank.org/indicator/SH.MED.PHYS.ZS?locations=PY>. Accessed: 9 Oct. 2019.
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.

Peru



POPULATION

Population (thousands)²: **31,989**

Population density (per km²)³: **25.0**

Percentage of population < 5 years⁴: **8.6%**

Percentage of population ≥ 65 years⁴: **8.1%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **5.9**

Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **19.0**

Mortality rate due to communicable diseases (per 100,000 population)⁵: **116.9**

PUBLIC HEALTH

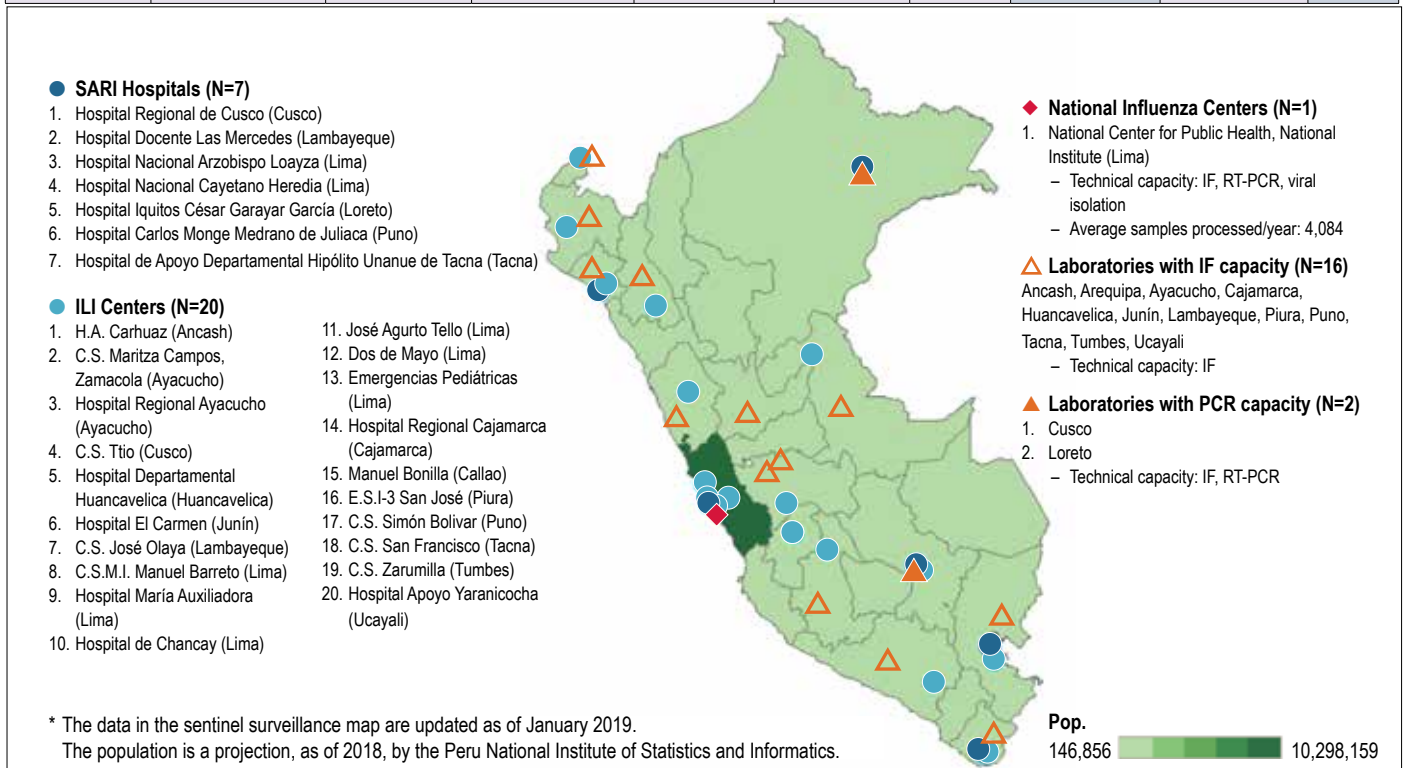
Number of medical doctors working in the public system (per 10,000 population)⁵: **8.2**

Current health expenditure per capita, PPP* (current international \$)⁶: **681.0**

National health expenditure as % of GDP 2016⁵: **3.3**

*PPP – Purchasing Power Parity

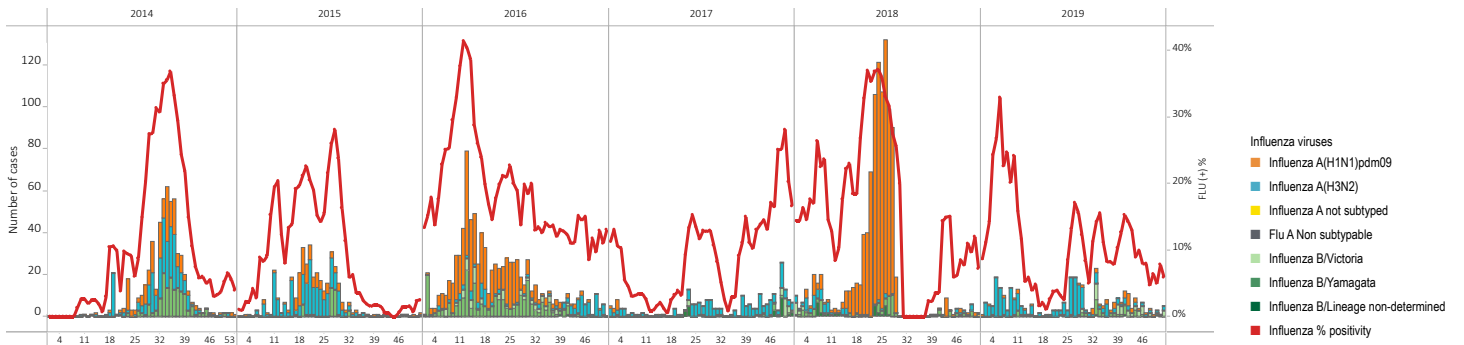
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	Varies	Yes	7	SIEPI-FLU	No	No
ILI	Yes	Sentinel	Quota (14 samples/week)	1-2 times/week	No	20			
ARI	No; ICD-10 codes (J00-J11)	National	No	No	NA	7,884	NOTIWEB		
INFLUENZA MORTALITY	NA	NA	Yes	NA	NA	NA	SIEPI-FLU	NA	



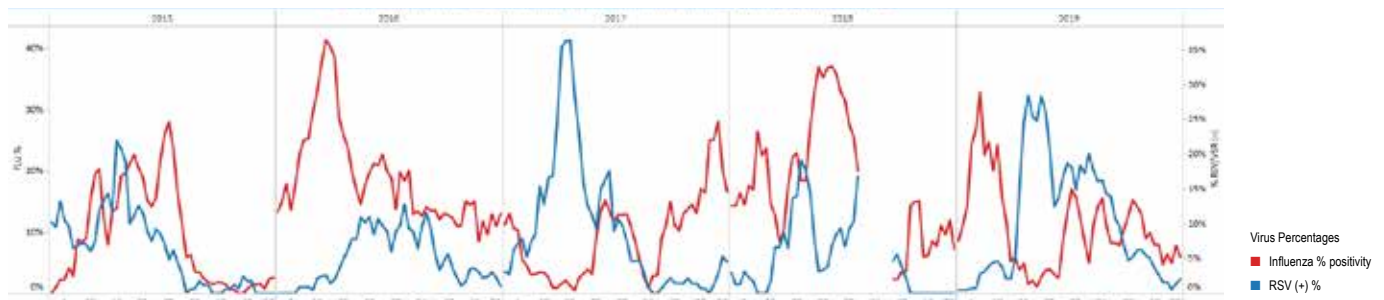
Influenza and Respiratory Syncytial Virus

Virologic data

Peru: Distribution of influenza viruses by epidemiological week

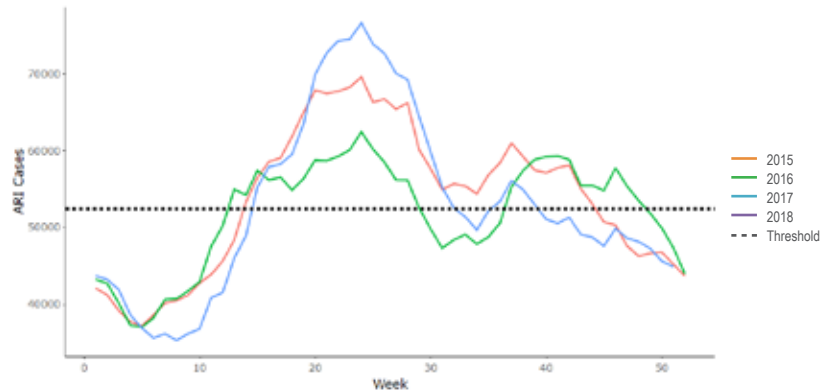


Peru: Cumulative percent positivity for influenza and respiratory syncytial virus



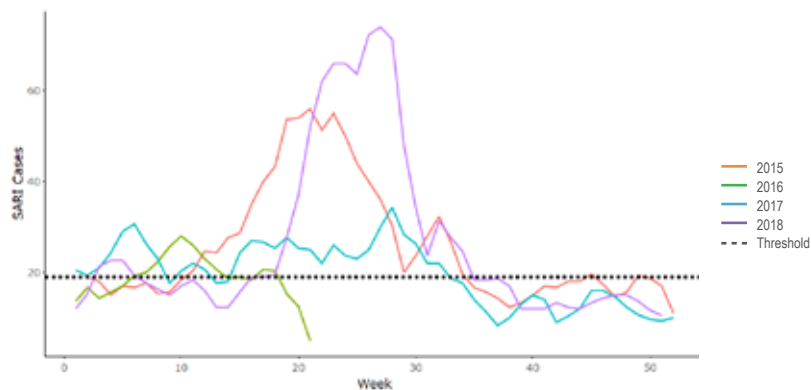
Acute Respiratory Infection (ARI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



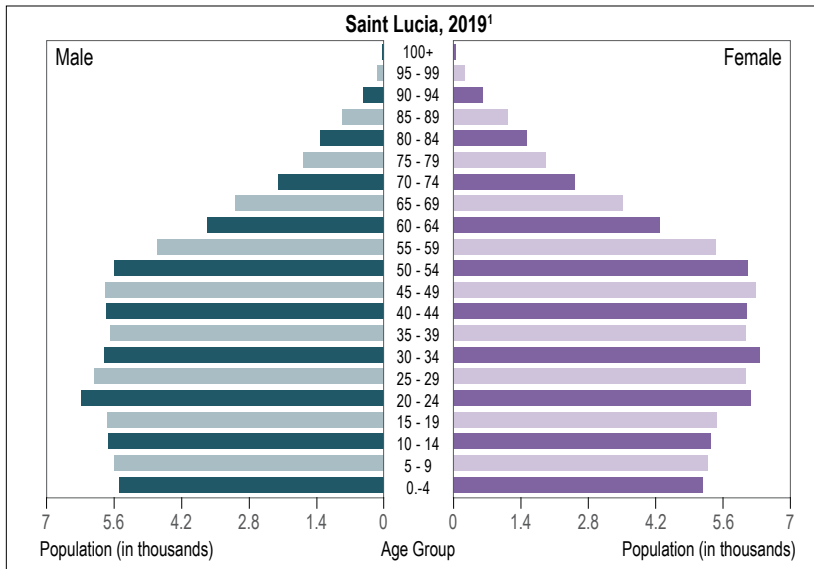
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	May
Year of original publication	2006	Percentage of older adults vaccinated ⁷	NA
Year of last revision/update	2014/2015	Percentage of children under 5 vaccinated ⁷	55% (age of vaccinated children is 6 months to < 2 years)
Simulations	Yes	Percentage of pregnant women vaccinated ⁷	38%
Drills	Yes	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	Yes	Percentage of health care workers vaccinated ⁷	Yes
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	4,084		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus, bocavirus, rhinovirus, coronavirus, enterovirus		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	Yes
Information sharing between sectors	Yes	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	Yes	Publication of influenza burden of disease	Online

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/pe>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Saint Lucia



POPULATION
Population (thousands) ² : 182.0
Population density (per km ²) ³ : 298.0
Percentage of population < 5 years ⁴ : 6.1%
Percentage of population ≥ 65 years ⁴ : 9.8%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 6.1
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : NA
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 62.4

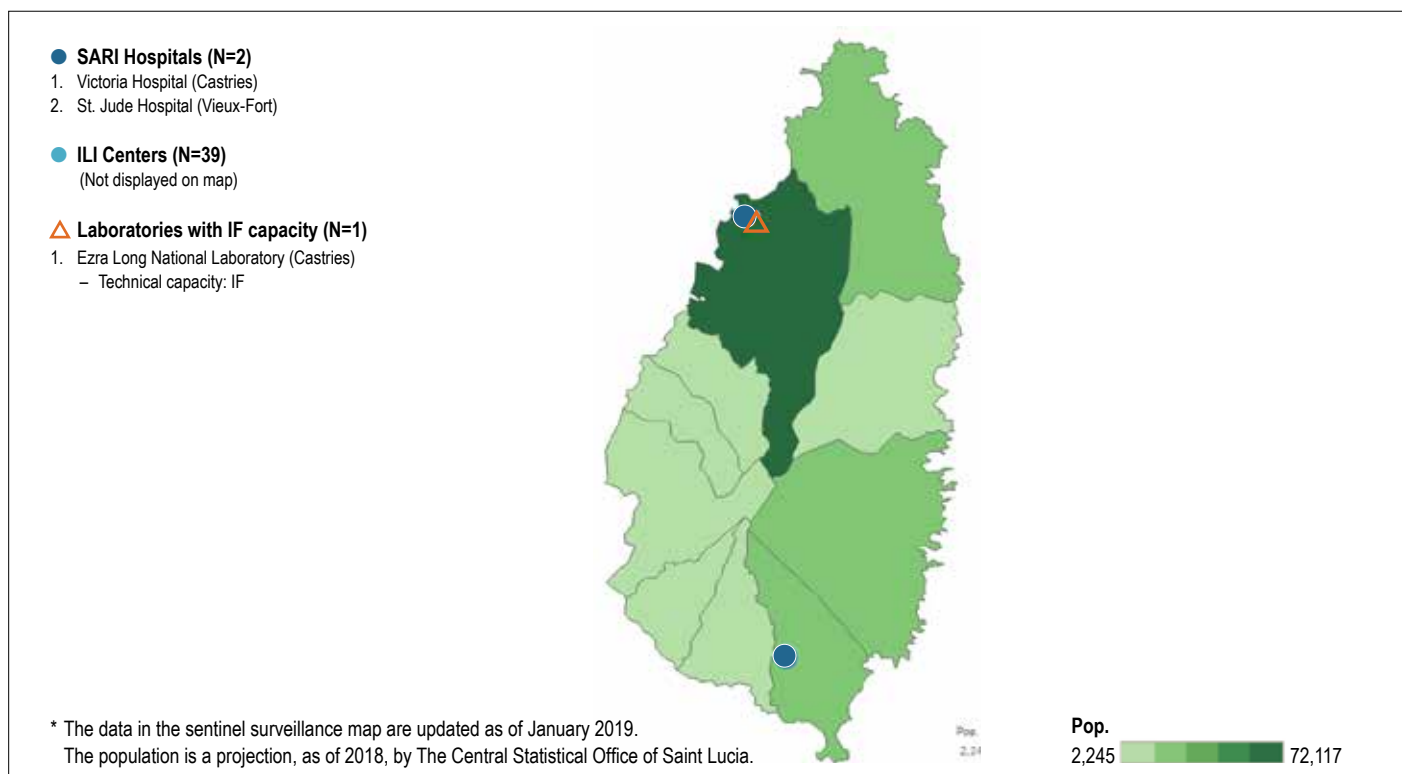
PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 18.6
Current health expenditure per capita, PPP* (current international \$) ⁶ : 677.0
National health expenditure as % of GDP 2016 ⁵ : 2.2

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	Weekly	No	2	PAHOFlu	Yes	No
ILI	Yes	National	Varies	Weekly	No	39	Health Management Information System		No
INFLUENZA	NA	Sentinel	NA	Weekly	NA	2	PAHOFlu		No

Surveillance Systems

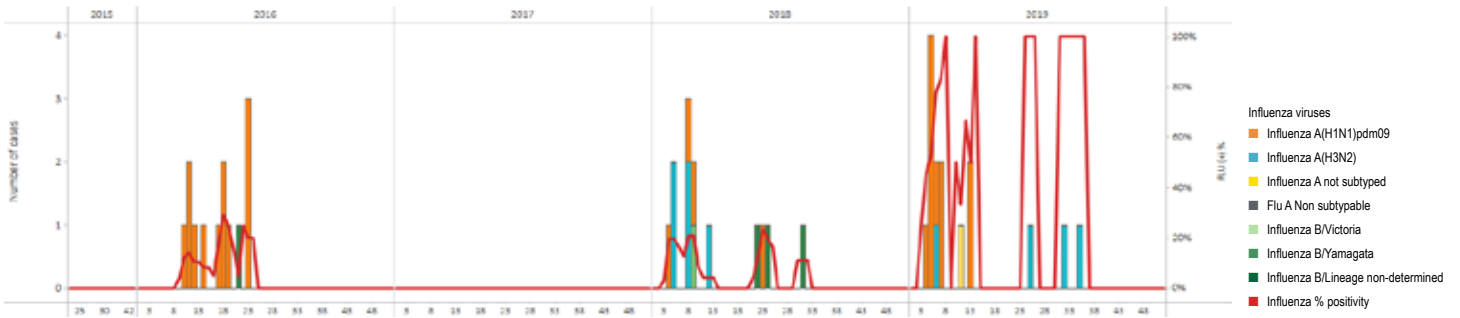


Surveillance Map

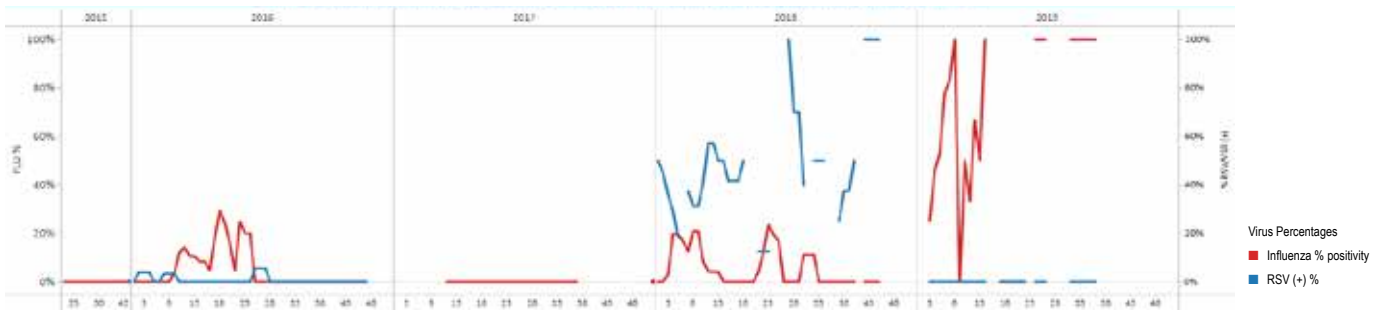
Influenza and Respiratory Syncytial Virus

Virologic data

Saint Lucia: Distribution of influenza viruses by epidemiological week



Saint Lucia: Cumulative percent positivity for influenza and respiratory syncytial virus



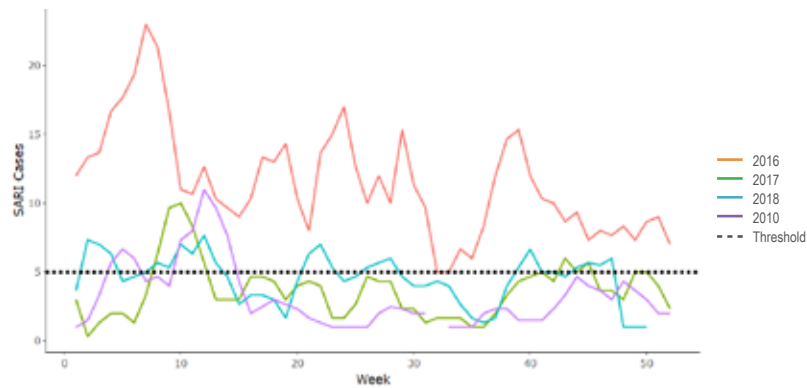
Influenza-Like Illness (ILI)

Data from ambulatory cases

Not applicable

Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2009
Year of last revision/update	2009
Simulations	No
Drills	No
Rapid response teams composed	Yes
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	October
Percentage of older adults vaccinated ⁷	NA
Percentage of children under 5 vaccinated ⁷	NA
Percentage of pregnant women vaccinated ⁷	73%
Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Percentage of health care workers vaccinated ⁷	Yes

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	No
Samples sent to WHO Collaborating Center	No
Number of samples analyzed during 2017–2018	365
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; rhinovirus

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	Yes
Information sharing between sectors	Yes
Surveillance of unusual respiratory cases with exposure to animals	Yes

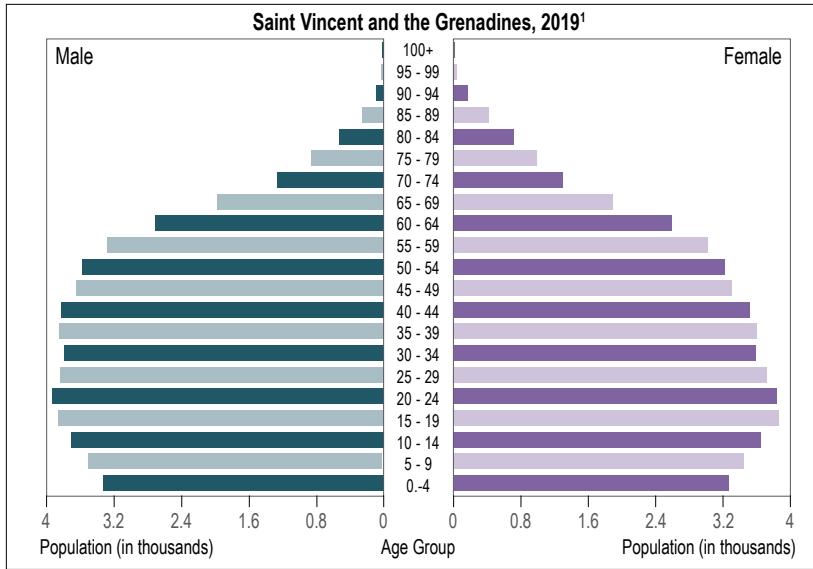
Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	No
Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/st>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Saint Vincent and the Grenadines



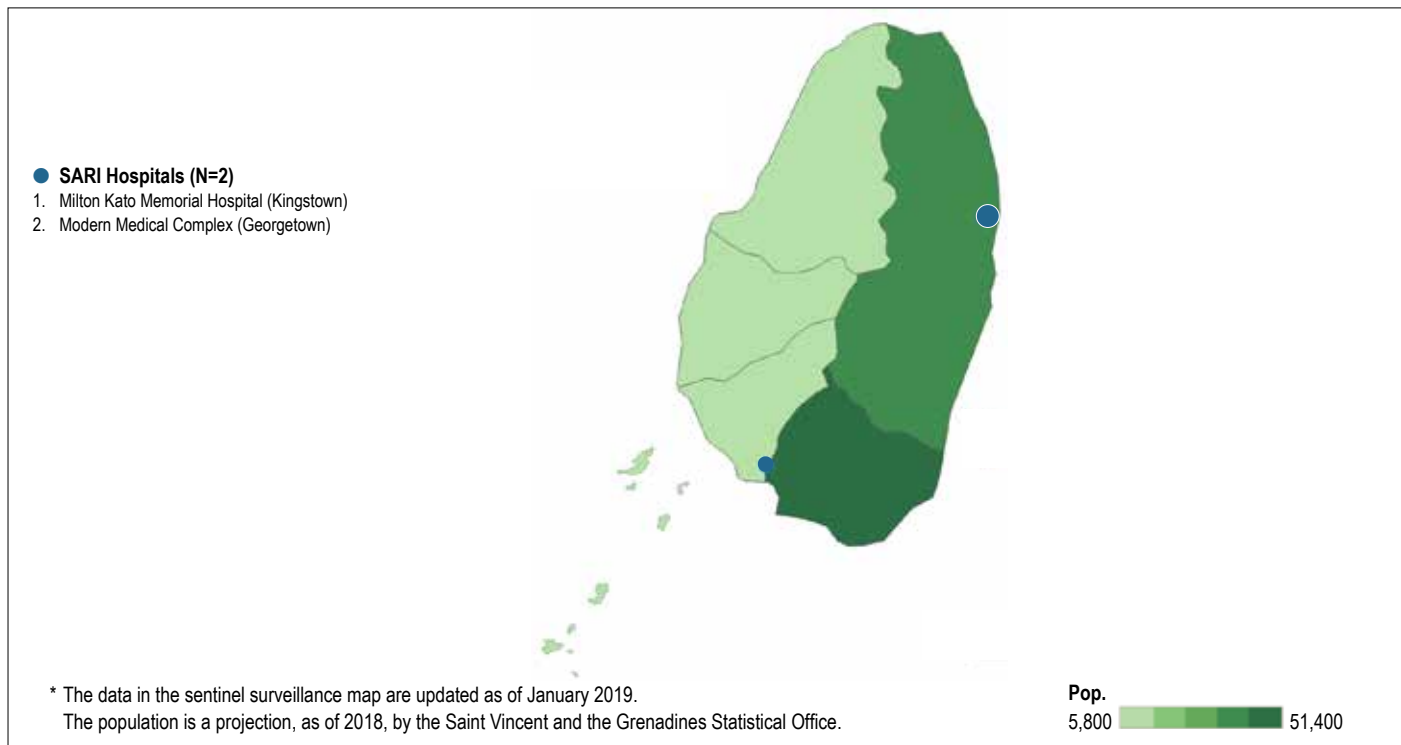
POPULATION
Population (thousands) ² : 110
Population density (per km ²) ³ : 283.0
Percentage of population < 5 years ⁴ : 7.2%
Percentage of population ≥ 65 years ⁴ : 9.6%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 8.1
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 17.8
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 110.5

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 9.5
Current health expenditure per capita, PPP* (current international \$) ⁶ : 409.0
National health expenditure as % of GDP 2016 ⁵ : 2.7

*PPP – Purchasing Power Parity

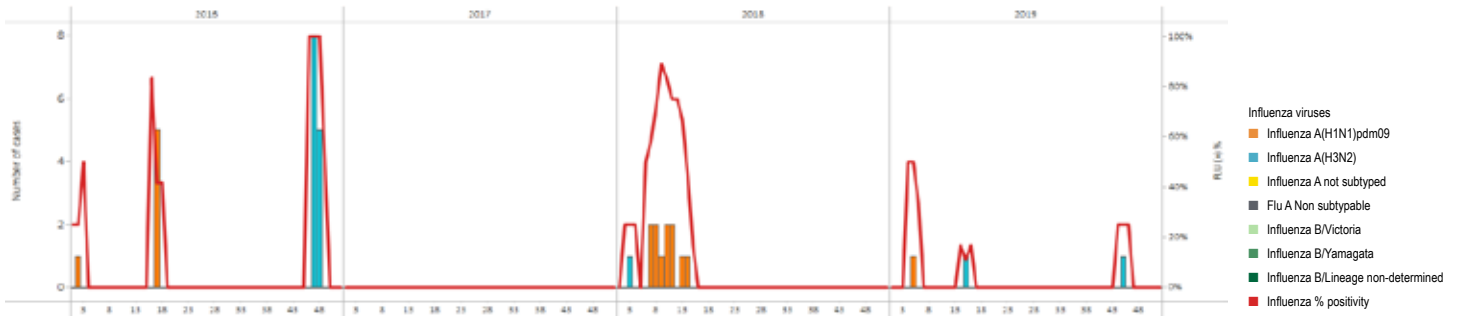
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	Varies	Weekly	2	NA	NA	No
ILI	Yes	Sentinel	Quota (6 samples/week)	Varies	Annually	2	Lab Information System and Health Information System (HIS)	No	
INFLUENZA	NA	Sentinel	NA	Varies	NA	2	NA	NA	



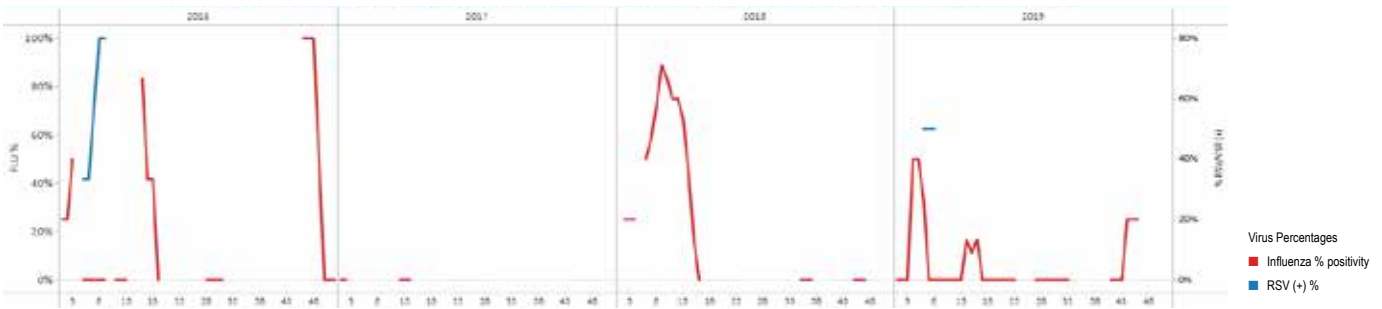
Influenza and Respiratory Syncytial Virus

Virologic data

Saint Vincent and the Grenadines: Distribution of influenza viruses by epidemiological week

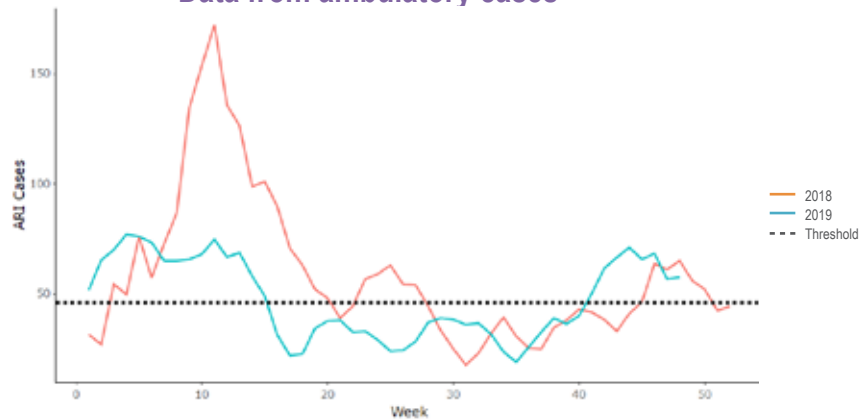


Saint Vincent and the Grenadines: Cumulative percent positivity for influenza and respiratory syncytial virus



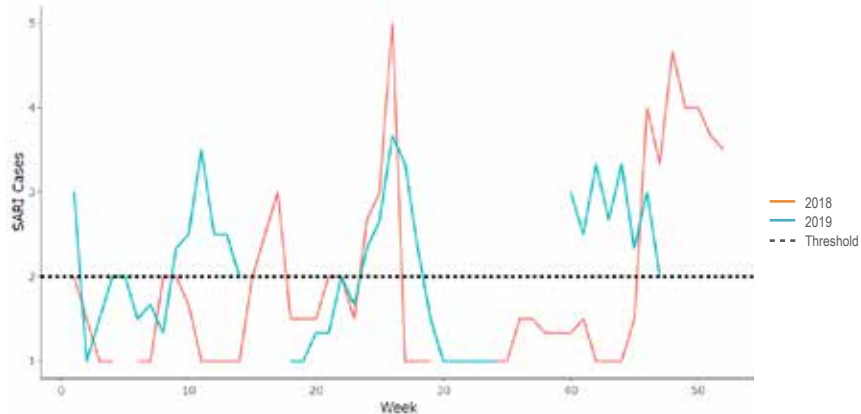
Acute Respiratory Infection (ARI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere (2017)
Part of an all-hazards plan	No	Month of vaccine administration	April (2017)
Year of original publication	2009	Percentage of older adults vaccinated ⁷	NA
Year of last revision/update	2009	Percentage of children under 5 vaccinated ⁷	NA
Simulations	No	Percentage of pregnant women vaccinated ⁷	NA
Drills	Yes	Percentage of people at higher risk for influenza-related complications vaccinated	NA
Rapid response teams composed	No	Percentage of health care workers vaccinated ⁷	NA
Risk communication strategy in place	Yes		

Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	No	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	31		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3		

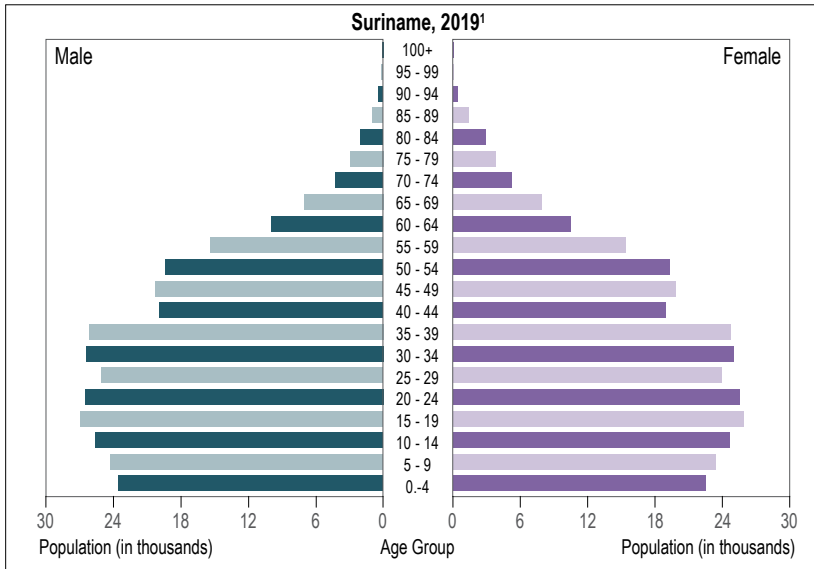
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	No
Information sharing between sectors	Yes	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	In progress	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/vc>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Suriname



POPULATION
Population (thousands) ² : 576
Population density (per km ²) ³ : 4.0
Percentage of population < 5 years ⁴ : 9.2%
Percentage of population ≥ 65 years ⁴ : 6.9%

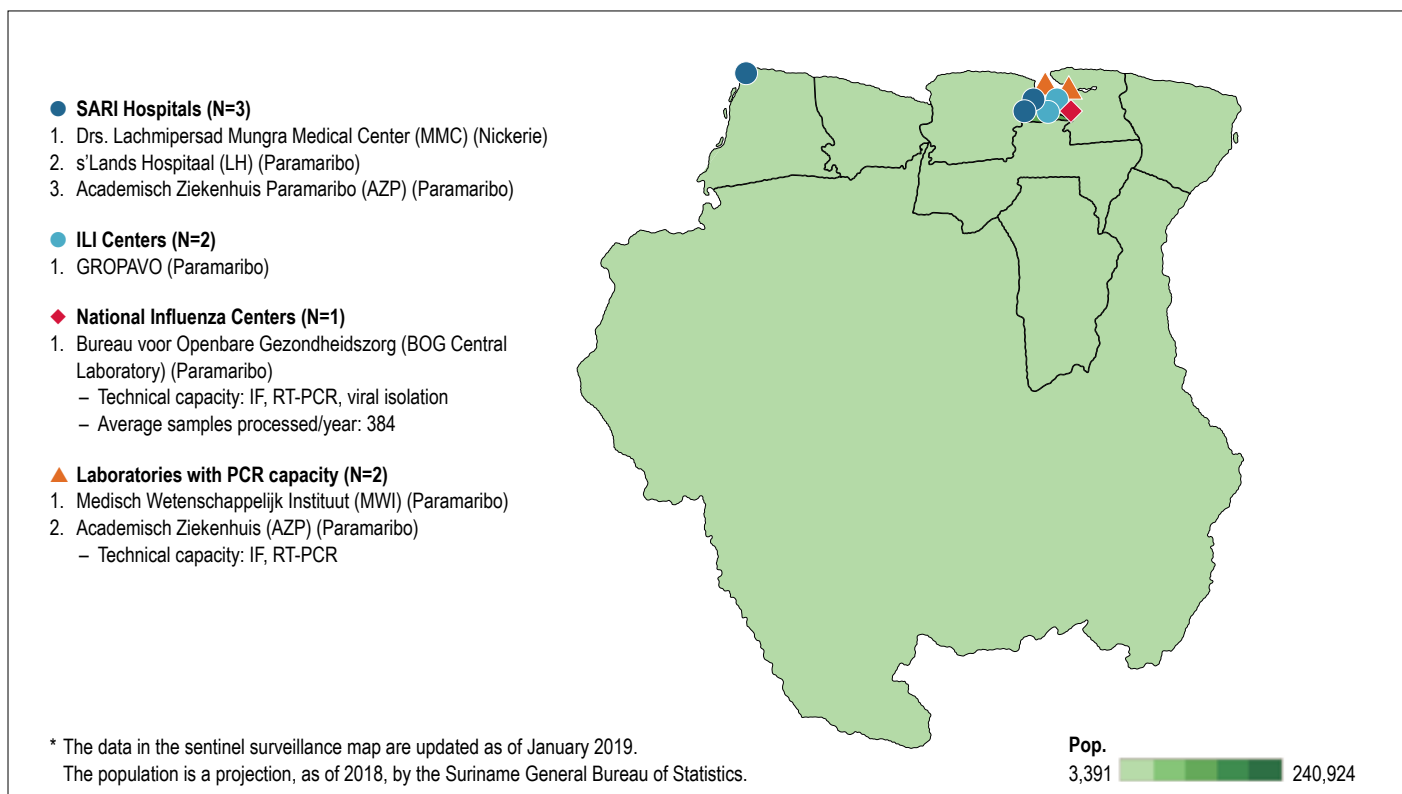
MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 8.0
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 14.9
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 100.6

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 8.2
Current health expenditure per capita, PPP* (current international \$) ⁶ : 908.0
National health expenditure as % of GDP 2016 ⁵ : 4.2
*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	Quota (1-10 samples/week)	LMSZN (2x/week), other sites (daily)	Annually	5	PAHOFlu	Yes	NA
INFLUENZA	NA	Sentinel	Quota (1-10 samples/week)	2/week	NA	5			

Surveillance Systems

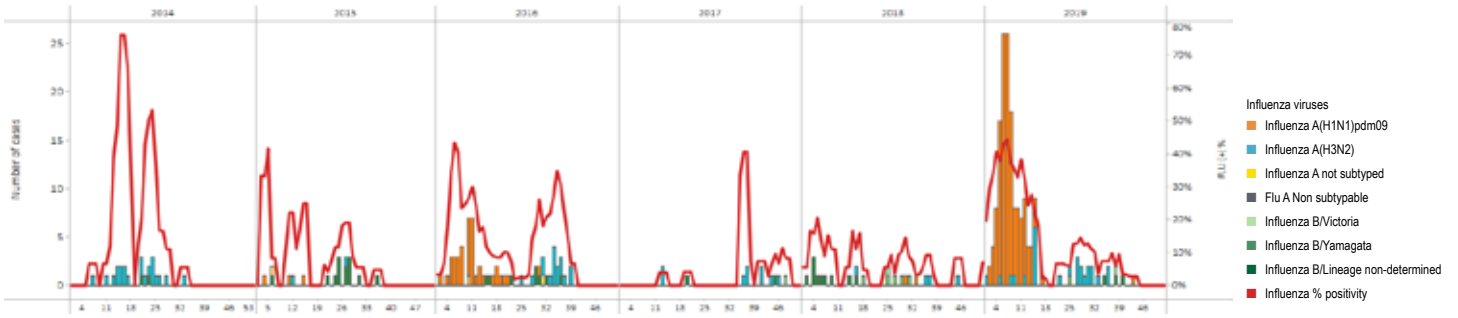


Surveillance Map

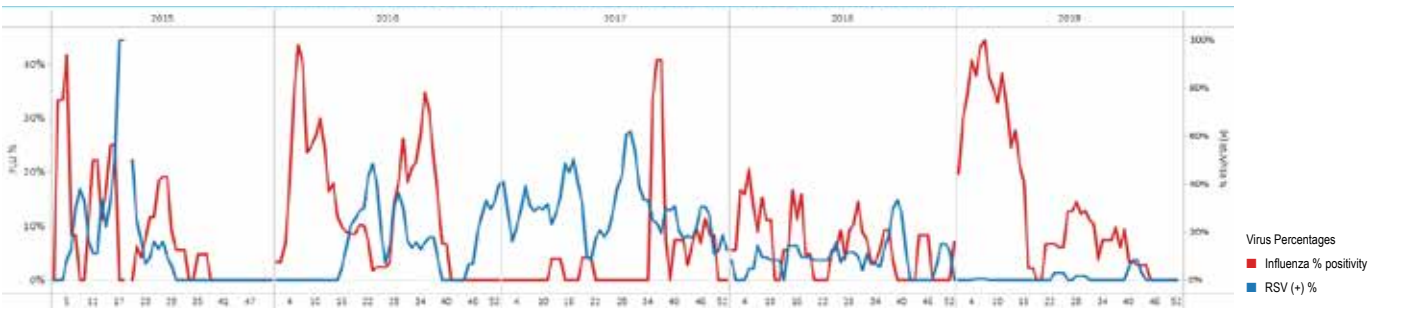
Influenza and Respiratory Syncytial Virus

Virologic data

Suriname: Distribution of influenza by epidemiological week

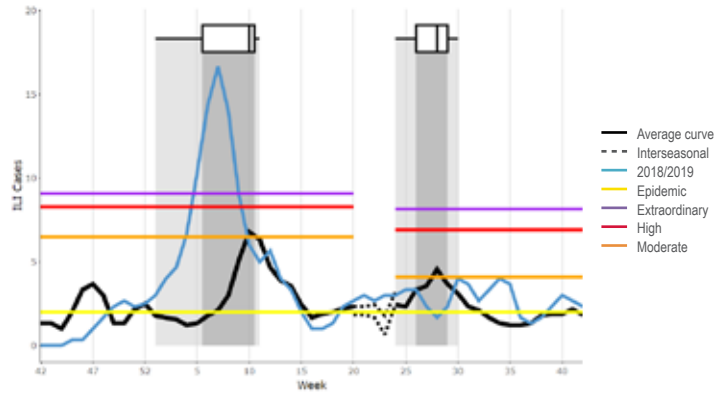


Suriname: Cumulative percent positivity for influenza and respiratory syncytial virus



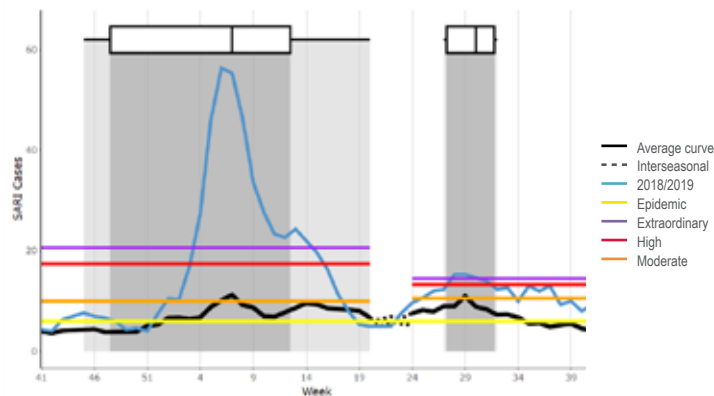
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



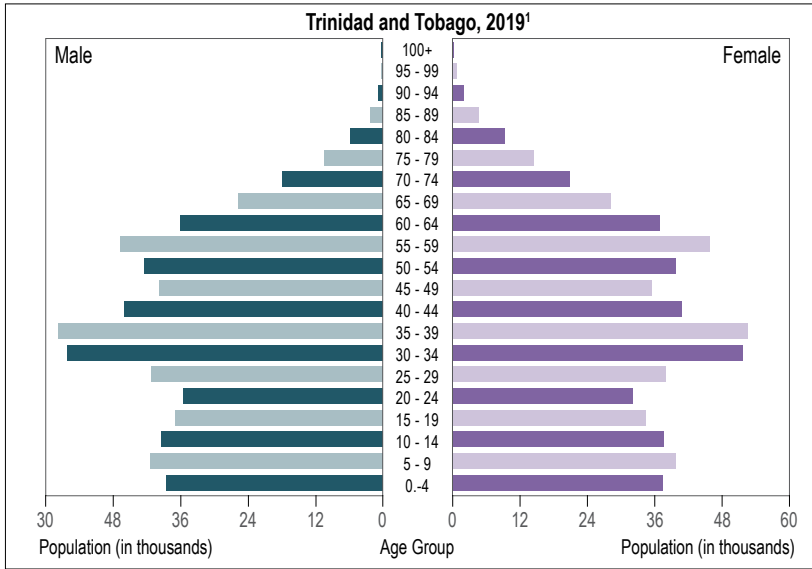
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes (2017)	Composition	Northern hemisphere (2017)
Part of an all-hazards plan	No (2017)	Month of vaccine administration	November (2017)
Year of original publication	2009	Percentage of older adults vaccinated ⁷	NA
Year of last revision/update	2009	Percentage of children under 5 vaccinated ⁷	NA
Simulations	NA	Percentage of pregnant women vaccinated ⁷	Yes
Drills	NA	Percentage of people at higher risk for influenza-related complications vaccinated ⁷	Yes
Rapid response teams composed	NA	Percentage of health care workers vaccinated ⁷	Yes
Risk communication strategy in place	NA		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: Yes Seriousness of disease: Yes Impact: Yes
Number of samples analyzed during 2017–2018	384		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	Parainfluenza 1,2,3, RSV, adenovirus, metapneumovirus, rhinovirus, coronavirus, bocavirus		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	No
Information sharing between sectors	Yes	Estimation of economic burden for influenza	NA
Surveillance of unusual respiratory cases with exposure to animals	NA	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/ns>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Trinidad and Tobago



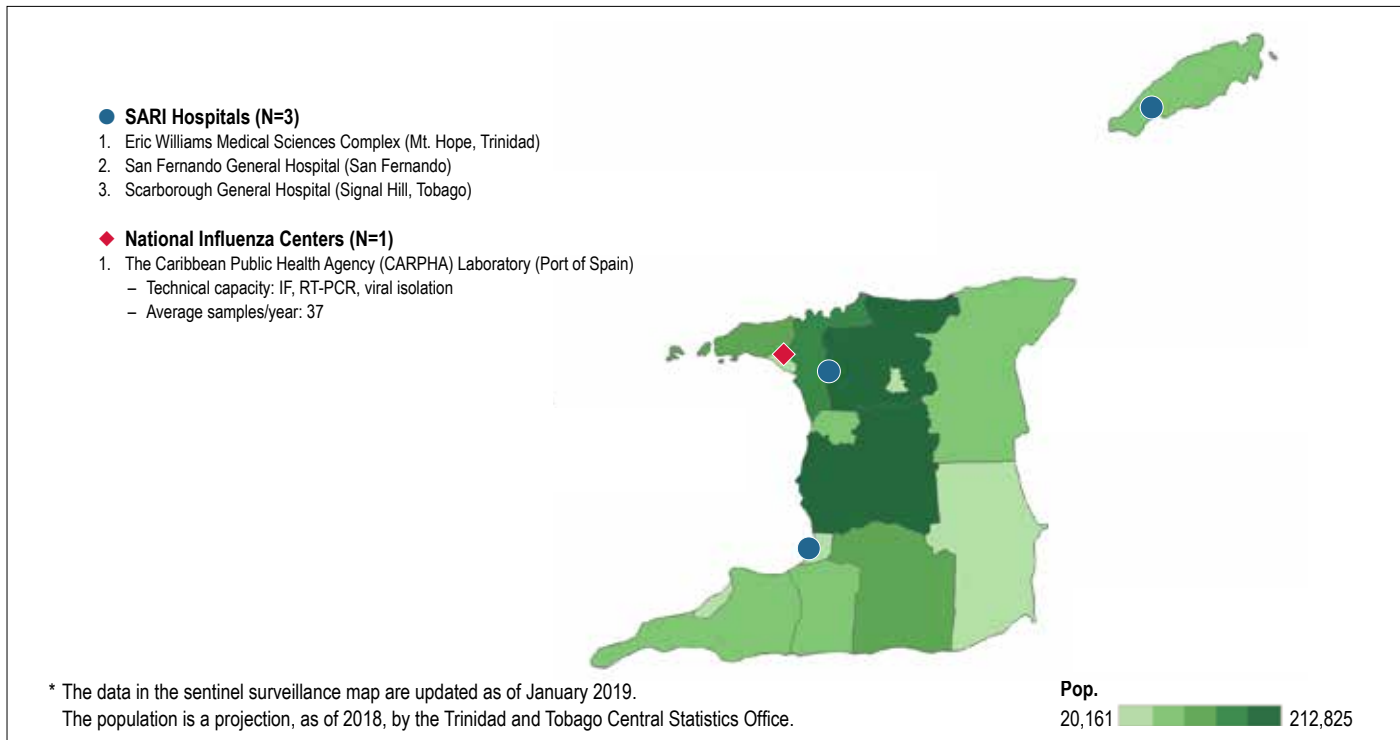
POPULATION
Population (thousands) ² : 1,390
Population density (per km ²) ³ : 271.0
Percentage of population < 5 years ⁴ : 6.6%
Percentage of population ≥ 65 years ⁴ : 10.7%

MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 7.9
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 13.3
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 77.1

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 12.4
Current health expenditure per capita, PPP* (current international \$) ⁶ : 2,133.3
National health expenditure as % of GDP 2016 ⁵ : 3.4

*PPP – Purchasing Power Parity

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	Varies	Varies	No	3	NA	NA	No
ILI	Yes	National	Varies	Varies	No	NA		No	
ARI	No; ICD-10 codes (J00-J06) and (J20-J22)	National	Quota	No	NA	NA		NA	
INFLUENZA	NA	National	Varies	Varies	NA	NA			



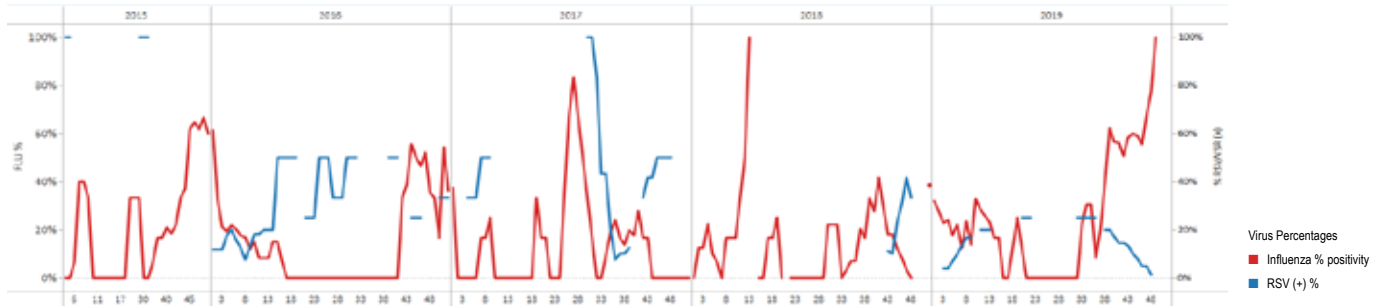
Influenza and Respiratory Syncytial Virus

Virologic data

Trinidad and Tobago: Distribution of influenza viruses by epidemiological week



Trinidad and Tobago: Cumulative percent positivity for influenza and respiratory syncytial virus



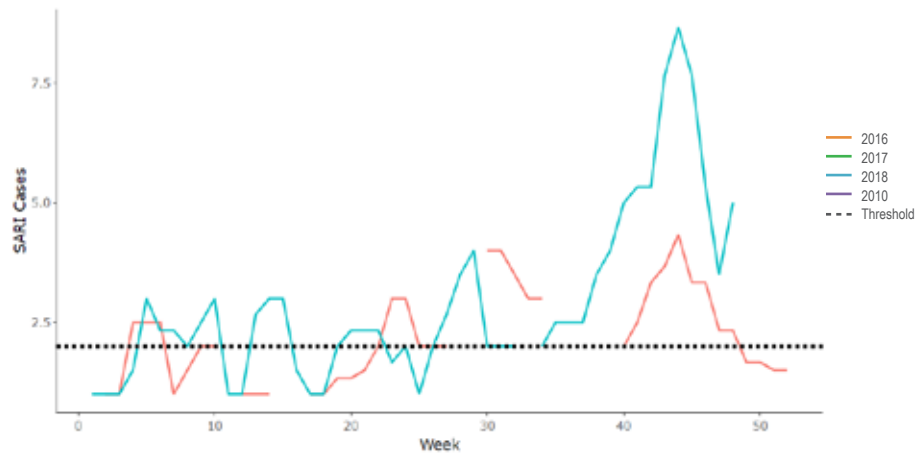
Influenza-Like Illness (ILI)

Data from ambulatory cases

Not applicable

Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2009
Year of last revision/update	NA
Simulations	Yes
Drills	Yes
Rapid response teams composed	Yes
Risk communication strategy in place	Yes

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	October
Percentage of older adults vaccinated ⁷	NA
Percentage of children under 5 vaccinated ⁷	NA
Percentage of pregnant women vaccinated ⁷	NA
Percentage of people at higher risk for influenza-related complications vaccinated	NA
Percentage of health care workers vaccinated ⁷	17%

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	No
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	303
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	Yes
Information sharing between sectors	Yes
Surveillance of unusual respiratory cases with exposure to animals	In progress

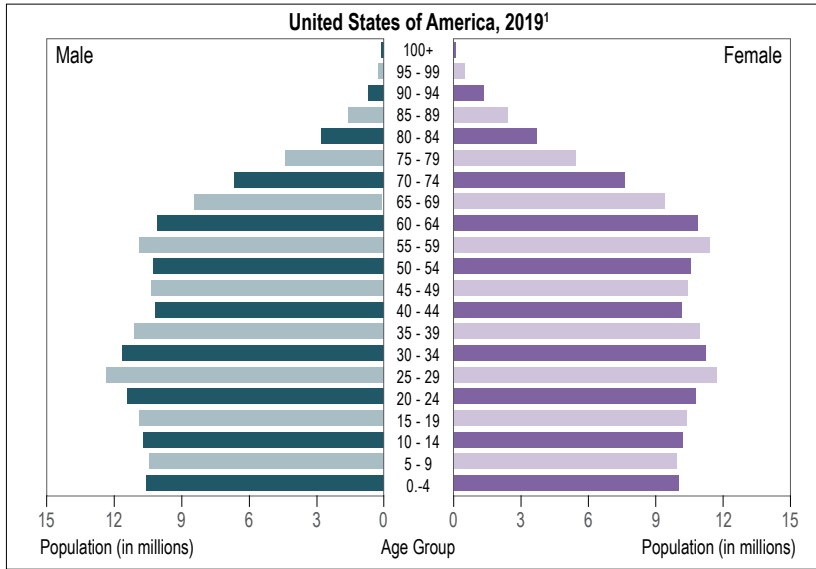
Influenza Disease Burden	
Estimation of medical burden for influenza	No
Estimation of economic burden for influenza	NA
Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/td>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



United States of America



POPULATION
Population (thousands) ² : 327,167
Population density (per km ²) ³ : 36.0
Percentage of population < 5 years ⁴ : 6.0%
Percentage of population ≥ 65 years ⁴ : 15.8%

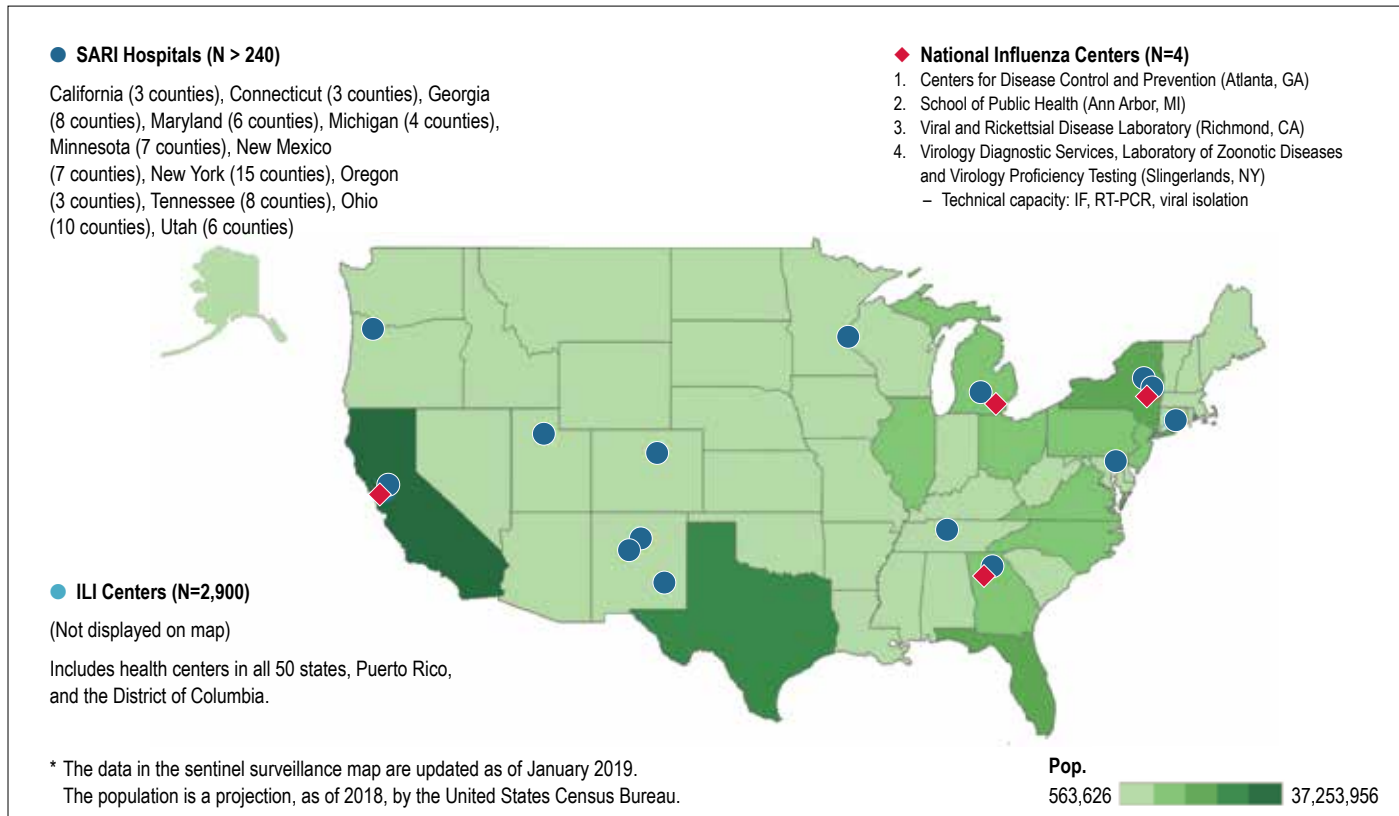
MORTALITY
Gross mortality rate (per 1,000 population) ⁵ : 4.9
Mortality rate from all causes at < 5 years of age (per 1,000 live births) ⁵ : 6.8
Mortality rate due to communicable diseases (per 100,000 population) ⁵ : 28.3

PUBLIC HEALTH
Number of medical doctors working in the public system (per 10,000 population) ⁵ : 26.1
Current health expenditure per capita, PPP* (current international \$) ⁶ : 9,780.0
National health expenditure as % of GDP 2016 ⁵ : 14.0
*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	Once a week	Monthly	> 240	NA	Yes	Online
ILI	Yes	Sentinel	Random sampling	Once a week	Monthly	2,900	NA	NA	

Surveillance Systems

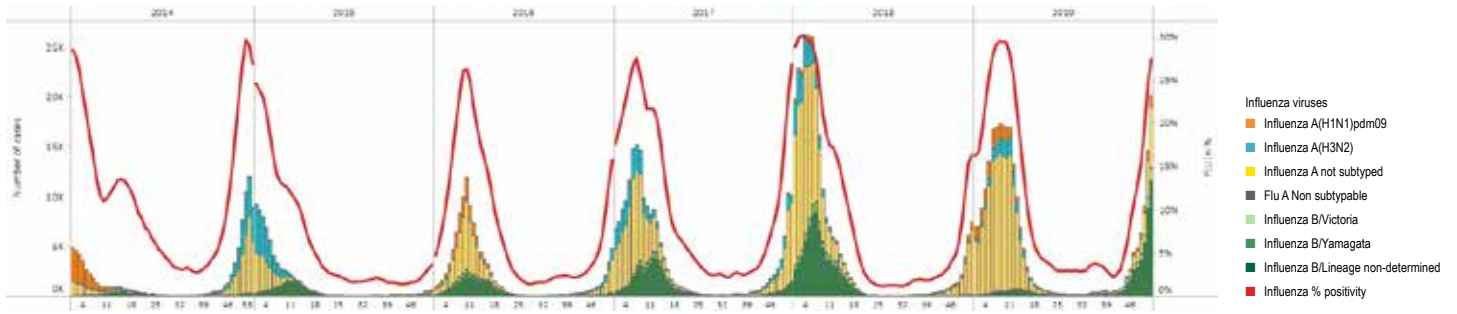


Surveillance Map

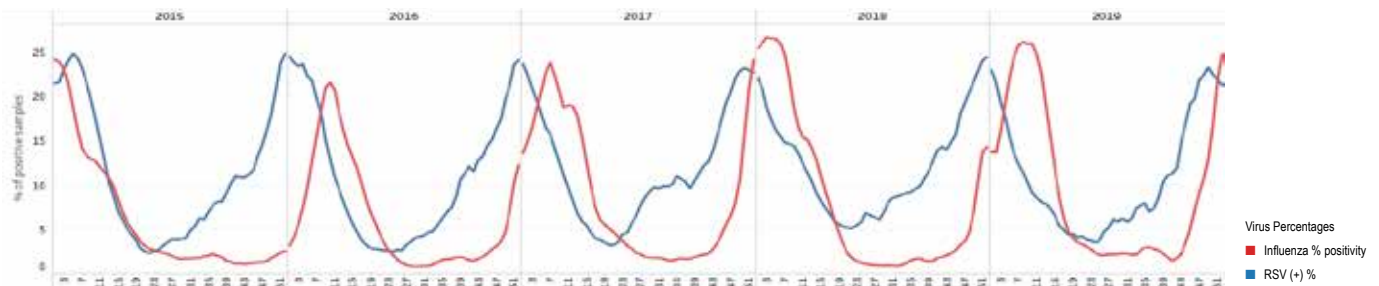
Influenza and Respiratory Syncytial Virus

Virologic Data

United States of America: Distribution of influenza viruses by epidemiological week

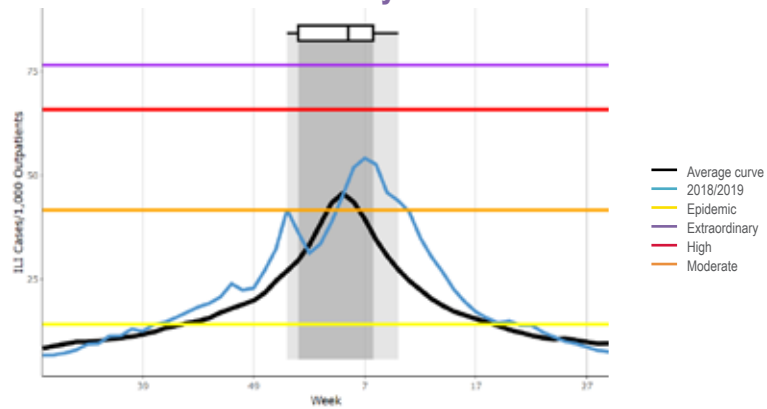


United States of America: Cumulative percent positivity for influenza and respiratory syncytial virus



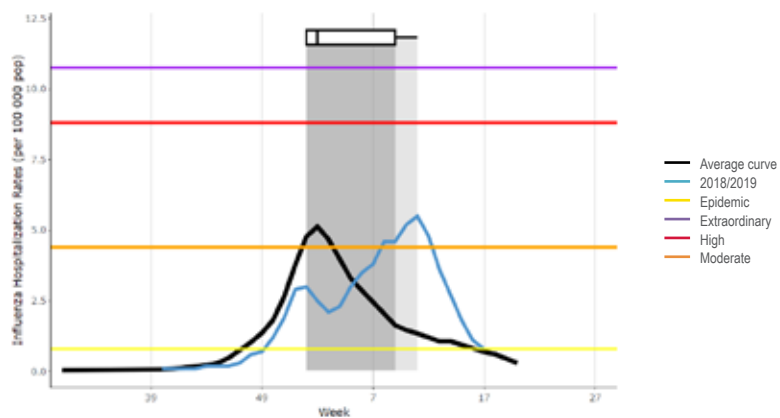
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Influenza Hospitalization

Data from severe cases⁸



Pandemic Influenza Preparedness Planning	
Plan available	Yes (2017)
Part of an all-hazards plan	Yes (2017)
Year of original publication	1997
Year of last revision/update	2017
Simulations	Yes, 2019
Drills	Yes, 2019
Rapid response teams composed	NA
Risk communication strategy in place	NA

Laboratory Capacity	
Virologic surveillance	Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes
Samples sent to WHO Collaborating Center	Yes
Number of samples analyzed during 2017–2018	NREVSS Clinical laboratories: 1,413,596 Public Health Laboratories: 106,671
Specimens tested for other respiratory viruses (ORV)	Yes
Other respiratory viruses identified	RSV, adenovirus, coronavirus, parainfluenza 1, 2, 3; metapneumovirus, rhinovirus/enterovirus

Human-Animal Interface for Influenza	
Intersectoral meetings	In progress
Information sharing between sectors	In progress
Surveillance of unusual respiratory cases with exposure to animals	In progress

Influenza Vaccine	
Composition	Northern hemisphere
Month of vaccine administration	August-January
Percentage of older adults vaccinated ⁷	65% (≥ 65 years)
Percentage of children under 5 vaccinated ⁷	58% (age of vaccinated children is 6 months to 17 years)
Percentage of pregnant women vaccinated ⁷	Yes
Percentage of people at higher risk for influenza-related complications vaccinated	Yes
Percentage of health care workers vaccinated ⁷	Yes

FluID/FluNet/PISA	
FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: Yes Seriousness of disease: No Impact: Yes

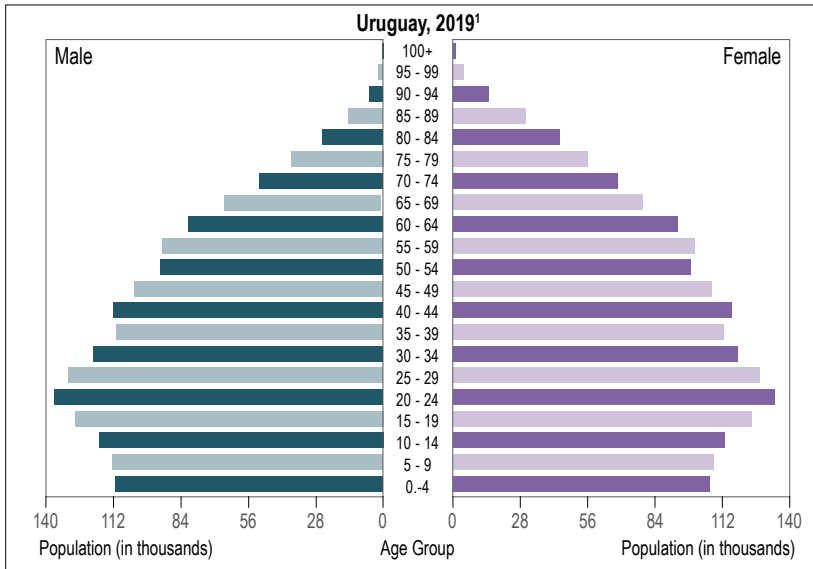
Influenza Disease Burden	
Estimation of medical burden for influenza	Yes
Estimation of economic burden for influenza	Yes
Publication of influenza burden of disease	Online

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>
8. WHO (2020), WHO Average Curves software, Version 0.3 (2019-10-09), © Copyright World Health Organization (WHO), Geneva.



Uruguay



POPULATION

Population (thousands)²: **3,449**

Population density (per km²)³: **20.0**

Percentage of population < 5 years⁴: **6.9%**

Percentage of population ≥ 65 years⁴: **14.8%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **5.4**

Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **8.4**

Mortality rate due to communicable diseases (per 100,000 population)⁵: **42.6**

PUBLIC HEALTH

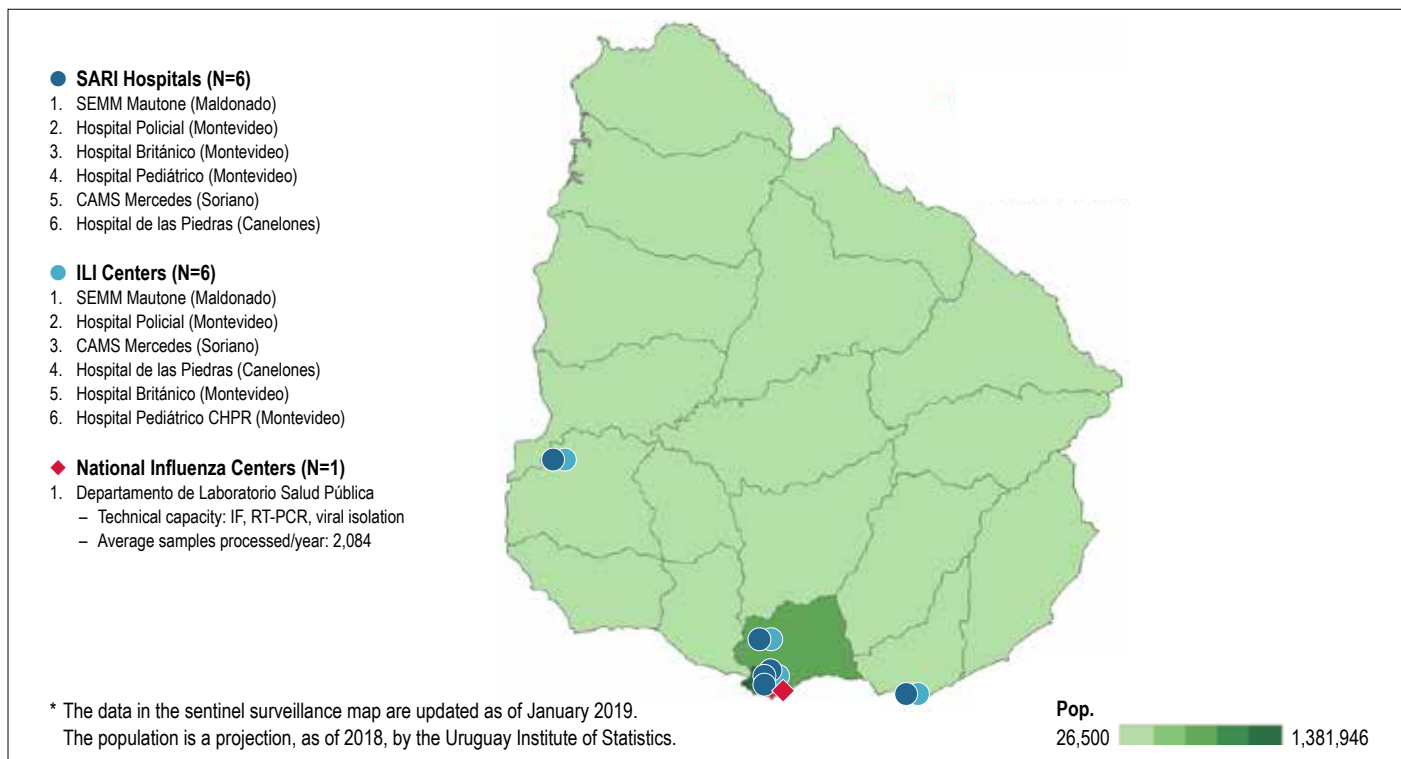
Number of medical doctors working in the public system (per 10,000 population)⁵: **49.4**

Current health expenditure per capita, PPP* (current international \$)⁶: **1,959**

National health expenditure as % of GDP 2016⁵: **6.5**

*PPP – Purchasing Power Parity

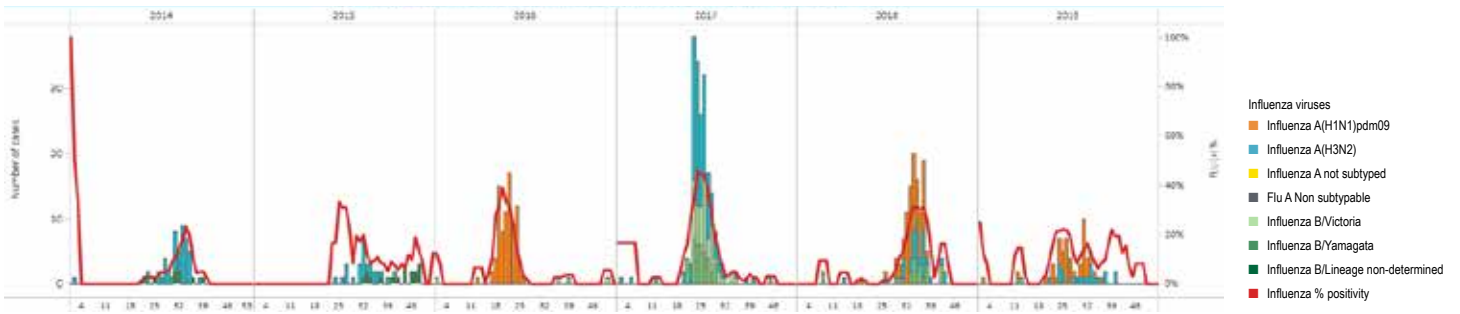
Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	Sentinel	100%	5 days/week	Annually	6	NA	Yes	Online
ILI	Yes	Sentinel	Quota (30 samples/week)	6 days/week	No	6		NA	Yes
INFLUENZA	NA	Sentinel	100%	NA	NA	6		NA	Yes



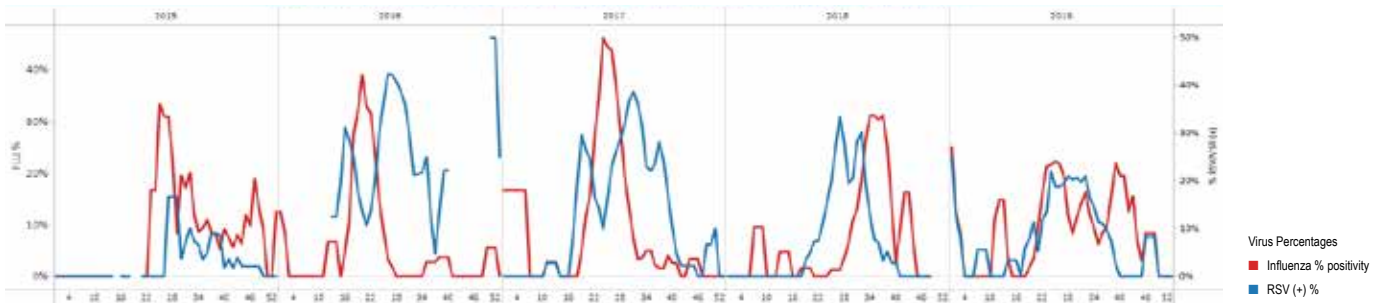
Influenza and Respiratory Syncytial Virus

Virologic data

Uruguay: Distribution of influenza viruses by epidemiological week

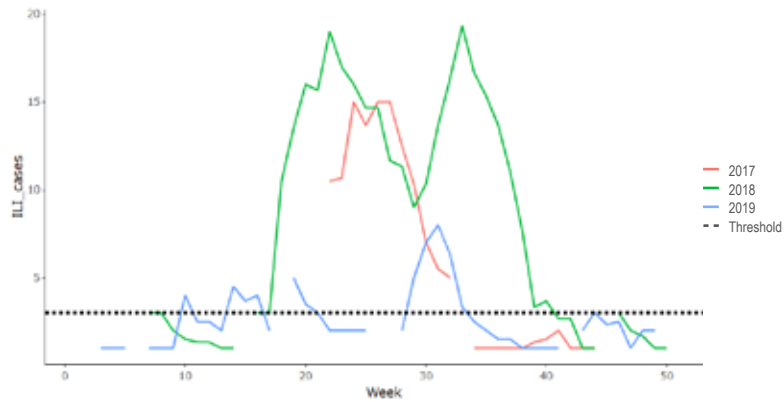


Uruguay: Cumulative percent positivity for influenza and respiratory syncytial virus



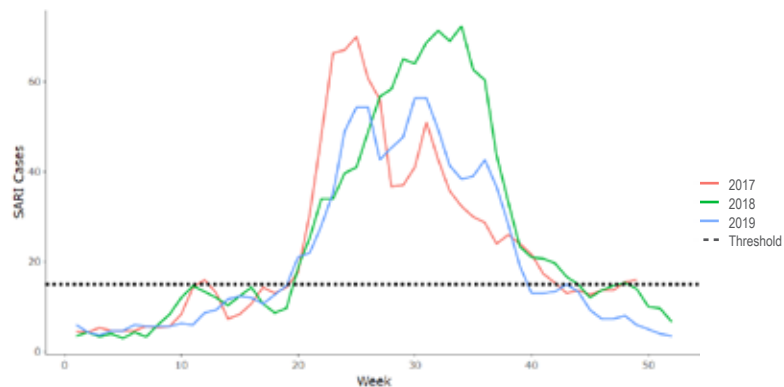
Influenza-Like Illness (ILI)

Data from ambulatory cases⁸



Severe Acute Respiratory Infection (SARI)

Data from severe cases⁸



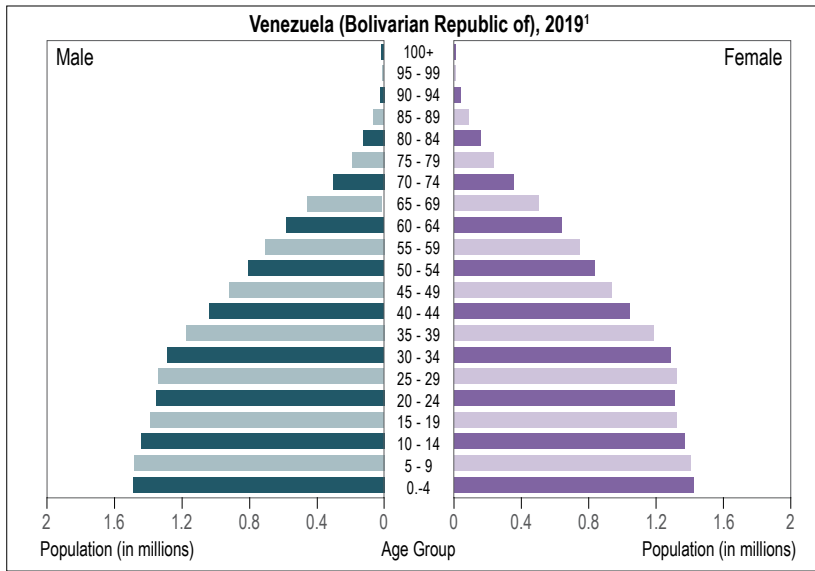
Pandemic Influenza Preparedness Planning		Influenza Vaccine	
Plan available	Yes	Composition	Southern hemisphere
Part of an all-hazards plan	Yes	Month of vaccine administration	April
Year of original publication	2010	Percentage of older adults vaccinated ⁷	32% (> 65 years)
Year of last revision/update	2010	Percentage of children under 5 vaccinated ⁷	24% (age of vaccinated children is 6 months to 5 years)
Simulations	No	Percentage of pregnant women vaccinated ⁷	25%
Drills	No	Percentage of people at higher risk for influenza-related complications vaccinated	Yes
Rapid response teams composed	No	Percentage of health care workers vaccinated ⁷	57%
Risk communication strategy in place	Yes		
Laboratory Capacity		FluID/FluNet/PISA	
Virologic surveillance	Yes	FluID	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Participation in the latest WHO External Quality Assessment Programme (EQAP)	Yes	FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
Samples sent to WHO Collaborating Center	Yes	PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress
Number of samples analyzed during 2017–2018	2,084		
Specimens tested for other respiratory viruses (ORV)	Yes		
Other respiratory viruses identified	RSV, adenovirus, parainfluenza 1, 2, 3; metapneumovirus		
Human-Animal Interface for Influenza		Influenza Disease Burden	
Intersectoral meetings	Yes	Estimation of medical burden for influenza	No
Information sharing between sectors	No	Estimation of economic burden for influenza	No
Surveillance of unusual respiratory cases with exposure to animals	Yes	Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts; influenza bulletins published/shared by the countries; country presentations in regional influenza meetings; consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/uy>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. Data.worldbank.org. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>



Venezuela (Bolivarian Republic of)



POPULATION

Population (thousands)²: **28,870**

Population density (per km²)³: **33.0**

Percentage of population < 5 years⁴: **8.8%**

Percentage of population ≥ 65 years⁴: **7.3%**

MORTALITY

Gross mortality rate (per 1,000 population)⁵: **6.5**

Mortality rate from all causes at < 5 years of age (per 1,000 live births)⁵: **17.5**

Mortality rate due to communicable diseases (per 100,000 population)⁵: **69.7**

PUBLIC HEALTH

Number of medical doctors working in the public system (per 10,000 population)⁵: **17.3**

Current health expenditure per capita, PPP* (current international \$)⁶: **940.0**

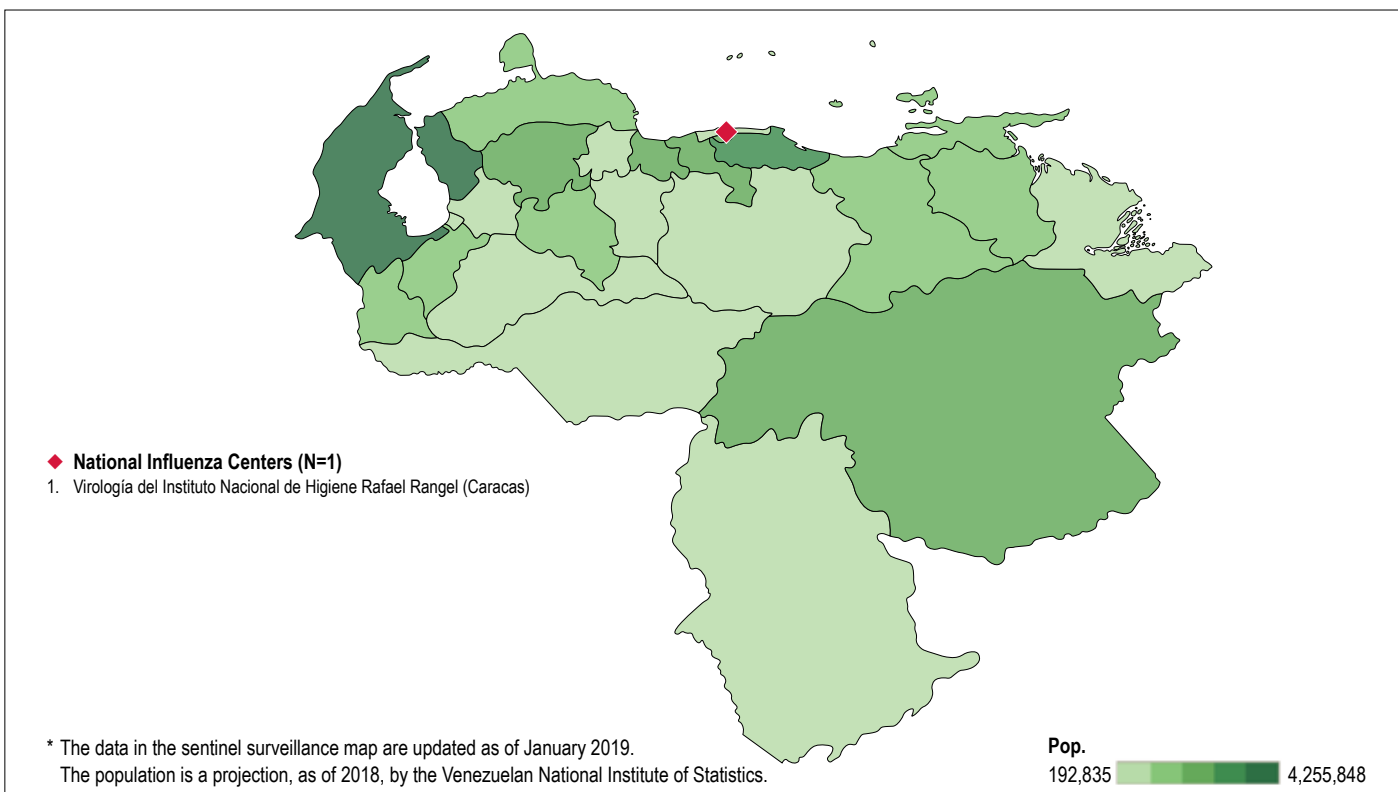
National health expenditure as % of GDP 2016⁵: **0.8**

*PPP – Purchasing Power Parity

Sociodemographic Indicators

Event	SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEM		
	WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Laboratory and epidemiology integration	Online report
SARI	Yes	NA	NA	NA	NA	NA	NA	NA	NA
PNEUMONIA	No; ICD-10 codes (J09-J18, J20-J22X)	National	NA	NA	NA	NA	NA	NA	NA

Surveillance Systems

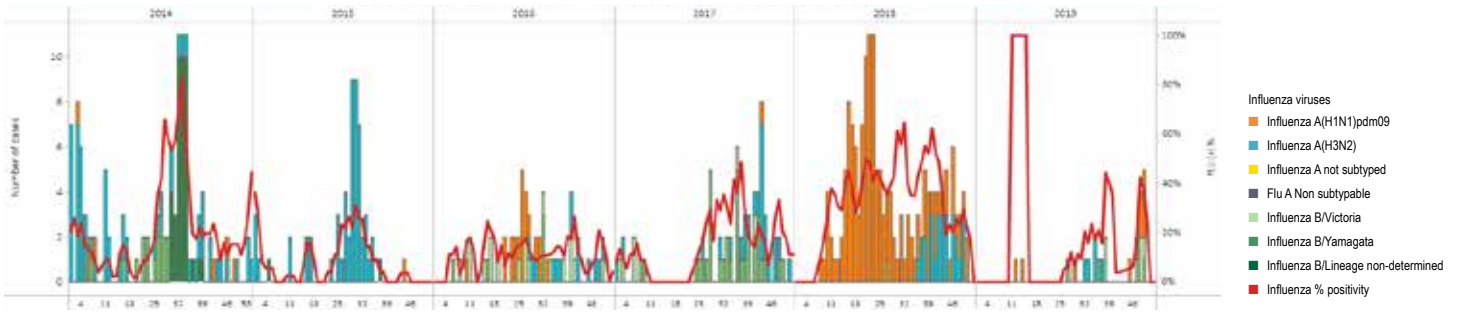


Surveillance Map

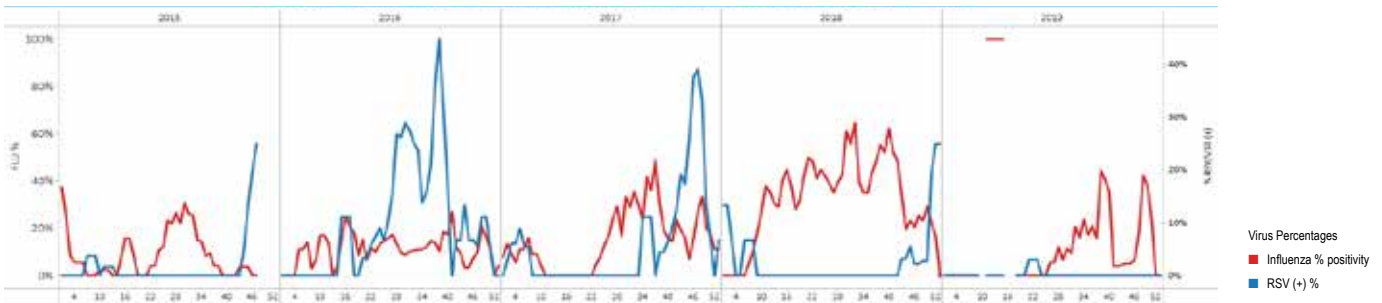
Influenza and Respiratory Syncytial Virus

Virologic data

Venezuela (Bolivarian Republic of): Distribution of influenza viruses by epidemiological week



Venezuela (Bolivarian Republic of): Cumulative percent positivity for influenza and respiratory syncytial virus



Influenza-Like Illness (ILI)

Data from ambulatory cases

Not applicable

Severe Acute Respiratory Infection (SARI)

Data from severe cases

Not applicable

Pandemic Influenza Preparedness Planning	
Plan available	Yes (2017)
Part of an all-hazards plan	No (2017)
Year of original publication	NA
Year of last revision/update	NA
Simulations	NA
Drills	NA
Rapid response teams composed	NA
Risk communication strategy in place	NA

Influenza Vaccine	
Composition	Southern hemisphere (2017)
Month of vaccine administration	April (2017)
Percentage of older adults vaccinated ⁷	0%
Percentage of children under 5 vaccinated ⁷	0%
Percentage of pregnant women vaccinated ⁷	0%
Percentage of people at higher risk for influenza-related complications vaccinated	0%
Percentage of health care workers vaccinated ⁷	0%

Laboratory Capacity	
Virologic surveillance	NA
Participation in the latest WHO External Quality Assessment Programme (EQAP)	NA
Samples sent to WHO Collaborating Center	NA
Number of samples analyzed during 2017–2018	NA
Specimens tested for other respiratory viruses (ORV)	NA
Other respiratory viruses identified	NA

FluID/FluNet/PISA	
FluID	Report: In progress Reported > 33%: NA Reported to WHO in 2018: NA
FluNet	Report: Yes Reported > 33%: Yes Reported to WHO in 2018: Yes
PISA Parameters	Transmissibility: In progress Seriousness of disease: In progress Impact: In progress

Human-Animal Interface for Influenza	
Intersectoral meetings	NA
Information sharing between sectors	NA
Surveillance of unusual respiratory cases with exposure to animals	NA

Influenza Disease Burden	
Estimation of medical burden for influenza	NA
Estimation of economic burden for influenza	NA
Publication of influenza burden of disease	NA

Unless otherwise specified, all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online surveys completed by epidemiology or laboratory experts, influenza bulletins published/shared by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.

1. U.S. Census Bureau, Population pyramid, 2019; <https://www.census.gov/popclock/world/ve>
2. World Bank. "Population, Total." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>. Accessed: 13 Sep. 2019.
3. World Bank. "Population Density (people per sq. km of land area)." *World Development Indicators*, The World Bank Group, 2019, <https://data.worldbank.org/indicator/EN.POP.DNST>. Accessed: 13 Sep. 2019.
4. United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*, Online Edition. Rev. 1. Available from: <https://population.un.org/wpp/Download/Standard/Population/>. Accessed: 13 Sep. 2019.
5. Pan American Health Organization / World Health Organization, Evidence and Intelligence for Action in Health / Health Analysis, Metrics and Evidence. *Health Situation in the Americas: Core Indicators 2018*. Washington, D.C.: PAHO; 2018. Available from: <https://www.paho.org/data/index.php/en/indicators/visualization.html>
6. Current health expenditure per capita, PPP (current international \$) | Data [Internet]. *Data.worldbank.org*. 2019 [cited 10 October 2019]. Available from: <https://data.worldbank.org/indicator/SH.XPD.CHEX.PP.CD>
7. Pan American Health Organization / World Health Organization. *Immunization in the Americas* [Internet]. Paho.org. 2019 [cited 10 October 2019]. Available from: <https://www.paho.org/en/documents/immunization-americas-2019-summary>

This third edition of the landscape analysis of *Influenza and Other Respiratory Viruses: Surveillance in the Americas* provides regional and country-specific data that are used and valued by forums in the Region and beyond.

Data of regional trends include surveillance of severe acute respiratory infection (SARI), influenza-like illness (ILI), influenza vaccine, FluNet/FluID reporting, and participation in WHO's External Quality Assessment Project (EQAP). The second half of the report presents country-specific data on sociodemographic indicators, surveillance systems, virologic analysis, laboratory capacity, and trends in human-animal interface.

To strengthen the Region's surveillance abilities, it is important to understand the current capacity of each country and the issues in that country that need attention. Similarly, to assess progress over time, it is necessary to document regional trends. Because several indicators had changed since the last analysis was published, PAHO conducted an extensive survey to collect and compile additional, varied, and detailed data. This report illustrates the complexities in surveillance of influenza and other respiratory viruses and highlights differences in the countries' preparedness capacities through charts, infographics, tables, and brief narratives.

For more information about influenza surveillance in the Americas, please visit the PAHO influenza page at www.paho.org/influenza, or the Severe Acute Respiratory Infection network at www.SARInet.org.

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