

2017

INFLUENZA & OTHER RESPIRATORY VIRUS SURVEILLANCE SYSTEMS IN THE AMERICAS



Pan American
Health
Organization



Influenza and Other Respiratory Virus Surveillance Systems in the Americas

2017



Pan American
Health
Organization



World Health
Organization
REGIONAL OFFICE FOR THE Americas

Influenza and Other Respiratory Virus Surveillance Team
PAHO Health Emergencies Department- PHE
Washington, D.C.
2017

PAHO HQ Library Cataloguing-in-Publication Data

Pan American Health Organization

Influenza and other respiratory virus surveillance systems in the Americas, 2017. Washington, D.C.: PAHO; 2017.

1. Influenza, Human. 2. Influenza Vaccines. 3. Respiratory Tract Infections. 4. Health Surveillance.
5. Epidemiological Surveillance. 6. Immunologic Surveillance. 7. Health Profile. 8. Americas. I. Title.

ISBN: 978-92-75-07455-8 (bilingual version)

(NLM Classification: WC 515)

© Pan American Health Organization 2017

All rights reserved. Publications of the Pan American Health Organization are available on the PAHO website (www.paho.org). Requests for permission to reproduce or translate PAHO Publications should be addressed to the Communications Department through the PAHO website (www.paho.org/permissions).

Publications of the Pan American Health Organization enjoy copyright protection in accordance with the provisions of Protocol 2 of the Universal Copyright Convention. All rights are reserved.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the Pan American Health Organization concerning the status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the Pan American Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the Pan American Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the Pan American Health Organization be liable for damages arising from its use.

Suggested citation:

Sosa P, Couto P, Rodriguez A, Charles M, Leite J, Palekar R,. Influenza and Other Respiratory Virus Surveillance Systems in the Americas: 2017. Washington, DC: Pan American Health Organization, 2017.

Correspondence:

flu@paho.org



Index

Title	Page Number
Acronyms	iv
Background	1
Regional Data	3
Country Indicators Table	4
PCR Influenza Surveillance	5
RSV Surveillance	6
SARI/ILI Surveillance	7
Frequency of Reporting	8
Shipments to WHO Collaborating Center at U.S. CDC	9
Influenza Vaccine	10
World Bank Income Groups	11
Virologic Surveillance Data	12
SARI Surveillance Data	13
Country Data	15
Argentina	17
Barbados	19
Belize	21
Bolivia (Plurinational State of)	23
Brazil	25
Canada	27
Chile	29
Colombia	31
Costa Rica	33
Cuba	35
Dominica	37
Dominican Republic (DOR)	39
Ecuador	41
El Salvador	43
Grenada	45
Guatemala	47
Haiti	49
Honduras	51
Jamaica	53
Mexico	55
Nicaragua	57
Panama	59
Paraguay	61
Peru	63
Puerto Rico	65
Saint Lucia	67
Saint Vincent and the Grenadines	69
Suriname	71
Trinidad and Tobago	73
United States of America (USA)	75
Uruguay	77
Venezuela (Bolivarian Republic of)	79
Annex A and B	81

Acronyms

Acronym	Definition
ARI	Acute respiratory infection
CARPHA	Caribbean Public Health Agency
CENETROP	Centro de Enfermedades Tropicales (Center for Tropical Diseases) (Santa Cruz, Bolivia)
EW	Epidemiological Week
ILI	Influenza-like illness
INLASA	Instituto Nacional de Laboratorios de Salud (National Institute of Health Laboratories) (La Paz, Bolivia)
INS	Instituto Nacional de Salud (National Institute of Health)
ORV	Other respiratory viruses
SARI	Severe acute respiratory infection
SEDES	Servicio Departamental de Salud (Departmental Health Service) (Bolivia)
ICU	Intensive care unit
RSV	Respiratory syncytial virus

Background

Since the 2009 influenza pandemic, countries of the Americas have been strengthening their surveillance systems to improve detection of novel influenza subtypes and monitoring of seasonal influenza epidemics. These systems, when functioning optimally, allow public health decision makers to understand when, where, and who is being affected by influenza during seasonal epidemics and should detect the emergence of a novel influenza subtype in a timely manner.

The first surveillance systems to be developed in most countries in the Region were laboratory-based surveillance systems, which would allow the detection of a novel influenza subtype if a clinical sample were collected and tested in the laboratory. Since this time, many other systems have been developed to complement and integrate with the laboratory surveillance platforms, which allow for monitoring of influenza, pneumonia, and clinical influenza proxy syndromes in the ambulatory and hospitalized settings (e.g. influenza-like illness [ILI] and severe acute respiratory infection [SARI]). There are systems which are both indicator-based as well as systems which rely upon event-based information (e.g., tracking of media reports). The result of these efforts is that now, there are a variety of systems that contribute to the understanding nationally, regionally, and globally, of influenza.

This publication represents a compilation of the respiratory virus surveillance systems that exist in countries throughout the Americas Region and is an update to the 2014-publication, “Influenza and Other Respiratory Virus Surveillance Systems in the Americas, 2014”.

The 2016-2017 inventory includes two sections: Regional Analyses and Country-by-country Analyses. The regional section includes regional data, maps showing capacities that exist in the region, and frequency of data reporting to FluID and FluNet. The country-by-country section includes information about epidemiological and laboratory surveillance, focusing on the following four areas:

Area 1.

- Sociodemographic indicators

Area 2.

- Surveillance systems
- Surveillance maps

Area 3.

- Country epidemiologic and laboratory data

Area 4.

- Influenza vaccine profile
- Pandemic preparedness plan profile
- FluNet/FluID reporting profile
- Human-animal interface profile

These data were obtained directly from the countries by PAHO from one or more of the following sources: PAHO-administered online surveys completed by epidemiology and/or national laboratory coordinators (see Annex B), influenza bulletins published online/distributed by the countries, and consultation with country influenza surveillance coordinators. Each document was submitted to the corresponding national counterpart for revision and approval.

Profiles are organized in alphabetical order and include all countries that responded in a timely manner to requests for data and approval; for any non-responding country, if data were provided for the 2014 publication, those data are included.



Pan American
Health
Organization

World Health Organization
REGIONAL OFFICE FOR THE Americas

2017

REGIONAL DATA



COUNTRY INDICATORS TABLE

INDICATORS TABLE

LAB SURVEILLANCE

SARI/ILI SURVEILLANCE

FLUID/FLUNET REPORTING

CDC SHIPMENT

VACCINE

WORLD BANK INCOME

REGIONAL GRAPHS

COUNTRY SHEETS

Country	SARI Surveillance*	ILI Surveillance*	National Influenza Center	RT-PCR Surveillance for Influenza	2016 EQAP Participation	FluID Reporting	FluNet Reporting
	*as of June 2017	*as of June 2017				*July 2016- June 2017	*July 2016- June 2017
Antigua & Barbuda	3	3	No	No	No	0	0
Argentina	1	1	Yes	Yes	Yes	1	34
Bahamas	3	3	No	No	No	0	1
Barbados	2	3	No	Yes	No	0	5
Belize	2	3	No	No	No	0	4
Bolivia	1	2	No	Yes	Yes	1	31
Brazil	1	1	Yes	Yes	Yes	12	13
Canada	4	1	Yes	Yes	Yes	7	29
Chile	1	1	Yes	Yes	Yes	52	52
Colombia	1	1	Yes	Yes	Yes	41	32
Costa Rica	1	1	Yes	Yes	Yes	1	32
Cuba	1	1	Yes	Yes	Yes	41	40
Dominica	2	3	No	No	No	1	5
Dominican Republic	2	1	No	Yes	Yes	0	46
Ecuador	1	2	Yes	Yes	Yes	24	30
El Salvador	1	1	Yes	Yes	No	23	32
French Guiana	3	1	Yes	Yes	Yes	0	0
Grenada	3	3	No	No	No	0	2
Guatemala	2	2	Yes	Yes	No	0	16
Guyana	3	3	No	No	No	0	2
Haiti	2	3	No	Yes	No	0	11
Honduras	1	1	Yes	Yes	Yes	1	35
Jamaica	1	3	Yes	Yes	Yes	41	21
Mexico	1	1	Yes	Yes	No	45	32
Nicaragua	2	3	Yes	Yes	Yes	4	24
Panama	2	2	Yes	Yes	Yes	1	39
Paraguay	1	1	Yes	Yes	Yes	39	26
Peru	1	1	Yes	Yes	Yes	4	31
Puerto Rico	3	1	No	Yes	No	0	0
Saint Lucia	1	1	No	No	No	2	6
Saint Vincent and the Grenadines	3	3	No	No	No	0	4
Surinam	1	1	No	Yes	Yes	49	49
Trinidad and Tobago	3	3	No	Yes	No	0	19
United States of America	4	1	Yes	Yes	Yes	52	49
Uruguay	1	2	Yes	Yes	Yes	0	26
Venezuela	3	3	Yes	Yes	Yes	0	19



*SARI/ILI Surveillance

1= SARI/ILI surveillance established= Frequent reporting during July 2016-June 2017

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 SARI case definition

Influenza Surveillance by RT-PCR



In 2016, 94% (n=29) of participating labs attained a score of 90% or greater on the WHO EQAP for influenza

INDICATORS TABLE

LAB SURVEILLANCE

SARI/ILI SURVEILLANCE

FLUID/FLUNET REPORTING

CDC SHIPMENT

VACCINE

WORLD BANK INCOME

REGIONAL GRAPHS

COUNTRY SHEETS

RSV surveillance



Most countries use their SARI and ILI surveillance systems to identify possible RSV cases.

SARI Surveillance



Caribbean & Central America



SARI case definition: An acute respiratory infection with: history of fever or measured fever of ≥ 38 C°; and cough; with onset within the last 10 days; and requires hospitalization

ILI Surveillance

- ILI surveillance established= Frequent reporting during July 2016-June 2017
- ILI surveillance being established= Infrequent reporting and PAHO verification of ILI sites
- ILI surveillance not established= No reporting and no verification of ILI sites

ILI Surveillance

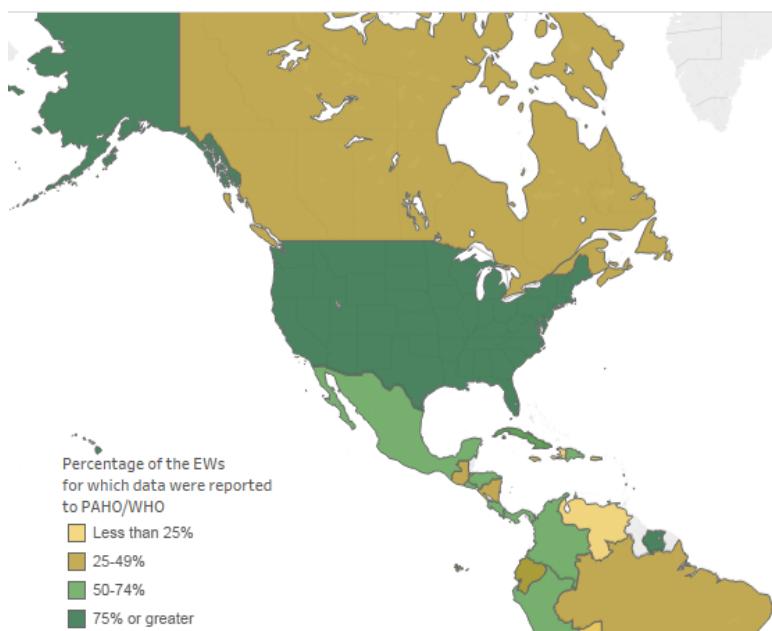


Caribbean & Central America



ILI case definition: An acute respiratory infection with: measured fever of ≥ 38 C°; and cough; with onset within the last 10 days

FluNet Reporting Frequency, 2016

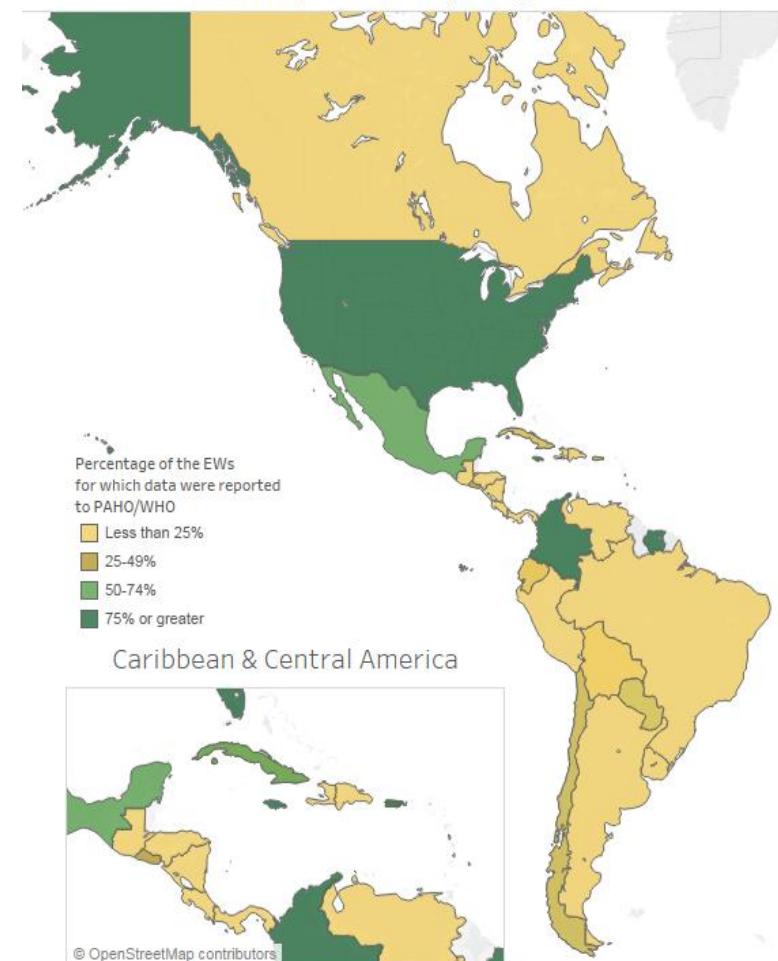


FluNet is a global platform for influenza virological surveillance first launched in 1997. The virological data are critical for tracking the spread of viruses globally

Caribbean & Central America



Fluid Reporting Frequency, 2016



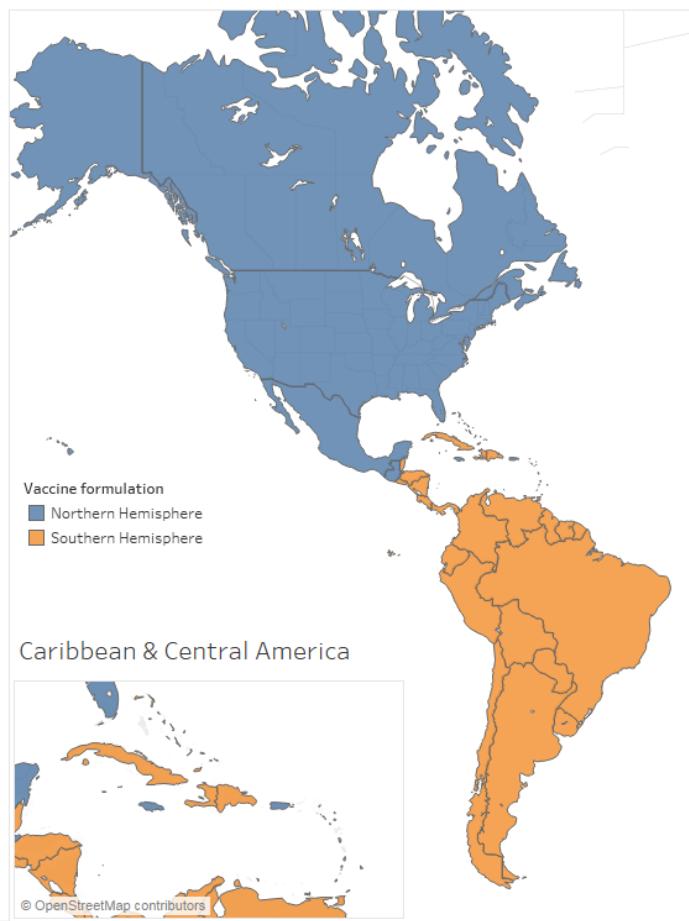
Fluid is a global platform for influenza epidemiological surveillance. The platform accommodates both qualitative and quantitative data which facilitates the tracking of global trends, spread, intensity, and impact of influenza

CDC Shipment, 2016



The WHO CCs do additional antigenic characterization and antiviral resistance testing on samples sent to them from the countries

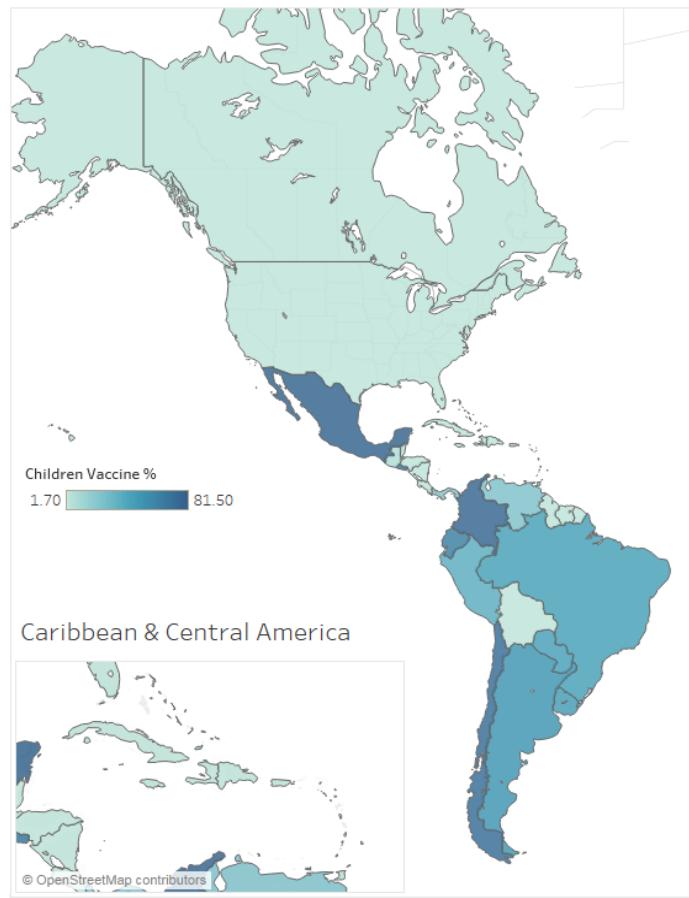
Vaccine Formulation during 2015



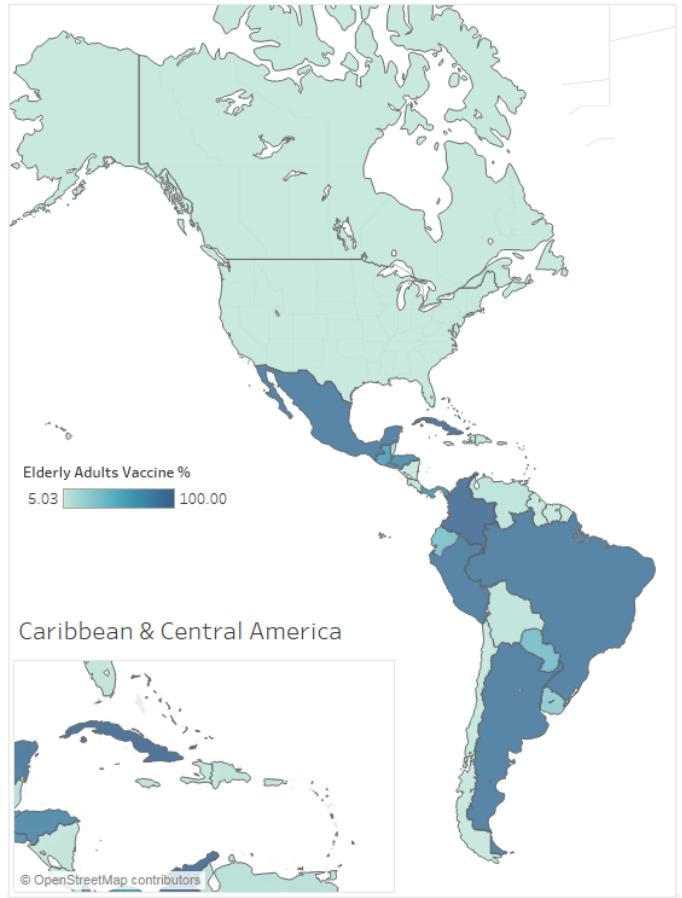
Vaccine Timing during 2015-2016



Percent of Children Vaccinated during 2014



Percent of Elderly Adults Vaccinated during 2014



INDICATORS TABLE

LAB SURVEILLANCE

SARI/ILI SURVEILLANCE

FLUID/FLUNET REPORTING

CDC SHIPMENT

VACCINE

WORLD BANK INCOME

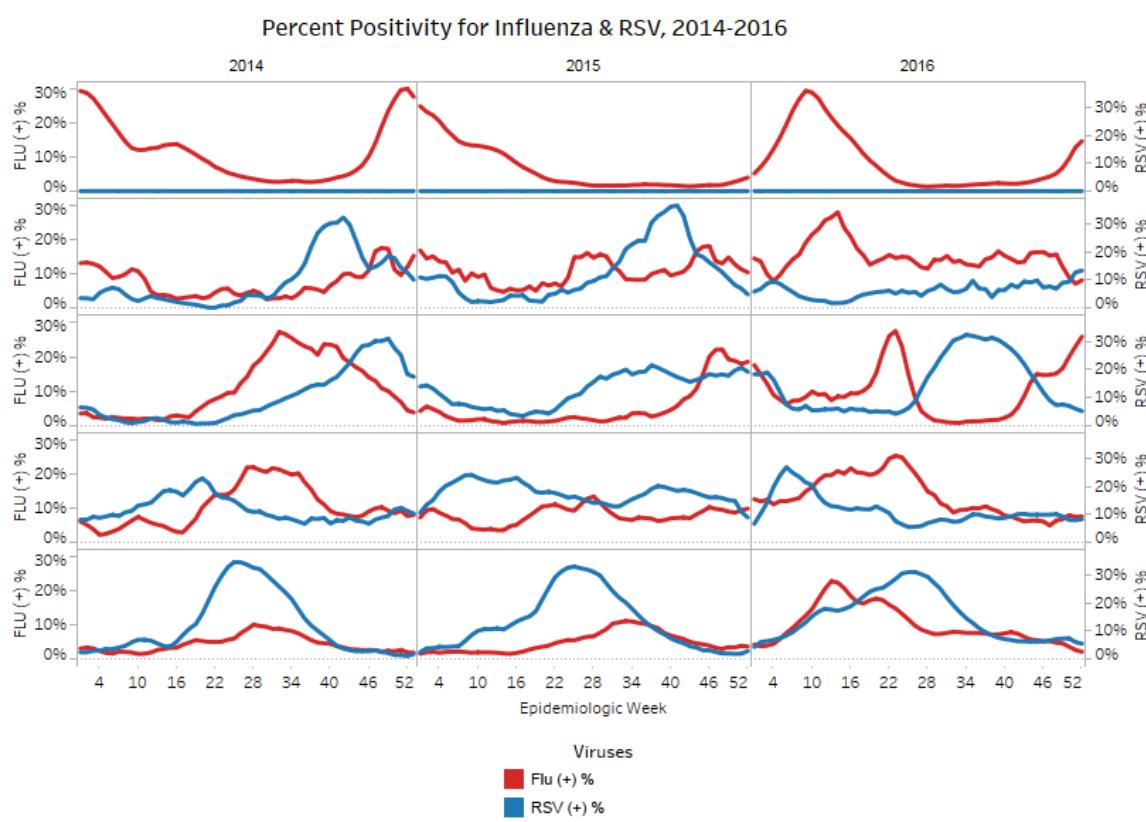
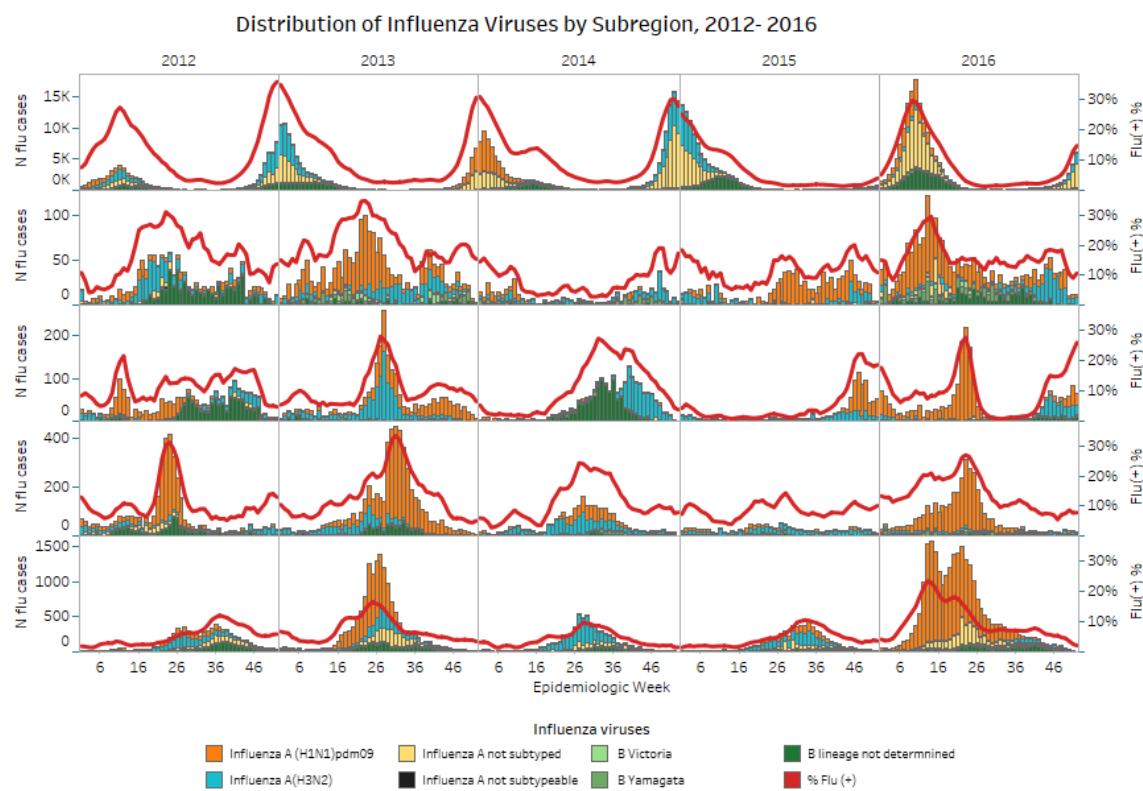
REGIONAL GRAPHS

COUNTRY SHEETS

World Bank Income Classification

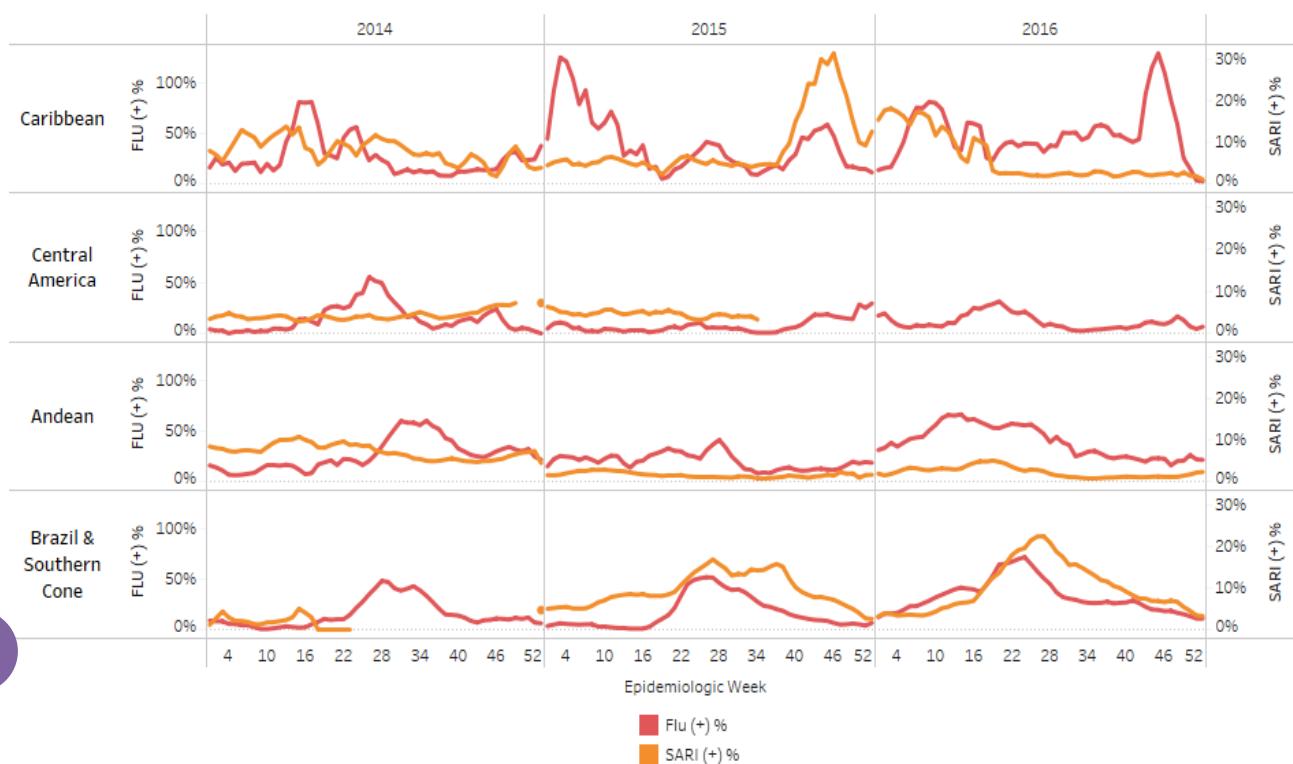


The World Bank categorizes countries into one of four different income groups

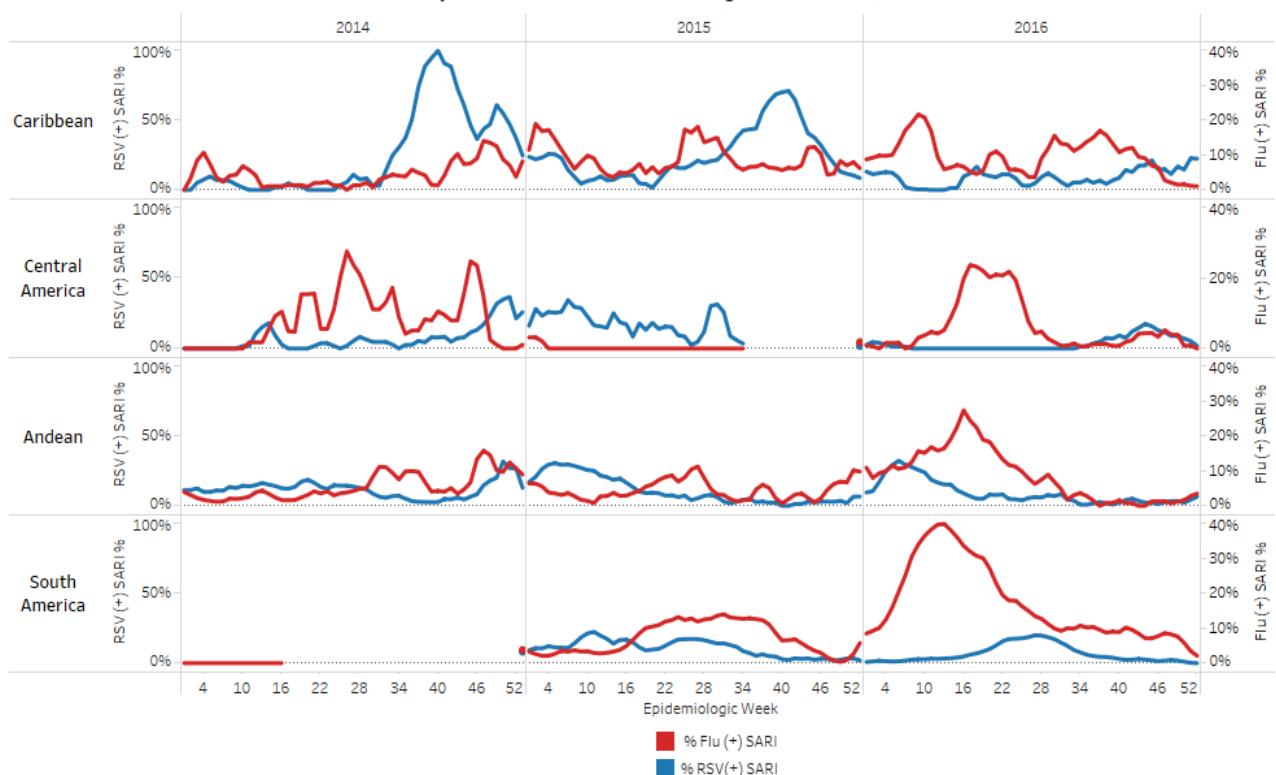


INDICATORS TABLE
LAB SURVEILLANCE
SARI/LILI SURVEILLANCE
FLU/ELINET REPORTING
CDC SHIPMENT
VACCINE
WORLD BANK INCOME
REGIONAL GRAPHS
COUNTRY SHEETS

Percent of SARI among all Hospitalizations & Percent Positivity for Influenza among SARI Cases, 2014- 2016*



Percent Positivity for Influenza and RSV among all SARI Cases, 2014-2016*



*Countries included in the above analyses: Caribbean: Barbados, Cuba, Dominica, Jamaica, Suriname; Central America: El Salvador, Honduras; Andean: Colombia, Ecuador, Peru; Brazil & Southern Cone: Argentina, Brazil, Chile, and Paraguay



Pan American
Health
Organization

World Health Organization
REGIONAL OFFICE FOR THE Americas

2017

COUNTRY DATA





Argentina

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

Surveillance Systems

Surveillance Map

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 43,590</p> <p>Population Density (per km²)³: 15.6</p> <p><small>Source¹</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 7.7</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 11.3</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 80.3</p>	<p>Number of Physicians (per 10,000 population)⁷: 39.4</p> <p>Percentage of Rural Population⁸: 8%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 1550</p>

*PPP- Purchasing Power Parity

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Universal	Yes	Weekly	<1 each year	-	Sistema nacional de Vigilancia de la salud (SNVS)	Partial	Online
	Sentinel	All cases			3			
Yes	Universal	No	Weekly	<1 each year	1,304			
	Sentinel	Quota			3			
No*	Universal**	No	Weekly	<1 each year	1,304			
NA	Universal**	Yes, in deaths diagnosed with influenza	Weekly	N/A	N/A			

* Febrile acute respiratory disease (> 38 °) with cough, respiratory distress, tachypnea and radiology showing a lobar or segmental infiltrate and / or pleural effusion.
**In these cases, universal surveillance consists of weekly and aggregated reporting by age groups by all health facilities and no laboratory sample is collected

● SARI Hospitals (N=3)
RVIll - General Pueyrredón, Sociataliana De Benef-Hosp Italiano, Hosp Teodoro Schestakow

● ILI Centers (N=3)
RVIII - General Pueyrredón, UC Influenza - CONI, UC Influenza Tucumán

▲ Laboratories with PCR capacity (N=38)
The total number of regional laboratories, including those with IF capacity, is greater than 100 (only those with PCR capacity shown on map).

▲ National Influenza Centers (N=3)
1 - National Institute of Infectious Diseases (Buenos Aires)
National Reference Laboratory for Influenza and respiratory viruses and Coordinator of the National Network of Influenza and RV.
Immunofluorescence (IFA), RT-PCR, viral isolation(AV), Hemaglutination inhibition (IHA), sequencing, antiviral susceptibility, serology.
Molecular detection of other respiratory viruses: HMPV, SARS-CoV, MERS-CoV, HCoV-OC43, HCoV-229E, HCoV -NL63, HCoV-HKU1, HBsCoV y Rhinov.

2 - Influenza and Respiratory Virus Laboratory, Virology Institute (UNC) (Córdoba)
IFA, RT-PCR, AV, IHA, sequencing, serology (human influenza avian subtypes). Real time RT-PCR detection, hemagglutination inhibition and cell culture for human, avian, equine, swine.
Molecular detection of other respiratory viruses: HMPV, HCoV-OC43, HCoV-229E, HHBoV
External quality assessment control WHO/EQAP.

3 - National Institute of Epidemiology (Mar del Plata)
IFA, RT-PCR, AV, IHA, sequencing, antiviral susceptibility. Viral characterization of human influenza A(H1pdm, H3, H5, H7, H9, H3v, H1v and Victoria and Yamagata B lineages)
External quality assessment control WHO/EQAP.



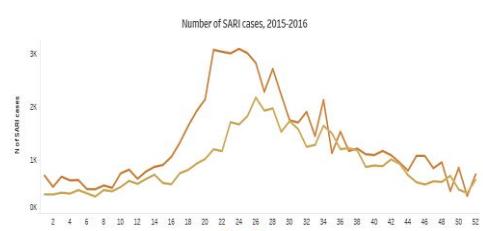
*The data in the surveillance map are updated as of January 2017. The population is a projection as of 2016 by the National Institute of Statistics and Census (INDEC), Argentina.

DATA FROM SEVERE CASES

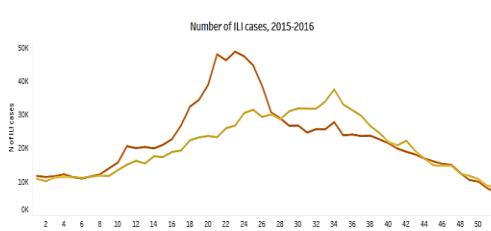
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA⁹

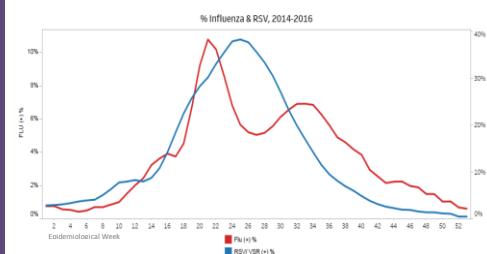


ARI DATA⁹



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere
(*From 1993)

Month of vaccine administration

*in 2016¹⁰

Mar - Dec

% of older adults vaccinated

*in 2014¹⁰

24%*

(*public sector data, Social Security nor private is included)

% of children <5 vaccinated

*in 2014¹⁰

82%**

(**age for children vaccinated is 6-24 months)

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2007

Year of last revision/update

In progress

FluID

In progress

FluNet

Yes

Intersectorial meetings

In progress

Information-sharing between sectors

In progress

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine¹⁰

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,BC,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,IM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VN>

2. National Institute of Statistics and Census. INDEC. National projections. Population estimated as of July 1, 2016. http://www.indec.gob.ar/nivel4/_default.asp?id_tema_1=2&id_tema_2=24&id_tema_3=84

3. American Continental Surface of Argentina http://www.indec.gob.ar/nivel4/_default.asp?id_tema_1=1&id_tema_2=15&id_tema_3=25

4. Vital Statistics: Information basics for Argentina - Year 2015. Ministry of Health. <http://www.msal.gov.ar>

5. PAHO/WHO, Communicable Diseases and Health Analysis / Health Information and Analysis: Health Situation in the Americas: Basic Indicators 2016. Washington, D.C., United States of America, 2016. <http://iris.paho.org/xmlui/handle/123456789/31288>

6. National Direction of Health Regulation and Quality in Health Services, based on the Federal Register of Health Professionals (REFEPS). December 2013.

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. National Health Surveillance System. Health Surveillance Area. Directorate of Epidemiology. Ministry of Health of the Argentine Nation. Year 2016.

9. Control of Immunopreventable Diseases. Ministry of Health of the Argentine Nation. Year 2016.

10. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Barbados



Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 284</p> <p>Population Density (per km²)³: 661</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 11</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 13</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 61</p>	<p>Number of Physicians (per 10,000 population)⁷: NA</p> <p>Percentage of Rural Population⁸: 69%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 1407</p>

*PPP- Purchasing Power Parity

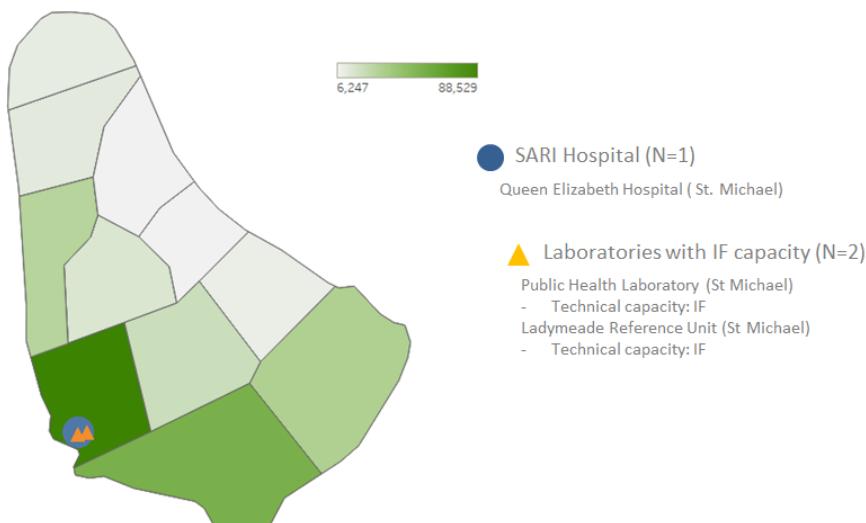
Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
No*	Sentinel	100%	Daily- as collected	Daily	1	Access database	Yes	No
No**	Sentinel	Quota (6 samples /week)	No	NA	13	Excel database	Yes	No
Yes	Sentinel	All SARI cases/Quota of ARI cases	No	NA	2			

*Sudden onset of fever (>38°C/100.4°F) and cough/sore throat and shortness of breath or difficulty breathing and requiring hospital admission

**Acute onset of fever (>38°C/100.4°F) in a previously healthy person, presenting with cough/sore throat with or without respiratory distress

Surveillance Map

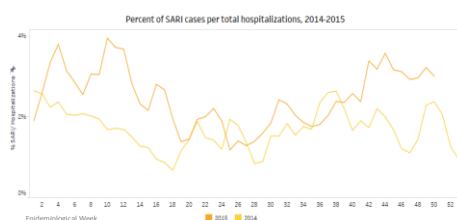


DATA FROM SEVERE CASES

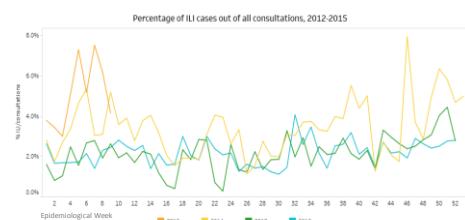
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

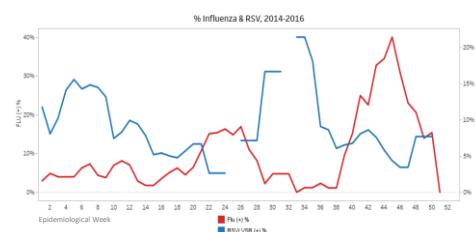


ARI DATA



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

April

% of older adults vaccinated

*in 2014¹²

100%

% of children <5 vaccinated

*in 2014¹²

NA

FluD

In progress

FluNet

Yes

Available

Yes

Part of an all-hazards plan

Yes

Year of original publication

2009

Year of last revision/update

2009

Intersectoral meetings

NA

Information-sharing between sectors

NA

Surveillance of unusual respiratory cases with animal exposure

NA

Influenza Vaccine (0-1)

FluD/FluNet Reporting

Human- Animal Interface for Influenza

Influenza Pandemic Preparedness Plan

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,BR,CA,CL,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015, http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi: 10.1371/journal.pone.0153003

11. Hirve S, S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Belize

Influenza and Other Respiratory Viruses



Sociodemographic Indicators

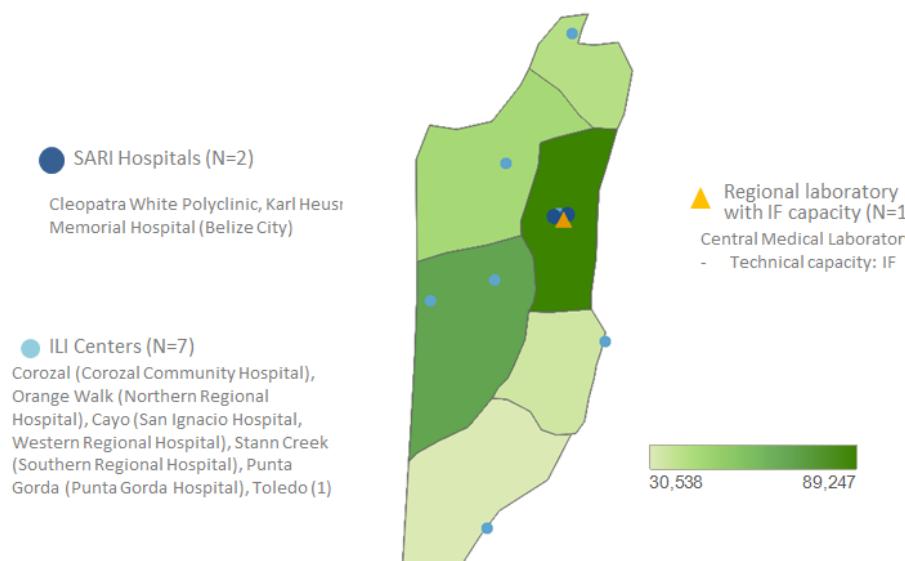
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 359</p> <p>Population Density (per km²)³: 16</p> <p><small>Source¹</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 6</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 16.5</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 105</p>	<p>Number of Physicians (per 10,000 population)⁷: 8.3</p> <p>Percentage of Rural Population⁸: 56%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 458</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Yes	Monthly	2	Belize HealthCare Information System	Yes	No
Yes	National	No	Yes	Monthly	7		No	No
NA	National	100%	Weekly	1-2 every year	7		Yes	No

Surveillance Map



DATA FROM SEVERE CASES

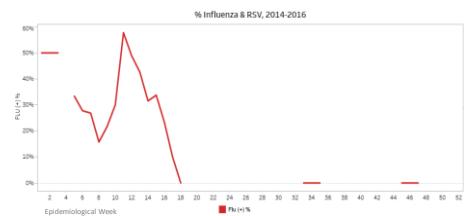
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

No data available.

No data available.

INFLUENZA & RSV DATA
Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

April

% of older adults vaccinated

*in 2014¹²

8.6%

% of children <5 vaccinated

*in 2014¹²

NA

FluID

In progress

FluNet

Yes

Available

No

Part of an all-hazards plan

NA

Year of original publication

NA

Year of last revision/ update

NA

Intersectoral meetings

NA

Information-sharing between sectors

NA

Surveillance of unusual respiratory cases with animal exposure

NA

Influenza Vaccine (0-12)

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human-Animal Interface for Influenza

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. 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=-1&C=AC,AR,BF,BB,BL,BR,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015; <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data. 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics. 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO-World Health Statistics. 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO-World Health Statistics. 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S. 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi: 10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Bolivia (Plurinational State of)

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION		MORTALITY		PUBLIC HEALTH	
Male	Female	Population (per 1,000 population) ² : 10,725	Crude Mortality Rate (per 1,000 population) ⁴ : 7	Number of Physicians (per 10,000 population) ⁷ : 4.7	
		Population Density (per km ²) ³ : 10	All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births) ⁵ : 38.4	Percentage of Rural Population ⁸ : 31%	
Source ¹		Communicable Disease Mortality Rate (per 100,000 population) ⁶ : 226	Public Health Expenditure per Household (PPP* int \$) ⁹ : 332		

*PPP- Purchasing Power Parity

Surveillance Systems

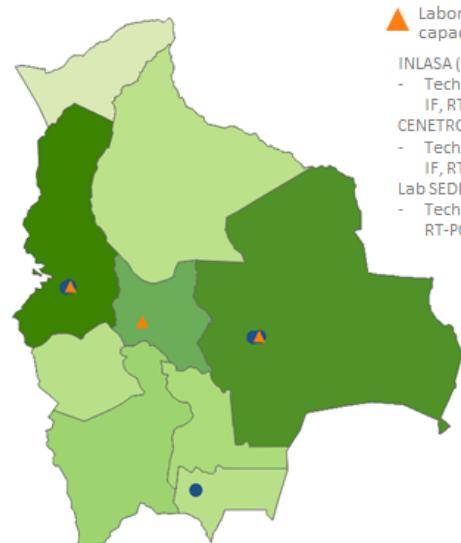
SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Lab and epi integration	Online report
	Yes	Sentinel	100%	Weekly	Monthly	8	International Information System PAHOFlu	Yes
	No*	National	No	Weekly	NA	All hospitals	Sistema de informe nacional (SNIS)	No
	No	National	No	Weekly	NA	All hospitals		
	Yes	National	Yes	Weekly	Weekly	NA	No	No

*Persons who show Acute Respiratory Infection, with fever ≥ 38 °C and cough, for no more than 7 days since symptom onset and requires outpatient management.

Surveillance Map

- SARI Hospitals (N=8)
 - El Alto (Hospital Boliviano Holandés), La Paz (Hospital del Niño, Instituto Nacional del Tórax, Hospital Materno Infantil de la Caja Nacional Seguro, Hospital Arco Iris), Santa Cruz (Hospital San Juan de Dios, Hospital del Niño, Hospital Obrero Número 3 de la Caja Nacional Seguro)

52,525 2,349,885



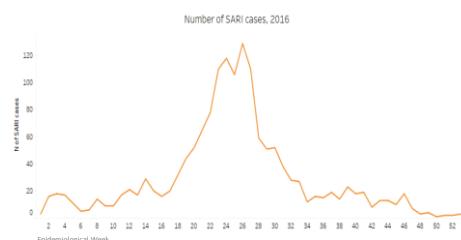
- Laboratory with PCR capacity (N=3)
 - INLASA (La Paz)
 - Technical capacity: IF, RT-PCR, viral isolation
 - CENETROP (Santa Cruz)
 - Technical capacity: IF, RT-PCR, viral isolation
 - Lab SEDES Cochabamba
 - Technical capacity: RT-PCR

DATA FROM SEVERE CASES

DATA FROM AMBULATORY CASES

VIROLOGIC DATA

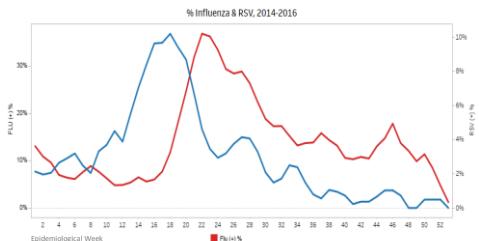
SARI DATA



No data available.

INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

April

*in 2016¹⁰

% of older adults vaccinated¹²

89%

*in 2014¹⁰

% of children <5 vaccinated¹²

44.4%

*in 2014¹⁰

FluID

In progress

FluNet

Yes

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2005

Year of last revision/update

2009

Intersectoral meetings

No

Information-sharing between sectors

In progress

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine I-12

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017: <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=bolt&RT=0&Y=2017&R=-1&C=AC,AR,BF,BB,BL,BR,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HQ,JM,MX,NL,NP,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015: http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016, Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLOS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003

11. Hirve S, Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/rv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immunol 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Brazil

Influenza and Other Respiratory Viruses



Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 207,848 Population Density (per km²)³: 25</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 6 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 16,4 Communicable Disease Mortality Rate (per 100,000 population)⁶: 93</p>	<p>Number of Physicians (per 10,000 population)⁷: 18,9 Percentage of Rural Population⁸: 14% Public Health Expenditure per Household (PPP* int \$)⁹: 1388</p>

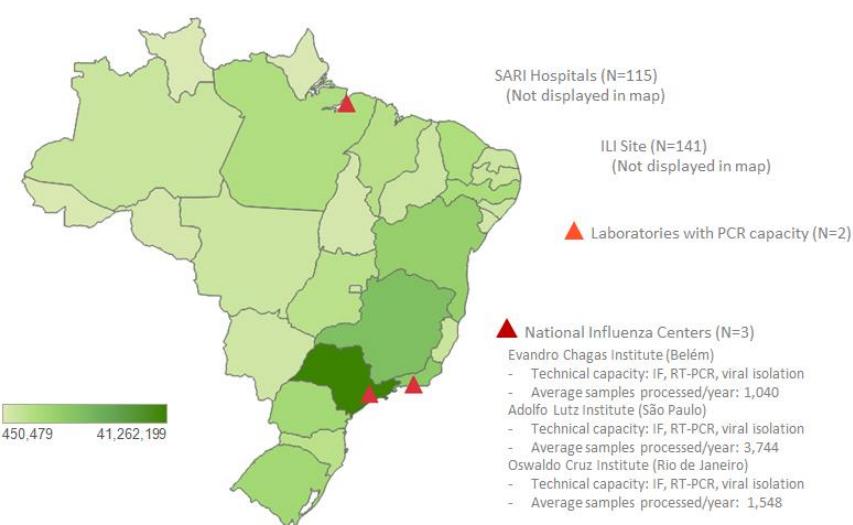
*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
No*	Sentinel	100%	Daily	Annual	115	Sivep-gripe	Yes	Online
No**	Sentinel	100%	Daily	Annual	145			
NA	NA	NA	NA	NA	NA	Information system on mortality - SIM	No	No
Yes	National	100%	Daily	Annual	All hospitals	Sinan influenza web	Yes	Online

* Fever, cough or sore throat and dyspnea **Fever, cough or sore throat for more than 7 days

Surveillance Map

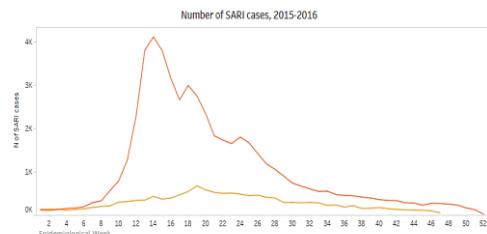


DATA FROM SEVERE CASES

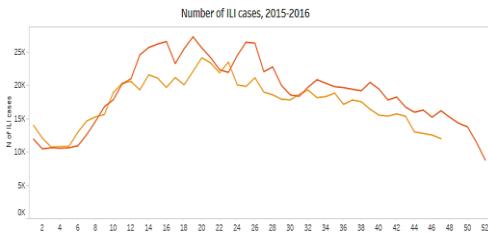
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

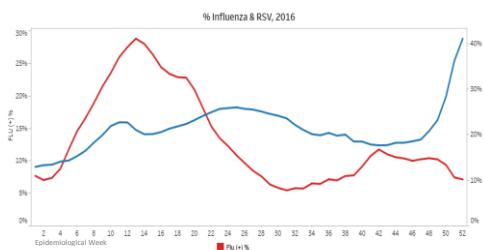


ILI DATA



INFLUENZA DATA

Average Percent Positivity during 2016



Composition

Southern Hemisphere

Month of vaccine administration

April

*in 2016¹⁰

% of older adults vaccinated

86%

*in 2014¹⁰

% of children <5 vaccinated

81.5%

*in 2014¹⁰

FluD

Yes

FluNet

Yes

Available

Yes

Part of an all-hazards plan

NA

Year of original publication

2006

Year of last revision/update

2010

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine

Influenza Pandemic Preparedness Plan

FluD/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb-region.php?N=%20Results%20T=12&A=bolt&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,CA,CL,CO,CS,CU,DO,DR,EC,ES,GJ,GT,YH,HA,HQ,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S. 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003 doi:10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/inv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Canada

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 35,852</p> <p>Population Density (per km²)³: 4</p> <p>Source¹</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 7</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 4.9</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 23</p>	<p>Number of Physicians (per 10,000 population)⁷: 20.7</p> <p>Percentage of Rural Population⁸: 18%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 4610</p>

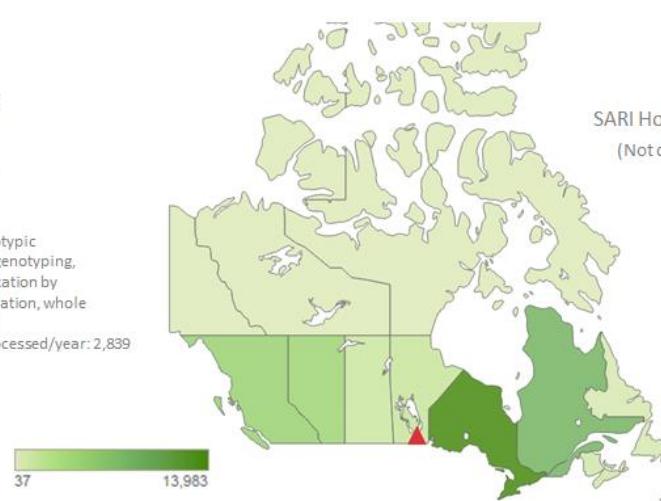
*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	Quota (variable based on necessity)	Variable (Weekly-Monthly)	Annually	12 (pediatric); 15 (adult)	FluWatch	No	Online
Yes	Sentinel	Quota (Each province algorithm-based)	Weekly	Annually	120			
No; ICD-10 codes (J10-J18)	National	Quota (Based on clinical presentation)	Variable	NA	Participating acute-care hospitals	Canadian Institute for Health Information	No	No
No; ICD-10 codes (J00-J22, J44.0)	National	Quota (Each province algorithm-based)	Variable (Weekly-Monthly)	NA	All acute-care hospitals			
NA	National	100%	Variable (Weekly-Monthly)	NA	Participating acute-care hospitals	FluWatch	No	Online
Yes	National	100%	Variable (Weekly-Monthly)	NA	Participating hospitals & community-based practices			

Surveillance Map

- ▲ National Influenza Center (N=1)
- National Microbiology Laboratory (Winnipeg)
 - Technical capacity: real-time RT- PCR, viral isolation, phenotypic antiviral sensitivity, genotyping, antigenic characterization by HAI, micro-neutralization, whole genome sequencing
 - Average samples processed/year: 2,839



SARI Hospitals (N=27)
(Not displayed in map)

ILI Centers (N=120)
(Not displayed in map)

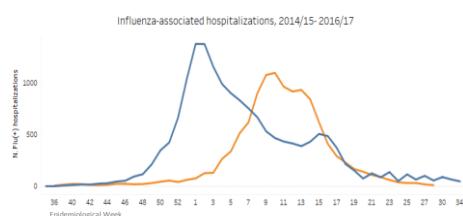
Note: Population as of July 1. Population counted in thousands
Source: Statistics Canada, CANSIM, table 051-0001.
Last modified: 2016-09-28.

DATA FROM SEVERE CASES

DATA FROM AMBULATORY CASES

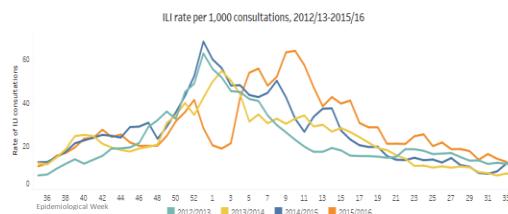
VIROLOGIC DATA

INFLUENZA-ASSOCIATED HOSPITALIZATIONS DATA*



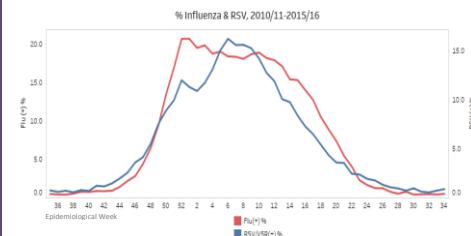
*The numbers of influenza-related hospitalizations are collected through routine surveillance. The numbers are likely an underestimation of hospitalizations in Canada due to many reasons including underreporting. Hospitalizations do not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

ILI DATA



INFLUENZA DATA

Average Percent Positivity during 2010/11-2015/16



Composition

Northern Hemisphere

Month of vaccine administration

*in 2016¹⁰

October

% of older adults vaccinated

65% (≥ 65 years)¹³

% of children <5 vaccinated

31% (6mo to 4yrs)¹³

FluID

Yes

FluNet

Yes

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2004

Year of last revision/update

2017

Intersectoral meetings

No

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine^{10,13}

Influenza Pandemic Preparedness Plan

FluD/FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=18C=AC,AR,BF,BB,BH,BL,BR,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HQ,JM,MX,NJ,PM,PA,PE,SC,ST,VC,Ns,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/chid/health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>

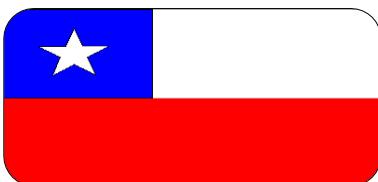
9. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003

11. Hirve S, S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics.; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic H1N1 2009. Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

13. Public Health Agency of Canada, Influenza vaccine uptake, 2017; <https://www.canada.ca/en/public-health/services/publications/healthy-living/vaccine-uptake-results-2015-16-national-influenza-immunization-coverage-survey.html>



Chile

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION		MORTALITY		PUBLIC HEALTH	
Male	Female	Population (per 1,000 population)²: 17,948 Population Density (per km²)³: 24	Crude Mortality Rate (per 1,000 population)⁴: 5 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 8.1 Communicable Disease Mortality Rate (per 100,000 population)⁶: 36	Number of Physicians (per 10,000 population)⁷: 10.2 Percentage of Rural Population⁸: 10%	Public Health Expenditure per Household (PPP* int \$)⁹: 1,610

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	1-2/week to NIC; Daily to local laboratory	1 each year	7	MINSAL/ OPS	Yes	Online
Yes	Sentinel	Quota (5-10 samples/ week)	1-2/week to NIC	Dependent upon evaluation	42			
Yes	National	100%	Daily	According to results and according to quality assessment program	31 hospitals			

Surveillance Map

SARI Hospitals (N=7)

Concepción (Hospital Guillermo Grant Benavente), Iquique, Puerto Montt, Santiago (Hospital San Juan de Dios, Hospital Militar) Viña del Mar (Hospital Gustavo Fricke), Temuco (Hospital de Temuco)

National Influenza Center (N=1)

Public Health Institute of Chile: Respiratory and Exanthematic Virus Section (Viral disease sub department)

- Technical capacity:
Cellular cultivation, IF, RT-PCR, IH, viral isolation, sequencing, phenotype and genotype analysis of antiviral resistance
- Average samples processed/year: 41,808

Laboratories with PCR capacity (N=6)

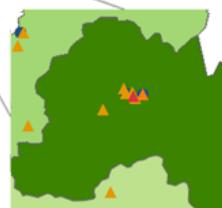
Antofagasta, Concepción, Puerto Montt, Santiago, San Felipe, Temuco

Laboratories with IF capacity (N=24)

Antofagasta, Arica, Atacama, Biobío (2), Coquimbo, Iquique, Los Lagos (2), Los Ríos, Maule (3), Región Aisén, Región Magallanes (2), Región Metropolitana de Santiago (4), Región O'Higgins, Valparaíso (3)

ILI Centers(N=42)
(Not shown on the map)

0 6,360,969

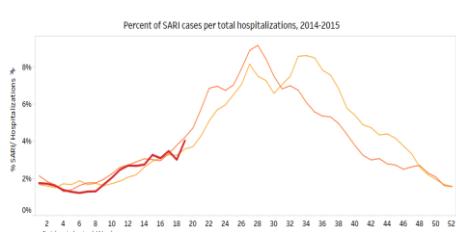


DATA FROM SEVERE CASES

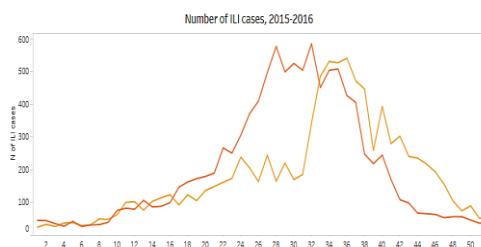
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

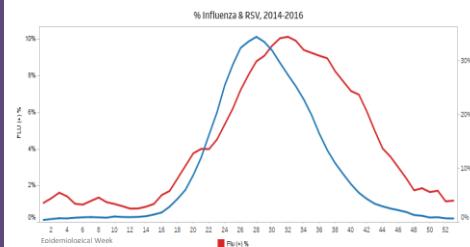


ILI DATA



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

Apr to May

% of older adults vaccinated¹²

*in 2014¹⁰

55%

% of children <5 vaccinated¹²

*in 2014¹⁰

65%

FluID

Yes

FluNet

Yes

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2007

Year of last revision/update

2010

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine 10-15

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=bath&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,BC,CL,CO,CS,CU,DO,EC,ES,GJ,GT,GY,HO,IM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S. 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003 doi:10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immunol 2016; Human Vaccines & Immunotherapeutics, 12, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Colombia

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 48,229 Population Density (per km²)³: 43</p> <p><small>Source¹</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 6 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 15.9 Communicable Disease Mortality Rate (per 100,000 population)⁶: 55</p>	<p>Number of Physicians (per 10,000 population)⁷: 14.7 Percentage of Rural Population⁸: 24% Public Health Expenditure per Household (PPP* int \$)⁹: 808</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Weekly	Yes	13	SIVIGILA	No	Online
No*	Sentinel	100%	Weekly	Yes	7			
No; ICD-10 codes (J09-J18)	National	No	No	No	5,321			
No; ICD-10 codes (J20-22)	National	No	No	No	5,321			
No**	National	100%	Weekly	No	5,321			
NA	NA	NA	NA	NA	NA	ENTERPRISE	No	Online

* Person presenting with Acute Respiratory Infection, with fever ≥ 38 °C and cough, of not more than seven days of evolution, that requires ambulatory management

**All cases of: deaths due to ARI with clinical picture or unknown etiology, clusters of SARI in family settings, workplaces or social groups; mortality in ARI confirmed cases in children under five years of age or in children less than five years who died due to basic, direct or ARI-related

Surveillance Map

SARI Hospitals (N=13)

Arauca, Arauca; Barranquilla, Atlántico; Cali, Valle; Kennedy (Bogotá); Medellín; Antioquia; Pasto, Nariño; Rafael Uribe (Bogotá); San José del Guaviare; Suba (Bogotá); Tunja, Boyacá; Tunjuelito (Bogotá); Usaquén (Bogotá); Villavicencio, Meta

ILI Centers (N=7)

Arauca, Arauca; Cali, Valle; Cartagena, Bolívar; Cúcuta, Norte de Santander; Manizales, Caldas; San José del Guaviare; Villavicencio, Meta

35,230 5,682,310

National Influenza Center(N=1)

- National Institute of Health of Colombia
- Technical capacity:
 - Immunofluorescence (IFI)
 - RT-PCR- in real time and conventional
 - Sequencing
 - Viral isolation
 - Average samples processed/year: 10,452

Regional laboratories with PCR and IF capacity (N=3)

LSPD del Distrito de Bogotá
 LSPD de Antioquia
 LSPD de Nariño

Regional laboratories with IF capacity (N=9)

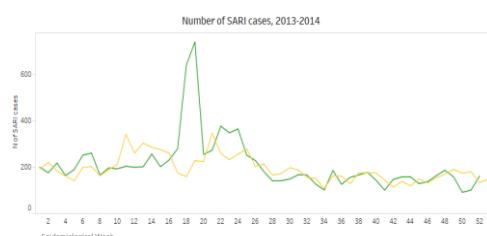
Antioquia, Atlántico, Bogotá, Boyacá, Caldas, Nariño, Norte de Santander, Meta, Valle del Cauca

DATA FROM SEVERE CASES

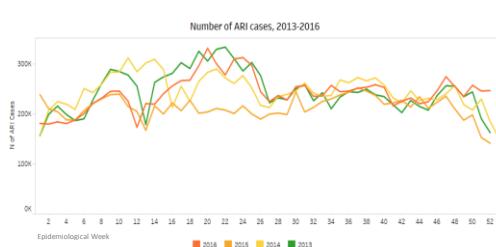
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

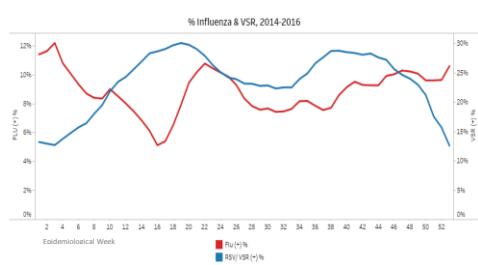


ARI DATA



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

April

% of older adults vaccinated

*in 2014¹²

100%

% of children <5 vaccinated

*in 2014¹²

77.1%

FluD

Yes

FluNet

Yes

Available

Yes

Part of an all-hazards plan

Yes

Year of original publication

2007

Year of last revision/ update

In progress

Intersectoral meetings

Yes

Information-sharing between sectors

In process

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine 0-12

Influenza Pandemic Preparedness Plan

FluD/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=bolt&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,CA,CI,CO,CS,CU,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003 doi:10.1371/journal.pone.0153003

11. Hirve S, Sseasional influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al: Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immunol 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Costa Rica

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

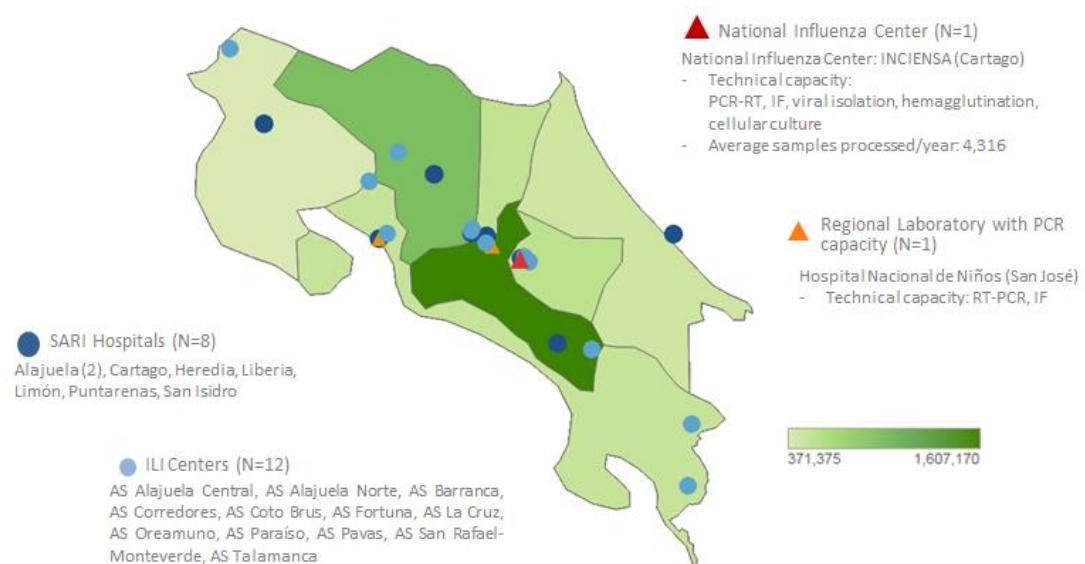
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 4,947</p> <p>Population Density (per km²)³: 94</p> <p><small>Source¹</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 5</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 9.7</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 31</p>	<p>Number of Physicians (per 10,000 population)⁷: 11.1</p> <p>Percentage of Rural Population⁸: 23%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 1350</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
	Yes	Sentinel	Quota (5 samples/week)	Weekly	3/year	8	PAHOFlu	Yes
	Yes	Universal	NA	NA	All that report ILI	Collective Bulletin VE-02	No	No
	No; ICD-10 codes (J12-J18)	Universal	Quota (medical criteria)	NA	NA	All facilities	Compulsory notification collective VE-02	No
	No; ICD-10 codes (J00-J06)	National	Quota (medical criteria)	NA	NA	All facilities	Compulsory notification collective VE-02	No
	NA	Universal	Quota (clinical pathology criteria)	Selection (clinical pathology criteria)	NA	All facilities	Mortality registry	Yes
	NA	Sentinel	Quota* (5/sentinel; 3/Health department) *in outbreak- number increases	Daily to every 2 days	NA	8	Individual SARI registry	Yes

Surveillance Map



DATA FROM SEVERE CASES

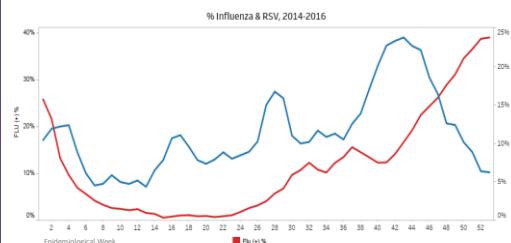
No data available.

DATA FROM AMBULATORY CASES

No data available.

VIROLOGIC DATA

INFLUENZA DATA
Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

*As of 2015

Month of vaccine administration

*in 2016¹⁰

May

% of older adults vaccinated¹²

*in 2014¹²

89.4%

% of children <5 vaccinated¹²

*in 2014¹²

76.2%

FluD

In progress

FluNet

Yes

Available

Yes

Part of an all-hazards plan

In progress

Year of original publication

2009

Year of last revision/update

2016

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine [0-12]

Influenza Pandemic Preparedness Plan

FluD/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017: <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=18C=AC,AR,BF,BB,BH,BL,BR,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NJ,PM,PA,PE,SC,ST,VC,NS,TD,US,U,V,E>

2. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015: <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015: http://www.who.int/gho/chid/health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi: 10.1371/journal.pone.0153003

11. Hirve S, Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/jiv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immn 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Cuba

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

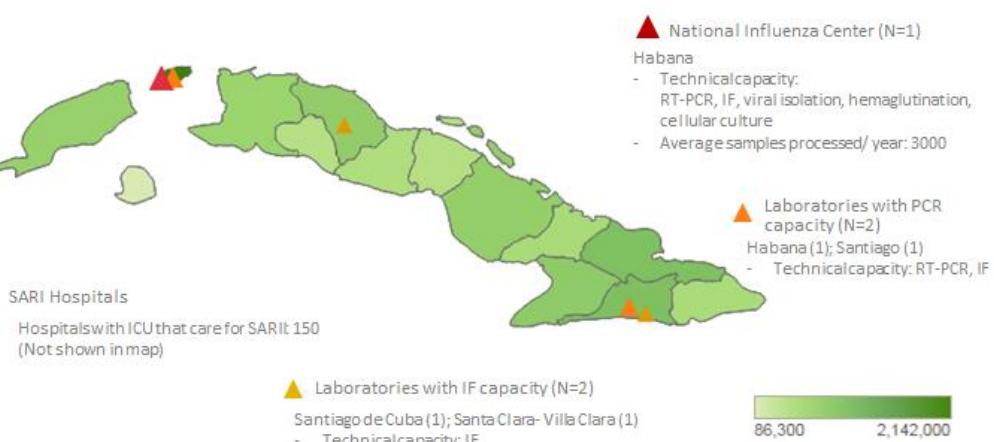
POPULATION		MORTALITY		PUBLIC HEALTH	
Male	Female				
Population (in thousands)	Population (in thousands)				
Age Group					
Source ¹		Population (per 1,000 population) ² : 11,246	Crude Mortality Rate (per 1,000 population) ⁴ : 8.8	Number of Physicians (per 10,000 population) ⁷ : 80.2	
		Population Density (per km ²) ³ : 102.3	All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births) ⁵ : 5.5	Percentage of Rural Population ⁸ : 23%	
			Communicable Disease Mortality Rate (per 100,000 population) ⁶ : 71.9	Public Health Expenditure per Household (PPP* int \$) ⁹ : 641.9	

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
	Yes	National	100%	Daily	NA	150 hospitals with ICU	Boletín epidemiológico IPK	No
	Yes	National	Quota	Daily	NA	NA	No	No
	Yes	National	100%	Daily	NA	NA	No	No
	Yes	National	Quota	Daily	NA	Boletín epidemiológico IPK	No	Online
	NA	National	NA	NA	NA	Boletín epidemiológico IPK	No	Online

Surveillance Map

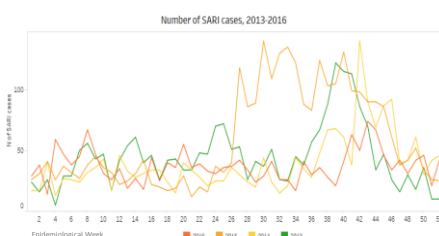


DATA FROM SEVERE CASES

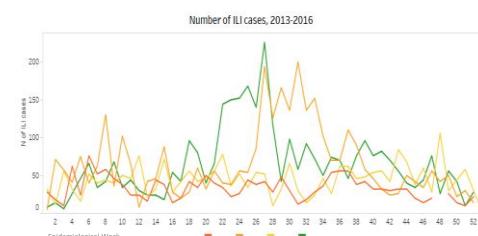
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

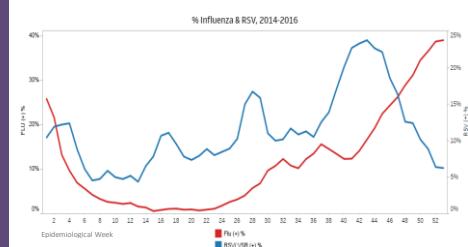


ILI DATA



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

April

% of older adults vaccinated

*in 2014¹²

99.7%

% of children <5 vaccinated

*in 2014¹²

NA

FluID

Yes

FluNet

Yes

Available

Yes

Part of an all-hazards plan

Yes

Year of original publication

2005

Year of last revision/update

2009

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine 10-12

Influenza Pandemic Preparedness Plan

FluD/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb-region.php?N=%20Results%20T=12&B=bolt&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,CA,CL,CO,CS,CU,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S. 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003 doi:10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/iiv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Dominica

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 73 Population Density (per km²)³: 97</p> <p><small>Source*</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 8 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 21.2 Communicable Disease Mortality Rate (per 100,000 population)⁶: NA</p>	<p>Number of Physicians (per 10,000 population)⁷: NA Percentage of Rural Population⁸: 30% Public Health Expenditure per Household (PPP* int \$)⁹: 577</p>

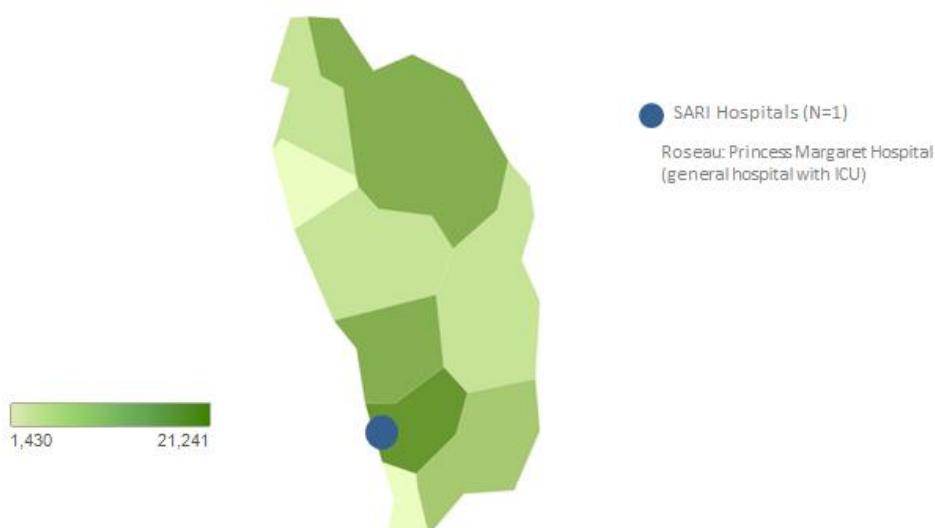
*PPP- Purchasing Power Parity

Surveillance Systems



SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Weekly	Annually	1	No	No	No
Yes	National	Quota (6 samples/week)	Weekly	NA	7 health districts—52 health clinics; 1 general hospital	Dominica Information System for Health (DISH) (In progress)	Yes	No
NA	National	No	No	NA	7 health districts—52 health clinics; 1 general hospital	No	No	No

Surveillance Map



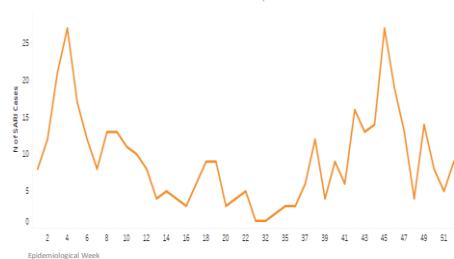
DATA FROM SEVERE CASES

DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

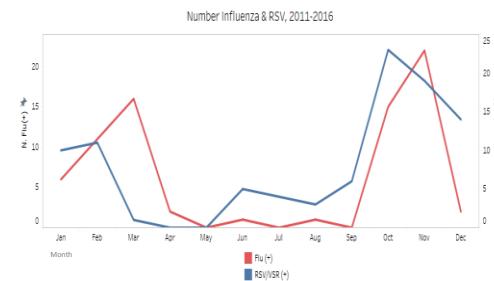
Number of SARI cases, 2016



No data available.

INFLUENZA & RSV DATA

Average Percent Positivity during 2011-2016



Composition

Southern Hemisphere

Month of vaccine administration

April

*in 2016¹⁰

% of older adults vaccinated

NA

*in 2014¹²

% of children <5 vaccinated

NA

*in 2014¹²

FluD

In progress

FluNet

Yes

Available

Yes

Part of an all-hazards plan

Yes

Year of original publication

2008

Year of last revision/ update

2008

Intersectoral meetings

NA

Information-sharing between sectors

NA

Surveillance of unusual respiratory cases with animal exposure

NA

Influenza Vaccine 10-12

Influenza Pandemic Preparedness Plan

FluD/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017: https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=128&A=both&RT=0&Y=2017&R=1&C=AC_AR_BF_BB_BH_BL_BR_CA_CI_CO_CS_CU_DO_DR_EC_ES_GJ_GT_GY_HA_HO_JM_MX_NU_PM_PA_PE_SC_ST_VC_NS_TD_US_UY

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015; <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015. http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015. http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015. http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S. 2016. Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immn 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Dominican Republic

Influenza and Other Respiratory Virus

Sociodemographic Indicators

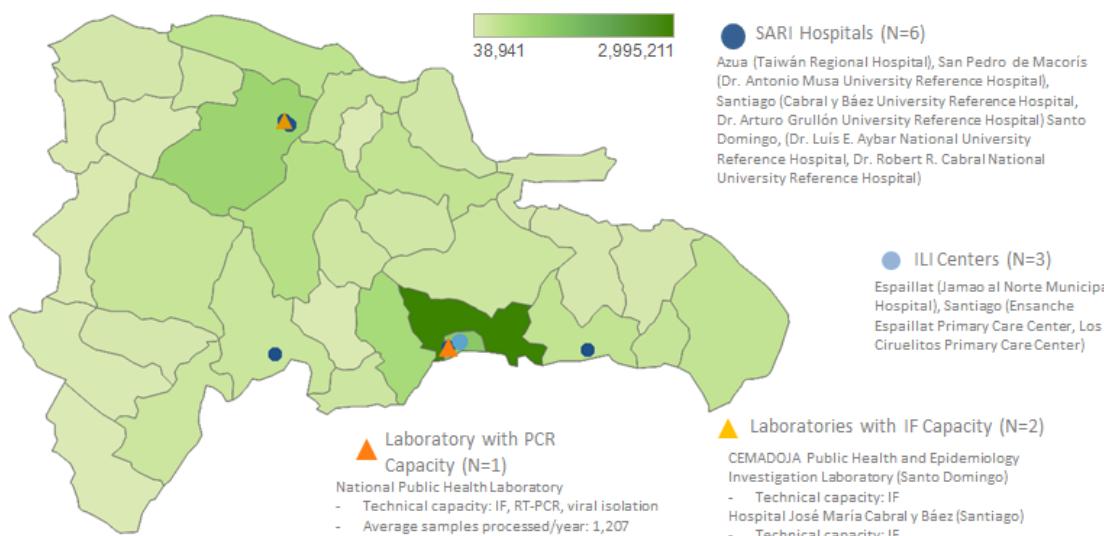
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 10,528</p> <p>Population density (per km²)³: 218</p> <p>Source⁴:</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 6</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 30.9</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 77</p>	<p>Number of Physicians (per 10,000 population)⁷: 14.9</p> <p>Percentage of Rural Population⁸: 21%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 607</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
	Yes	Sentinel	Quota (5 samples/week)	Weekly	1-2 each year	5	Sistema de información de vigilancia epidemiológica (SIVE)	Online
	Yes	Sentinel	Quota (5 samples/week)	Weekly	1-2 each year	1		
	Yes	Sentinel	All SARI/ILI cases	Weekly	1-2 each year	6		

Surveillance Map

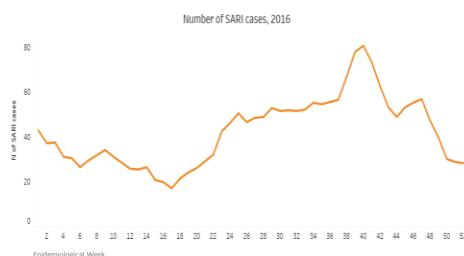


DATA FROM SEVERE CASES

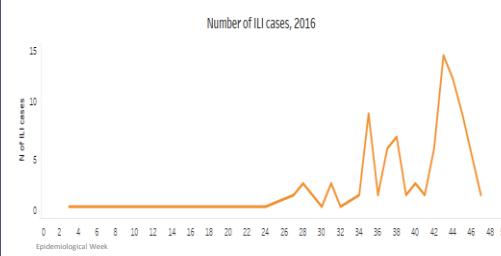
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

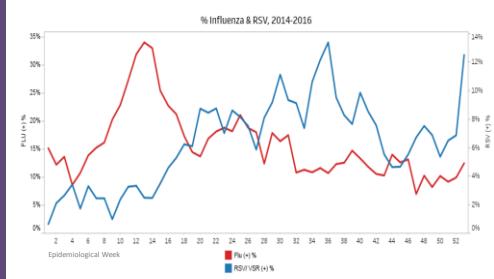


ILI DATA



INFLUENZA DATA

Average Percent Positivity during 2014-2016



Influenza Vaccine 0-12

Composition	Northern Hemisphere
Month of vaccine administration	Sep to Nov *since 2016 ¹⁰
% of older adults vaccinated	83% *in 2014 ¹²
% of children <5 vaccinated	NA *in 2014 ¹²
Available	Yes
Part of an all-hazards plan	Yes
Year of original publication	2009
Year of last revision/update	2017
FluD	In progress
FluNet	Yes
Intersectoral meetings	In process
Information-sharing between sectors	In process
Surveillance of unusual respiratory cases with animal exposure	In process
Human-Animal Interface for Influenza	

Influenza Pandemic Preparedness Plan

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, 2017; https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=b0h&RT=0&Y=2017&R=1&C=AC_AR_BF_BB_BL_BR_CA_CI_CO_CS_CU_DO_DR_ES_GJ_GT_GY_HA_HO_JM_MX_NU_PM_PAPE_SC_ST_VC_NS_TD_US_UY_VE

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/chile/health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S. 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003 doi:10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Ecuador



Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)^{2:} 16,144 Population Density (per km²)^{3:} 65</p> <p><small>Source⁴</small></p>	<p>Crude Mortality Rate (per 1,000 population)^{4:} 5 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)^{5:} 21.6 Communicable Disease Mortality Rate (per 100,000 population)^{6:} 97</p>	<p>Number of Physicians (per 10,000 population)^{7:} 17.2 Percentage of Rural Population^{8:} 36% Public Health Expenditure per Household (PPP* int \$)^{9:} 652</p>

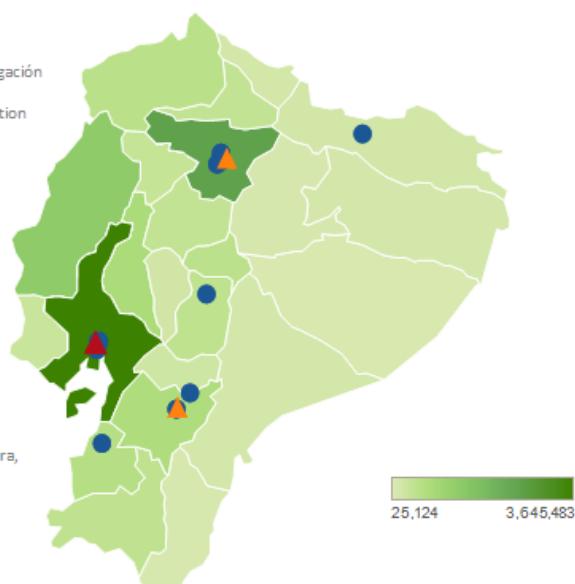
*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Daily	Annual	16	Severe acute respiratory infection surveillance system	Yes	
No; ICD-10 codes (J09-J18)	Universal	No	NA	NA	1839	SIVE Alerta	Yes	
NA	National	NA	NA	NA	NA	NA	Yes	No

Surveillance Map

- ▲ National Influenza Center (N=1)
Instituto Nacional de Salud Pública e Investigación (INSPI) Guayaquil
 - Technical capacity: IF, RT-PCR, viral isolation
 - Average samples processed/year: 6,240
- ▲ Regional Laboratories with PCR Capacity (N=2)
 - INSPI Cuenca
 - Technical capacity: RT-PCR, IF
 - INSPI Quito
 - Technical capacity: RT-PCR, IF
- SARI Hospitals(N=16)
 - Azogues, Cuenca, Guayaquil (6), Imbabura, Nueva Loja, Quito (6), Riobamba

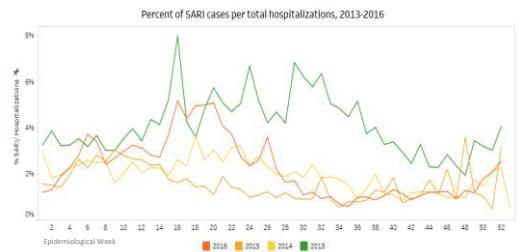


DATA FROM SEVERE CASES

DATA FROM AMBULATORY CASES

VIROLOGIC DATA

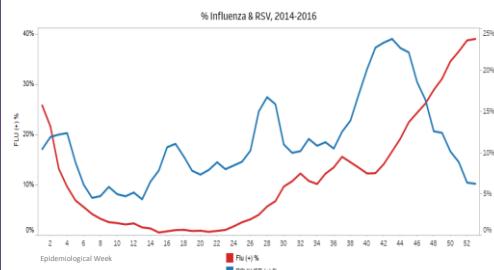
SARI DATA



No data available.

INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Northern Hemisphere

Month of vaccine administration

*in 2016¹⁰

December

% of older adults vaccinated

*in 2014¹²

69%

% of children <5 vaccinated

*in 2014¹²

>80%

FluID

Yes

FluNet

Yes

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2014

Year of last revision/ update

2014

Intersectoral meetings

No

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine 0-12

Influenza Pandemic Preparedness Plan

FluID/FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=beth&RT=0&Y=2017&R=1&C=AC_AR_BF_BB_BH_BL_BR_CA_CI_CO_CS_CU_DO_DR_ES_GJ_GT_GY_HA_HO_JM_MX_NU_PM_PAPE_SC_ST_VC_NS_TD_US_UY_VE

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/chid/health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003 doi:10.1371/journal.pone.0153003

11. Hirve S, Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al., Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12,8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



El Salvador

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 6,127</p> <p>Population Density (per km²)³: 296</p> <p>Source¹</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 7</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 16.8</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 96</p>	<p>Number of Physicians (per 10,000 population)⁷: 16</p> <p>Percentage of Rural Population⁸: 33%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 508</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	Quota (5 samples/week)	Weekly	1-2 each year	4	VIGEPES	Yes	Online
Yes	Sentinel	Quota (3 samples/week)	Weekly	1 each year	39			

Surveillance Map

SARI Hospitals(N=4)

Santa Ana (Hospital San Juan de Dios Santa Ana), San Salvador (Hospital San Salvador SS Benjamin Bloom), Cojutepeque (Hospital Cojutepeque "Nuestra Señora de Fátima"), San Miguel (Hospital San Miguel "San Juan de Dios")

ILI Centers (N=8)

Santa Ana (2), La Libertad (1), San Salvador (3), Cuscatlán (1), San Miguel (1)

National Influenza Center (N=1)

Laboratorio Nacional de Referencia Doctor Max Bloch

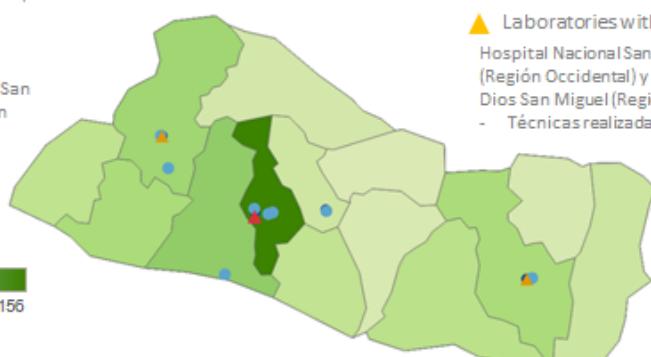
- Technical capacity:
IF, RT-PCR, viral isolation
- Average samples processed/year: 2,392

Laboratories with IF capacity (N=2)

Hospital Nacional San Juan de Dios Santa Ana (Región Occidental) y Hospital Nacional San Juan de Dios San Miguel (Región Oriental)

- Técnicas realizadas: IF

149,326 1,567,156

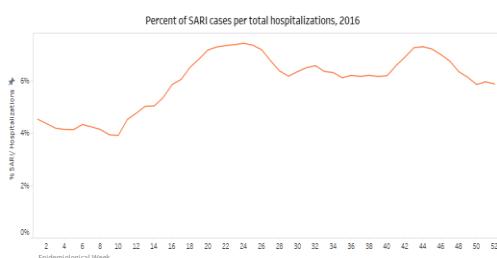


DATA FROM SEVERE CASES

DATA FROM AMBULATORY CASES

VIROLOGIC DATA

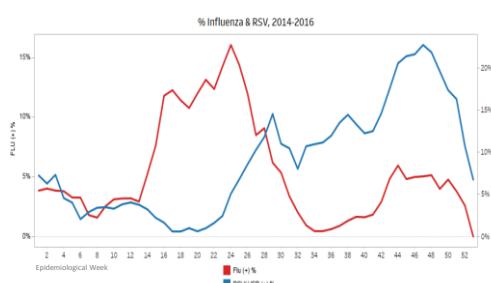
SARI DATA



No data available.

INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

April

% of older adults vaccinated

*in 2014¹²

75%

% of children <5 vaccinated

*in 2014¹²

NA

FluID

Yes

FluNet

Yes

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2006

Year of last revision/update

2013

Intersectoral meetings

No

Information-sharing between sectors

In process

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine 0-12

FluID/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/db/region.php?N=%20Results%20T=12&A=bolt&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,BR,CA,CI,CO,CS,CU,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank Database 2015, <http://data.worldbank.org/indicator/SP.POP.DNST>

4. World Bank Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S. 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003 doi:10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/iiv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immunol 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Grenada

Influenza and Other Respiratory Viruses



Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 107</p> <p>Population Density (per km²)³: 314</p> <p><small>Source¹</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 7</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 11.8</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: NA</p>	<p>Number of Physicians (per 10,000 population)⁷: 6.6</p> <p>Percentage of Rural Population⁸: 64%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 693</p>

*PPP- Purchasing Power Parity

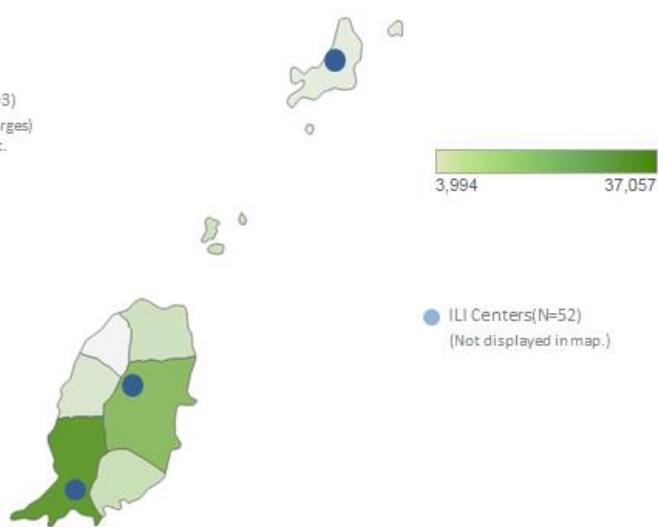
Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	NA	NA	NA	3			
No*	National	NA	NA	NA	52			
NA	National	NA	NA	NA	1			
Yes	Sentinel	7	Weekly	No	36			

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

Surveillance Map

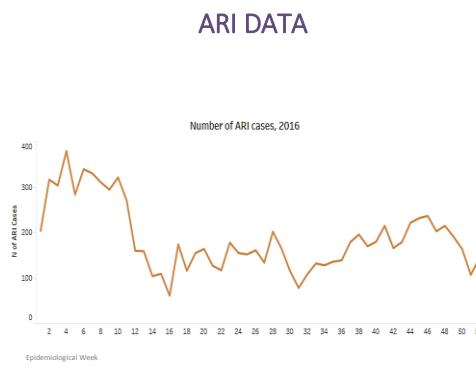
- SARI Hospitals(N=3)
 - General Hospital (St. Georges)
 - Princess Alice Hospital (St. Andrew)
 - Princess Royal Hospital (Carriacou)



DATA FROM SEVERE CASES

No data available.

DATA FROM AMBULATORY CASES



VIROLOGIC DATA

No data available.

Influenza Vaccination¹⁰⁻¹²

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human- Animal Interface for Influenza

Composition	Southern Hemisphere		
Month of vaccine administration <small>*in 2016¹⁰</small>	April	FluID	No
% of older adults vaccinated <small>*in 2014¹²</small>	NA	FluNet	No
% of children <5 vaccinated <small>*in 2014¹²</small>	31		
Available	Yes	Intersectoral meetings	Yes
Part of an all-hazards plan	Yes	Information-sharing between sectors	Yes
Year of original publication	2009	Surveillance of unusual respiratory cases with animal exposure	No
Year of last revision/ update	2009		

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, 2017: <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=-1&C=AC,AR,BF,BB,BL,BR,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015: http://www.who.int/gho/chid_health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1&ua=1

7. WHO-World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO-World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003

11. Hirve S, Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immn 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Guatemala

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

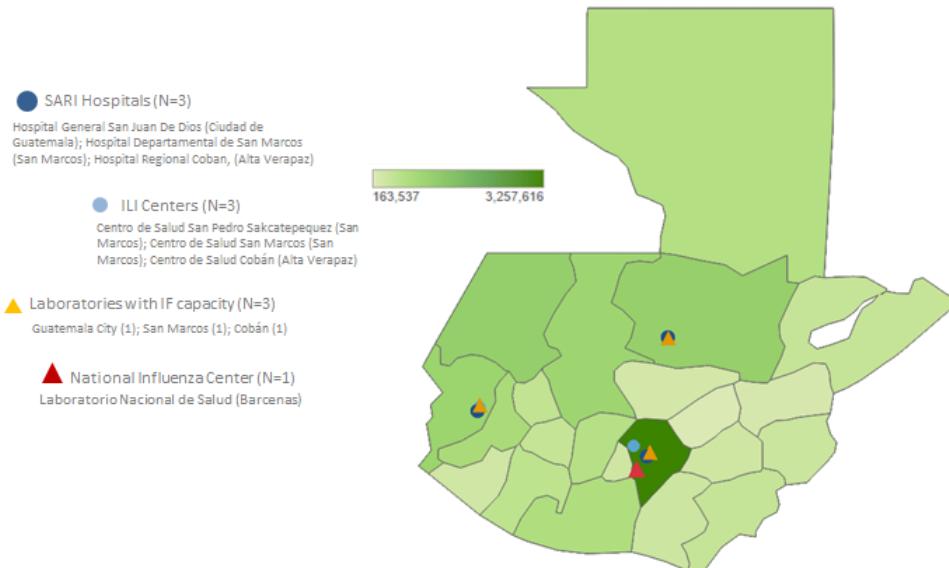
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000)²: 16,556 Population Density (per km²)³: 149</p> <p><small>Source¹</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 5 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 29.1 Communicable Disease Mortality Rate (per 100,000 population)⁶: 79</p>	<p>Number of Physicians (per 10,000 population)⁷: 9.3 Percentage of Rural Population⁸: 50.5% Public Health Expenditure per Household (PPP* int \$)⁹: 245</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
WHO case definition used	Surveillance strategy	Sampling of clinical cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Lab and epi integration	Online report
	Yes	Sentinel	6 samples/week	Daily (local laboratory) and Weekly (NIC)	Trimestral	3	EpiFicha (in process)	Yes
	Yes	Sentinel	6 samples/week	Daily (local laboratory) and Weekly (NIC)	Trimestral	3		
	No; ICD-10 codes (J18.9)	Universal	No	No	NA	All services of the Ministry of Health	SIGSA	No
	No; ICD-10 codes (J00-J06; J09-J18; J20-J22)	National	No	No	NA	All services of the Ministry of Health		
	NA	National	NA	NA	NA	NA	NA	NA

Surveillance Map



DATA FROM SEVERE CASES

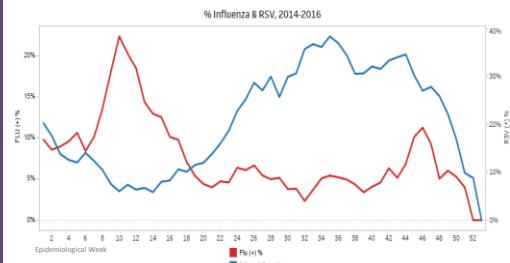
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

No data available.

No data available.

INFLUENZA & RSV DATA
Average Percent Positivity during 2014-2016



Composition Southern Hemisphere

Month of vaccine administration April and May
*in 2016¹⁰

% of older adults vaccinated 64%
*in 2014¹²

% of children <5 vaccinated 7.1%
*in 2014¹²

Available Yes

Part of an all-hazards plan No

Year of original publication 2007

Year of last revision/update 2013

FluID No

FluNet Yes

Intersectoral meetings No

Information-sharing between sectors Yes

Surveillance of unusual respiratory cases with animal exposure No

Influenza Vaccine 10-12

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human-Animal interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/db/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,CA,CL,CO,CS,CU,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003 doi:10.1371/journal.pone.0153003

11. Hirve S, Sseasional influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/fliv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Haiti



Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 10,711 Population Density (per km²)³: 389</p> <p><small>Source¹</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 9 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 69 Communicable Disease Mortality Rate (per 100,000 population)⁶: 405</p>	<p>Number of Physicians (per 10,000 population)⁷: NA Percentage of Rural Population⁸: 41% Public Health Expenditure per Household (PPP* int \$)⁹: 117</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
WHO case definition used	Surveillance strategy	Sampling of clinical cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Lab and epi integration	Online report
Yes	Sentinel	Quota (10 samples/week)	No	Annual	6	NA	Yes	Online
No	National	No	No	NA	652	MESI	No	No

Surveillance Map

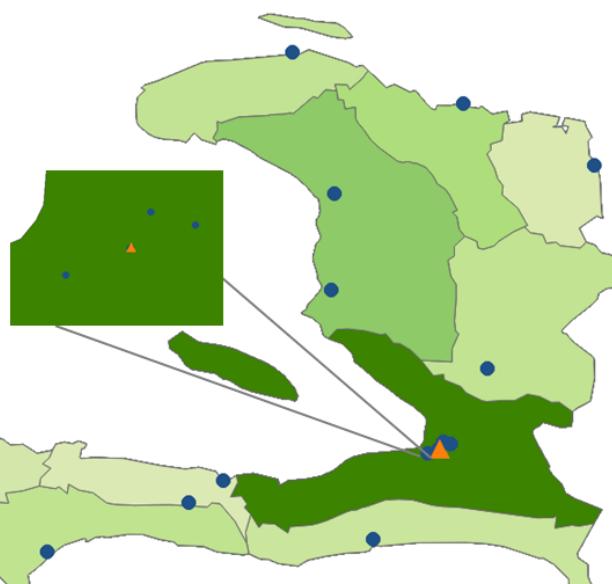
SARI Hospitals (N=15)

Hôpital Foyer Saint Camille (Croix-des-Bouquets), Hôpital pédiatrique Saint Damien (Tabarre), Hôpital Université de la Paix (Delmas), Hôpital de l'Université d'Etat d'Haiti (Port-au-Prince), Hôpital Saint Michel (Jacmel), Hôpital Saint Nicolas (Saint-Marc), Hôpital Universitaire de Mirbalais (Mirabalais), Hôpital Sante Thérèse (Hinche), Hôpital Armée du Salut (Fond-des-Nègres), Hôpital Beraca (Port-de-Paix), Hôpital Universitaire Justinien (Cap Haïtien), Centre Médicosocial de Ouannamintre (Ouannamintre), Haitian Health Foundation (Jérémie), Hôpital Immaculée Conception (Cayes), Hôpital La Providence des Gonaïves (Gonaïves)

National Laboratory with PCR Capacity (N=1)

Laboratoire National de Santé Publique (LNSP)
- Technical capacity: RT-PCR
- Average samples processed/year: 275

311,497 3,664,620



DATA FROM SEVERE CASES

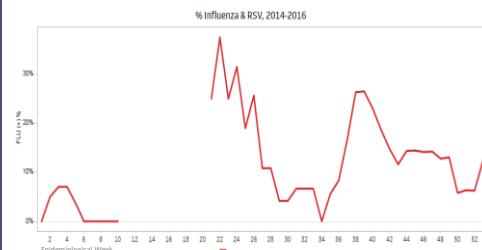
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

No data available.

No data available.

INFLUENZA DATA
Average Percent Positivity during 2014-2016



Composition Southern Hemisphere

Month of vaccine administration April
*in 2016¹⁰

% of older adults vaccinated NA
*in 2014¹²

% of children <5 vaccinated NA
*in 2014¹²

FluID In progress

FluNet Yes

Available Yes

Part of an all-hazards plan No

Year of original publication 2009

Year of last revision/ update 2009

Intersectoral meetings NA

Information-sharing between sectors NA

Surveillance of unusual respiratory cases with animal exposure NA

Influenza Vaccine 0-12

Influenza Pandemic Preparedness Plan

Fluid/ FluNet Reporting

Human- Animal Interface for Influenza

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, 2017; https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=1&C=A,C_AR,BF,BB,BH,BL,BR,CA,CI,CO,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NL,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/chid/health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003.doi:10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Honduras

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 8,255</p> <p>Population Density (per km²)³: 78</p> <p><small>Source¹</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 5</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 20.4</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 118</p>	<p>Number of Physicians (per 10,000 population)⁷: 9.3</p> <p>Percentage of Rural Population⁸: 45%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 425</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Weekly	2/year	5	SISLOC	Yes	Online
Yes	Sentinel	Quota (7 samples/site)	Weekly	2/year	3			
Yes	National	NA	NA	NA	28 hospitals			
Yes	Sentinel and National	NA	NA	NA	28 hospitals	SISLOC	No	No
NA	1.Sentinel for influenza & 2.National in hospitals	NA	NA	NA	28 Hospitals			
Yes	Sentinel	100% SARI cases	Weekly	2/year	7	SISLOC	Yes	Online

Surveillance Map

▲ National Influenza Center (N=1)

Laboratorio Nacional de Virología (Tegucigalpa)

- Technical capacity:
IF, RT-PCR, viral isolation
- Average samples processed/year: 1,716

● SARI Hospitals (N=5)

San Pedro Sula (Hospital San Pedro Sula Instituto , Hondureño de Seguridad Social (IHSS) Hospital Mario C. Rivas), Tegucigalpa (Instituto Nacional Cardiopulmonar, Hospital Militar, Hospital Seguro Social)

● ILI Centers (N=3)

San Pedro Sula (Consultas externas del IHSS, CESAMO Paz Barahona), Tegucigalpa (Centro de Salud con Médico y Odontólogo (CESAMO) Alonso Suazo)

▲ Regional Laboratories with IF Capacity (N=2)

Regional Laboratory of Tegucigalpa
Regional Laboratory of San Pedro Sula

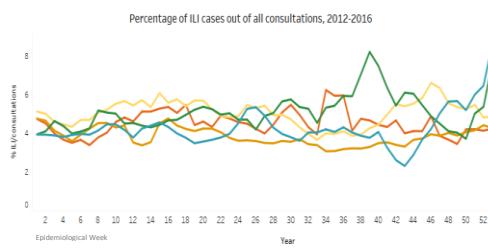
- Technical capacity: IF

6,247 2,405,020

SARI DATA

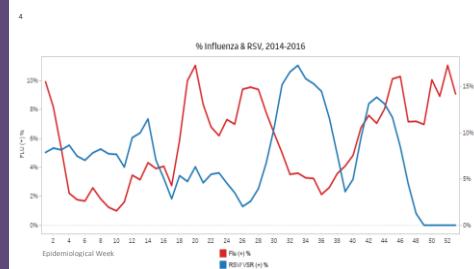


ILI DATA



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

^{*in 2016¹⁰}

May

% of older adults vaccinated

^{*in 2014¹²}

87%

(482,148/552,322)

% of children <5 vaccinated

^{*in 2014¹²}

64%

(Only chronic patients are vaccinated, first + second dose is the 64%)

Available

Yes

Part of an all-hazards plan

Yes

Year of original publication

2013

Year of last revision/update

In progress

FluID

In progress

FluNet

Yes

Intersectoral meetings

No

Information-sharing between sectors

In progress

Surveillance of unusual respiratory cases with animal exposure

Yes

1. U.S. Census Bureau, Population Pyramid, 2017: https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=-1&C=AC_AR_BF_BB_BH_BL_BR_CA_CI_CO_CS_CU_DO_DR_EC_ES_GJ_GT_GY_HA_HQ_JM_MX_NU_PM_PA_PE_SC_ST_VC_NS_TD_US_UY_VF2. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.POP.TOTL>3. World Bank, Database 2015: <http://data.worldbank.org/indicator/EN.POP.DNST>4. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>5. Global Health Observatory (GHO) Data, 2015: http://www.who.int/gho/child_health/mortality/mortality_under_five/en/6. WHO-World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=17. WHO-World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=18. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.RUR.TOTL>9. WHO-World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S. 2016. Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003

11. Hirve S. Sseasional influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/rv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Jamaica



Influenza and Other Respiratory Viruses

Sociodemographic Indicators

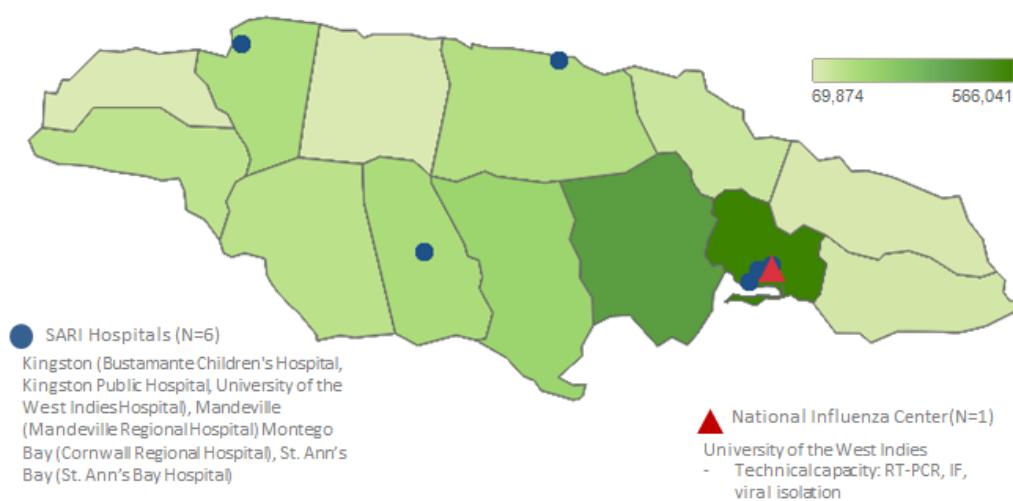
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 2,726 Population Density (per km²)³: 252</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 6 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 15.7 Communicable Disease Mortality Rate (per 100,000 population)⁶: 97</p>	<p>Number of Physicians (per 10,000 population)⁷: 4.1 Percentage of Rural Population⁸: 45% Public Health Expenditure per Household (PPP* int \$)⁹: 431</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Weekly	Annually	6	Tryton	Yes	Online
No; ICD-10 codes	Sentinel	100%	Daily	NA	77			
Yes	National	100%	Daily	NA	Potentially all healthcare facilities	NA	NA	NA

Surveillance Map

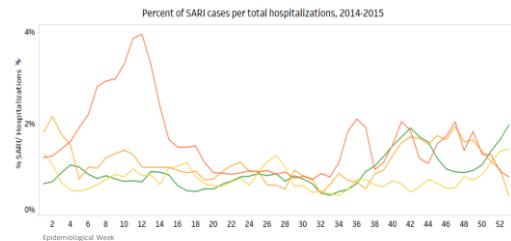


DATA FROM SEVERE CASES

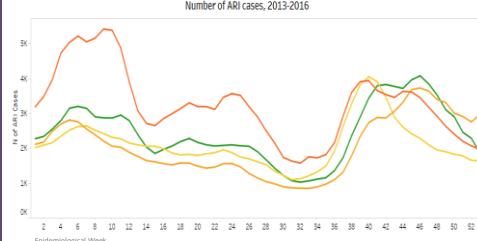
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

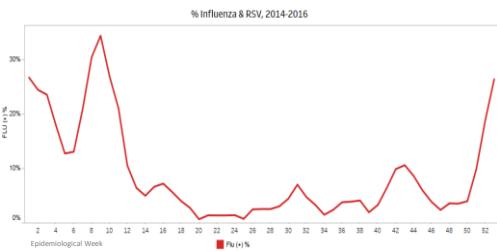


ARI DATA



INFLUENZA DATA

Average Percent Positivity during 2014-2016



Composition

Northern Hemisphere

Month of vaccine administration

*in 2016¹⁰

October

% of older adults vaccinated

*in 2014¹²

NA

% of children <5 vaccinated

*in 2014¹²

NA

FluID

Yes

FluNet

Yes

Available

Yes

Intersectoral meetings

Yes

Part of an all-hazards plan

No

Information-sharing between sectors

Yes

Year of original publication

2007

Surveillance of unusual respiratory cases with animal exposure

No*

Year of last revision/ update

2009

Influenza Vaccine (0-1)

FluID/ FluNet Reporting

Influenza Pandemic Preparedness Plan

Human-Animal Interface for Influenza

*Any unusual human event is a class 1 disease and needs to be notified immediately on suspicion

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,BC,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015; <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/lrv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Mexico



Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 123,518 Population Density (per km²)³: 65</p> <p><small>Source⁴</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 5.78 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 11.38 Communicable Disease Mortality Rate (per 100,000 population)⁶: 58</p>	<p>Number of Physicians (per 10,000 population)⁷: 21 Percentage of Rural Population⁸: 21%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 1,062</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
No*	Sentinel	100%	Weekly	5/year***	398	SISVEFLU	Yes	Online
No**	Sentinel	10%/ day	Weekly	5/year***	560			
Yes	Sentinel	100%	Weekly	5/year***	560			

* A person of any age who has difficulty breathing, with a history of fever greater than or equal to 38 ° C and cough, with one or more of the following symptoms: an attack on the general condition, chest pain or polypnea.

**Person of any age who presents or refers to having a fever greater than or equal to 38 ° C, cough, and headache, accompanied by one or more of the following signs or symptoms: rhinorrhea, coryza, arthralgia, myalgia, prostration, odynophagia, chest pain Abdominal pain, nasal congestion or diarrhea. In children under five years of age, irritability is considered a cardinal sign, replacing headache. In older than 65 years, fever will not be

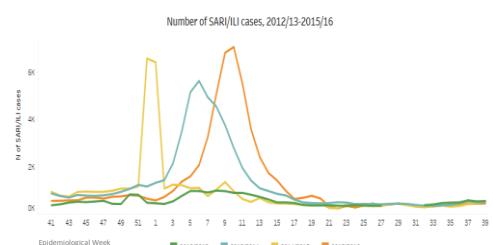
***There are 5 visits during the year to 5 sentinel sites of the country

Surveillance Map



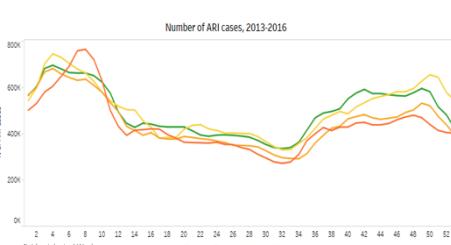
DATA FROM SEVERE CASES

SARI DATA¹⁰



DATA FROM AMBULATORY CASES

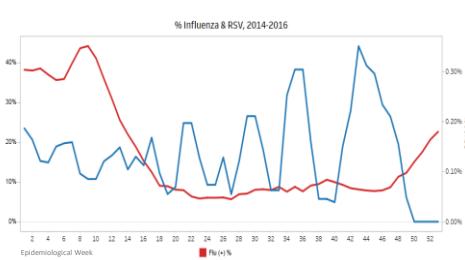
ARI DATA¹⁰



VIROLOGIC DATA

INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Influenza Vaccine (0-12)

Composition

Northern Hemisphere

Month of vaccine administration *in 2016¹⁰

October

% of older adults vaccinated *in 2014¹²

90.6%

% of children <5 vaccinated *in 2014¹²

79.1%

Influenza Pandemic Preparedness Plan

Available

Yes

Part of an all-hazards plan

Yes

Year of original publication

2006

Year of last revision/update

2010

FluID

In progress

FluNet

Yes

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

FluID/FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; https://www.census.gov/population/international/data/db/region.php?N=%20Results%20&T=12&A=b0th&RT=0&Y=2017&R=1&C=AC_AR_BF_BB_BL_BR_CA_CI_CO_CS CU_DR_EC_ES_GJ_GT_GY_HA_HO_JM_MX_NU_PM_PAPE_SC_ST_VCN_IS_TD_US_UY_VE

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015; <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. México National Influenza Surveillance- Dirección General de Epidemiología- sources from <http://www.epidemiologia.salud.gob.mx>

11. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003.doi:10.1371/journal.pone.0153003

12. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

13. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Nicaragua

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

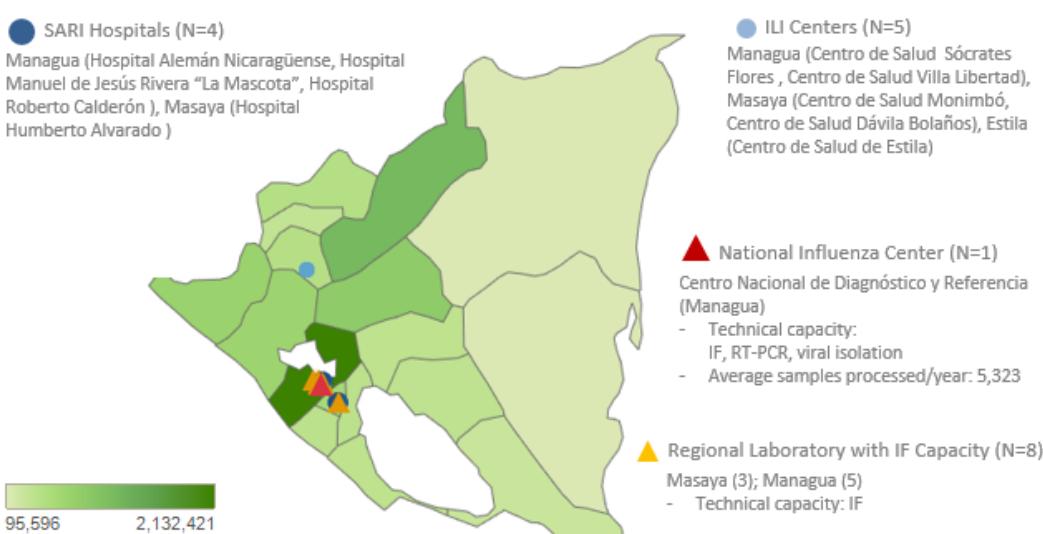
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 6,082</p> <p>Population Density (per km²)³: 51</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 5</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 22.1</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 75</p>	<p>Number of Physicians (per 10,000 population)⁷: 9</p> <p>Percentage of Rural Population⁸: 41%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 355</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
	Yes	Sentinel	100%	3x/week (or immediately in severe cases)	Weekly	4	SIVEFLU	Yes
	Yes	Sentinel	Quota (3 samples/ week)	3x/week	Weekly	5		
	No; ICD-10 codes (J12-J18)	National	No	No	NA	All healthcare establishments	SIVE	No
	No; ICD-10 codes (J09-J11)	National	No	No	NA	>1000		
	NA	National	No	No	NA	>1000	SIVEFLU	Yes
	No	Sentinel	100%	Weekly ((or immediately in severe cases)	NA	9		

Surveillance Map

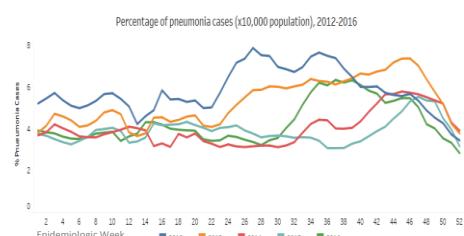


DATA FROM SEVERE CASES

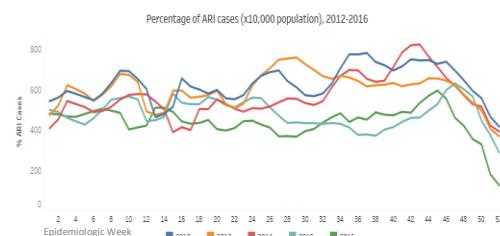
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

PNEUMONIA DATA

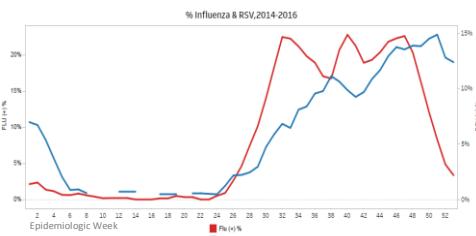


ARI DATA



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

April

% of older adults vaccinated

*in 2014¹²

NA

% of children <5 vaccinated

*in 2014¹²

NA

FluID

No

FluNet

Yes

Available

Yes

Part of an all-hazards plan

Yes

Year of original publication

2009

Year of last revision/ update

2012

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine 0-12

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human- Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=bolt&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,CA,CI,CO,CS,CU,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003

11. Hirve S, Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics, doi: 10.1111/inv.12374

12. Ropero A et al: Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Panamá



Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 3,975 Population Density (per km²)³: 53</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 4.6 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 3.4 Communicable Disease Mortality Rate (per 100,000 population)⁶: 41.2</p>	<p>Number of Physicians (per 10,000 population)⁷: 15.7 Percentage of Rural Population⁸: 33% Public Health Expenditure per Household (PPP* int \$)⁹: 1299</p>

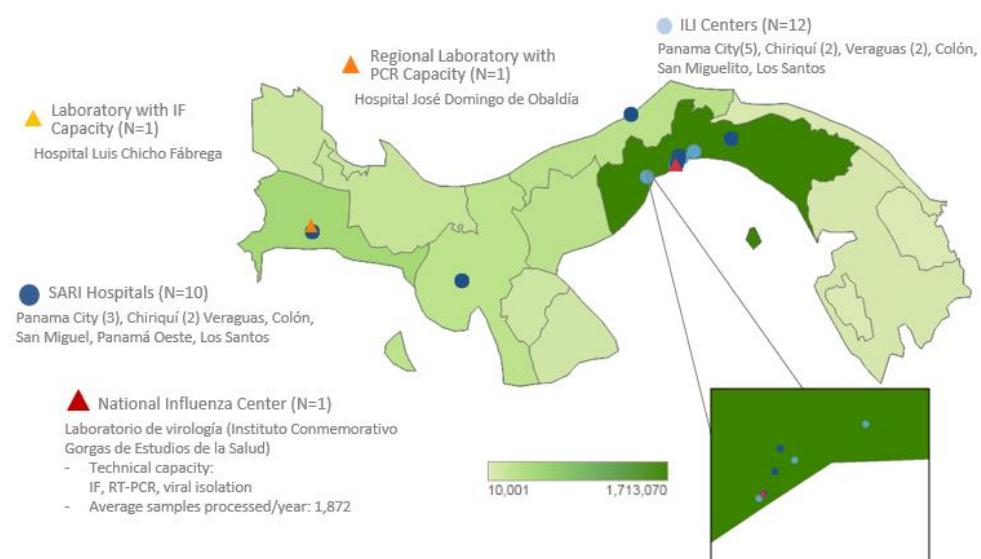
*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
WHO case definition used	Surveillance strategy	Sampling of clinical cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Lab and epi integration	Online report
	Yes	Sentinel	Weekly quota	Daily or weekly	Annual	19	SISVIG	No
	Yes	Sentinel	Weekly quota	Daily or weekly	Annual	19		
	No	National	NA	No	Annual	315		
	No*	National	NA	No	Annual	315		
	NA	National	All suspected influenza viruses	Immediate	Annual	45		
	Yes	Sentinel and national	All unusual SARI	Immediate	Annual	45		

*Same definition as ILI

Surveillance Map



DATA FROM SEVERE CASES

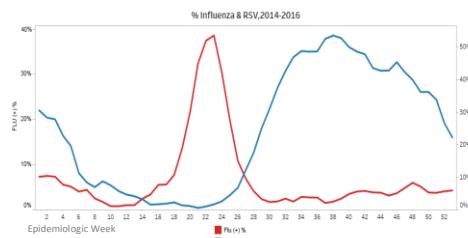
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

No data available.

No data available.

INFLUENZA & RSV DATA
Average Percent Positivity during 2014-2016

**Composition** Southern Hemisphere**Month of vaccine administration** April
*in 2016¹⁰**% of older adults vaccinated** 68.8%
*in 2014¹²**% of children <5 vaccinated** 21.7%
*in 2014¹²**FluID** In progress**FluNet** Yes**Available** Yes**Part of an all-hazards plan** NA**Year of original publication** 2009**Year of last revision/ update** NA**Intersectoral meetings** Yes**Information-sharing between sectors** Yes**Surveillance of unusual respiratory cases with animal exposure** Yes

Influenza Vaccine 10-12

Influenza Pandemic Preparedness Plan

FluD/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,CA,CL,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003

11. Hirve S, Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics, doi: 10.1111/inv.12374

12. Ropero A et al: Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immunol 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Paraguay



Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 6,639</p> <p>Population Density (per km²)³: 17</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 6</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 20.5</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 77</p>	<p>Number of Physicians (per 10,000 population)⁷: 12.3</p> <p>Percentage of Rural Population⁸: 40%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 690</p>

*PPP- Purchasing Power Parity

Surveillance Systems

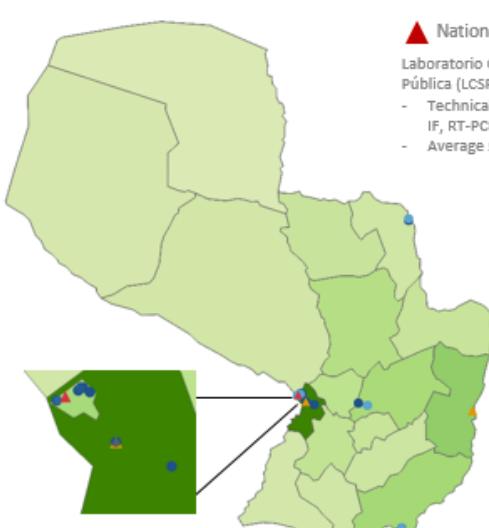
SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Lab and epi integration	Online report
No*	Sentinel	100%	2-3x/week	Weekly	10	ILI and SARI system	Yes	Online
No**	Sentinel	Quota (3-5 samples/week)	2-3x/week	Weekly	5			
No; ICD-10 codes (J09 - J22)	Universal	No	No	NA	1063	ENOS	No	Online
No; ICD-10 codes (J00 - J22)	National	No	No	NA	NA			

*Any person who manifests or has manifested: - Sudden onset of fever (measured or referred) and, Cough and, Difficulty breathing and, Need for hospitalization.

**Any person who manifests: Sudden onset of axillary temperature greater than or equal to 37.5 °C and some of the following symptoms: Cough or sore throat, in the absence of other diagnoses

Surveillance Map

- SARI Hospitals (N=10)**
Asunción (Instituto de Medicina Tropical, Hospital Central del Instituto de Previsión Social, Instituto Nacional de Enfermedades Respiratorias y del Ambiente, Hospital General de Barrio Obrero), Central (Hospital Nacional de Itauguá, Hospital General Pediátrico "Niños de Acosta Ñu"), Ciudad del Este (Hospital Regional de Ciudad del Este) Encarnación (Hospital Regional de Encarnación), Coronel Oviedo (Hospital Regional de Coronel Oviedo); Pedro Juan Caballero (Hospital Regional de Pedro Juan Caballero)
- ILI Centers (N=5)**
Asunción, Ciudad del Este, Coronel Oviedo, Encarnación, Pedro Juan Caballero



National Influenza Center (N=1)

- Laboratorio Central de la Salud Pública (LCSP)
 - Technical capacity: IF, RT-PCR, viral isolation
 - Average samples processed/year: 5,460

11,057 2,297,739

Regional Laboratory with IF Capacity (N=2)

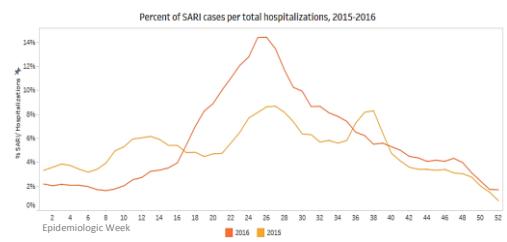
- Laboratorio Hospital Pediátrico de San Lorenzo
- Laboratorio Hospital Ciudad del Este

DATA FROM SEVERE CASES

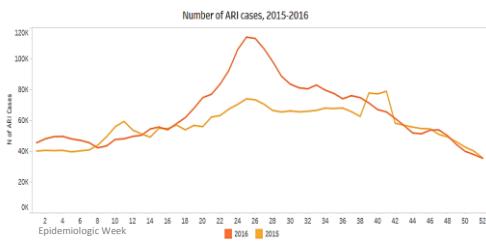
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

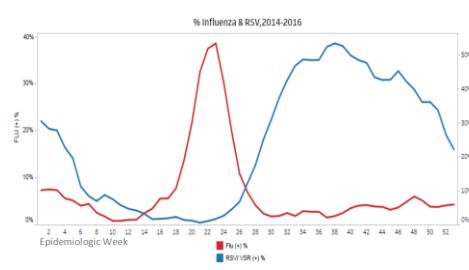


ARI DATA



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

April

% of older adults vaccinated

*in 2014¹²

41.7%

% of children <5 vaccinated

*in 2014¹²

44.8%

FluD

Yes

FluNet

Yes

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2008

Year of last revision/ update

2011

Intersectoral meetings

No

Information-sharing between sectors

In progress

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine 0-12

Influenza Pandemic Preparedness Plan

FluD/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/regrn.php?N=%20Results%20&T=12&A=beth&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BL,BR,CA,CI,CO,CS,CU,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>
2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.TOTL>
3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>
4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CRTT.IN>
5. Global Health Observatory (GHO) Data 2015, http://www.who.int/gho/chid/health/mortality/mortality_under_five/en/
6. WHO-World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
7. WHO-World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>
9. WHO-World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003
11. Hirve S, Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics, doi: 10.1111/inv.12374
12. Ropero A et al: Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immunol 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Peru

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

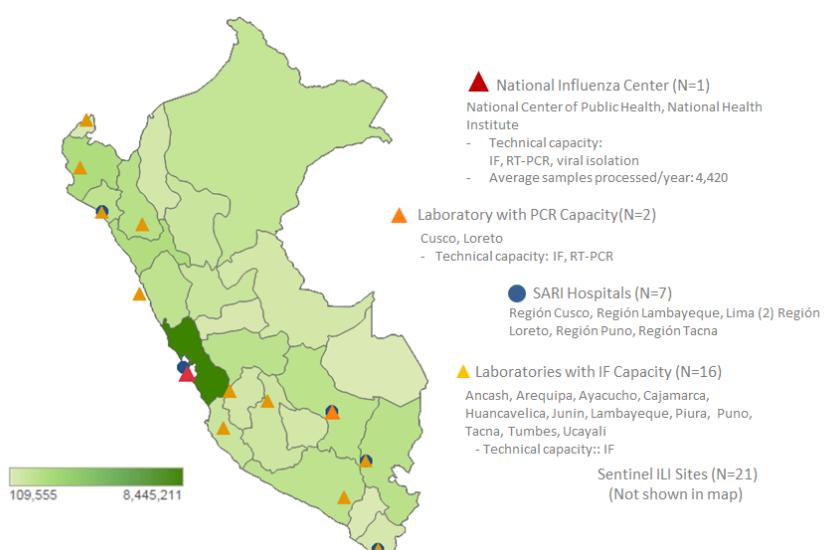
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 31,377</p> <p>Population Density (per km²)³: 25</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 67</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 16.9</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 121</p>	<p>Number of Physicians (per 10,000 population)⁷: 11.3</p> <p>Percentage of Rural Population⁸: 21%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 575</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Daily	Annual	7	SIEpi-flu	No	Online
Yes	Sentinel	Quota	2x/week	Annual	21			
No	National	NA	NA	NA	NA	NA	NA	NA
NA	National	NA	NA	NA	NA			

Surveillance Map

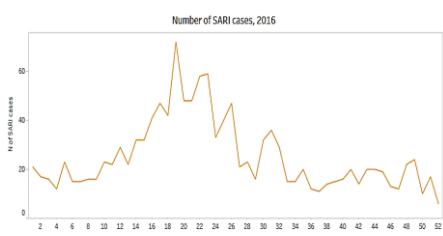


DATA FROM SEVERE CASES

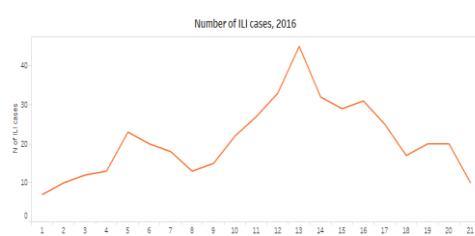
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

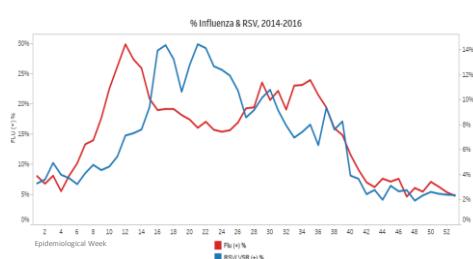


ILI DATA



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

April

% of older adults vaccinated¹²

*in 2014¹⁰

89%

% of children <5 vaccinated¹²

*in 2014¹⁰

36.5%

FluD

In progress

FluNet

Yes

Available

Yes

Intersectoral meetings

Yes

Part of an all-hazards plan

No

Information-sharing between sectors

Yes

Year of original publication

2007

Surveillance of unusual respiratory cases with animal exposure

Yes

Year of last revision/update

2014

Influenza Vaccine 10-12

Influenza Pandemic Preparedness Plan

FluD/FluNet Reporting

Human-Animal Interface for Influenza

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, 2017: <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=t2&A=both&RT=0&Y=2017&R=1&F=AC.AR.BF.BB.BL.BR.CA.CI.CO.CS.CU.DO.DR.EC.ES.GJ.GT.GY.HA.HQ.JM.MX.NU.PM.PA.PE.SC.ST.VC.NS.TD.US.UV.VE>

2. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.POP.TOTL>

3. World Bank, Database 2015: <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015: http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO-World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO-World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO-World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S. 2016. Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLOS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003

11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immunol 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Puerto Rico

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 3,474</p> <p>Population Density (per km²)³: 392</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 9</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: NA</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: NA</p>	<p>Number of Physicians (per 10,000 population)⁷: NA</p> <p>Percentage of Rural Population⁸: 6%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: NA</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	National	100%	Daily	NA	60	Green Base System (local system)	Yes	Online

Surveillance Map



▲ Laboratory with IF capacity (N=1)

CDC Center for Disease Control and Prevention Laboratory
-Technical capacity: IFA capacity

6,247 395,326

DATA FROM SEVERE CASES

DATA FROM AMBULATORY CASES

VIROLOGIC DATA

No data available.

No data available.

No data available.

Composition Northern Hemisphere**Month of vaccine administration**^{*in 2016¹⁰}

October

% of older adults vaccinated^{*in 2014¹²}

NA

% of children <5 vaccinated^{*in 2014¹²}

NA

FluID

No

FluNet

No

Available Yes**Part of an all-hazards plan** No**Year of original publication** NA**Year of last revision/update** 2016**Intersectoral meetings** NA**Information-sharing between sectors** NA**Surveillance of unusual respiratory cases with animal exposure** NAInfluenza Vaccine¹⁰⁻¹²

Influenza Pandemic Preparedness Plan

FluID/FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=1&C=AC,AR,BF,BH,BL,BR,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NI,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>.

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>

5. Global Health Observatory (GHO) Data, 2015, http://www.who.int/gho/child_health/mortality/mortality_under_five/en/

6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003.doi:10.1371/journal.pone.0153003

11. Hirve S, Sseasional influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Saint Lucia

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

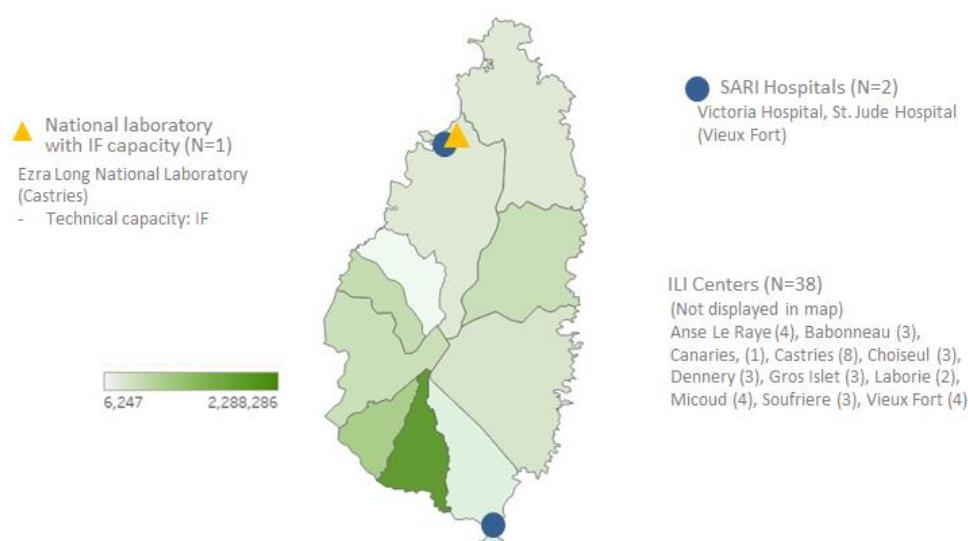
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 185 Population Density (per km²)³: 303 Source¹</p>	<p>Crude Mortality Rate (per 1,000 population)^{4,7}: 14.3 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 14.3 Communicable Disease Mortality Rate (per 100,000 population)⁶: NA</p>	<p>Number of Physicians (per 10,000 population)^{7,1,1}: 1.1 Percentage of Rural Population⁸: 81% Public Health Expenditure per Household (PPP* int \$)⁹: 829</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
	Yes	Sentinel	100%	Weekly	Weekly	2	SluFlu	Yes
	Yes	Sentinel	Quota (6 samples/week)	Yes	Weekly	39	Syndromic Surveillance Database	Yes
	No; ICD-10 codes	National	Yes	Yes	NA	All hospitals	NA	NA
	NA	Sentinel	Yes	Yes	NA	2	Hospitalization Database	Yes
	Yes	National	Quota (6 samples/week)	Yes	NA	39	Hospitalization and Laboratory Database	Yes
								Online

Surveillance Map

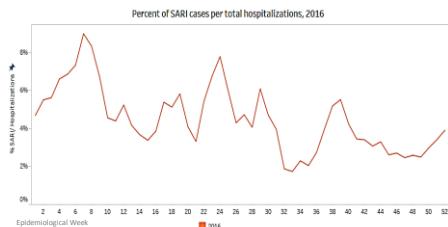


DATA FROM SEVERE CASES

DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA



No data available.

No data available.

Composition

Southern Hemisphere

Month of vaccine administration

*in 2016¹⁰

April

% of older adults vaccinated

*in 2014¹²

NA

% of children <5 vaccinated

*in 2014¹²

NA

FluID

In progress

FluNet

Yes

Available

Yes

Intersectoral meetings

In process

Part of an all-hazards plan

Yes

Information-sharing between sectors

In process

Year of original publication

2006

Surveillance of unusual respiratory cases with animal exposure

In process

Year of last revision/update

2009

Influenza Vaccine¹⁰⁻¹²

FluID/FluNet Reporting

Influenza Pandemic Preparedness Plan

Human-Animal interface for Influenza

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. 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=-1&C=AC,AR,BF,BB,BH,BL,BR,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,V,C,N,S,T,D,US,UY,VE>

2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>.

3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>

4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CORT.IN>

5. Global Health Observatory (GHO) Data, 2015, http://www.who.int/gho/child_health/mortality/mortality_under_five/en#

6. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

7. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>

9. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1

10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003.doi:10.1371/journal.pone.0153003

11. Hirve S, 2016; Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374

12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vaccimm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Saint Vincent and the Grenadines



Influenza and Other Respiratory Viruses

Sociodemographic Indicators

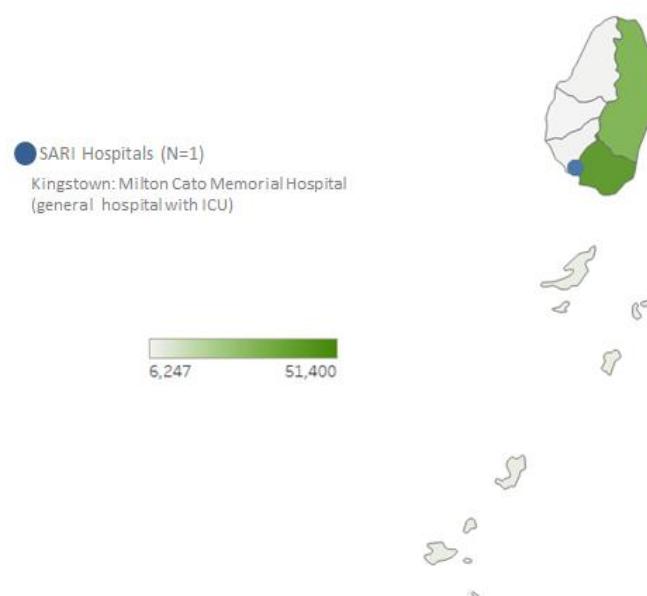
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 109 Population Density (per km²)³: 281</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 7 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 18.3 Communicable Disease Mortality Rate (per 100,000 population)⁶: NA</p>	<p>Number of Physicians (per 10,000 population)⁷: NA Percentage of Rural Population⁸: 49% Public Health Expenditure per Household (PPP* int \$)⁹: 547</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Daily	NA	1	NA	NA	NA
No	National	NA	NA	NA	NA			

Surveillance Map



DATA FROM SEVERE CASES

DATA FROM AMBULATORY CASES

VIROLOGIC DATA

No data available.

No data available.

No data available.

Composition Southern Hemisphere**Month of vaccine administration**^{*in 2016¹⁰}

April

% of older adults vaccinated^{*in 2014¹²}

NA

% of children <5 vaccinated^{*in 2014¹²}

NA

FluID

No

FluNet

No

Available Yes**Part of an all-hazards plan** No**Year of original publication** 2006**Year of last revision/update** 2009**Intersectoral meetings**

NA

Information-sharing between sectors

NA

Surveillance of unusual respiratory cases with animal exposure

NA

Influenza Vaccination¹⁰⁻¹²

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=&C=AC,AR,BF,BH,BL,BR,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NL,PM,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>
2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>
3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>
4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>
5. Global Health Observatory (GHO) Data, 2015, http://www.who.int/gho/child_health/mortality/mortality_under_five/en/
6. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
7. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>
9. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003.doi:10.1371/journal.pone.0153003
11. Hirve S, Sseasional influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374
12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immn 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

Suriname



Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population) ²: 543</p> <p>Population Density (per km²) ³: 3</p> <p><small>Source¹</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 7</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 21.3</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 84</p>	<p>Number of Physicians (per 10,000 population)⁷: NA</p> <p>Percentage of Rural Population⁸: 34%</p> <p>Public Health Expenditure per Household (PPP int \$)⁹: 720</p>

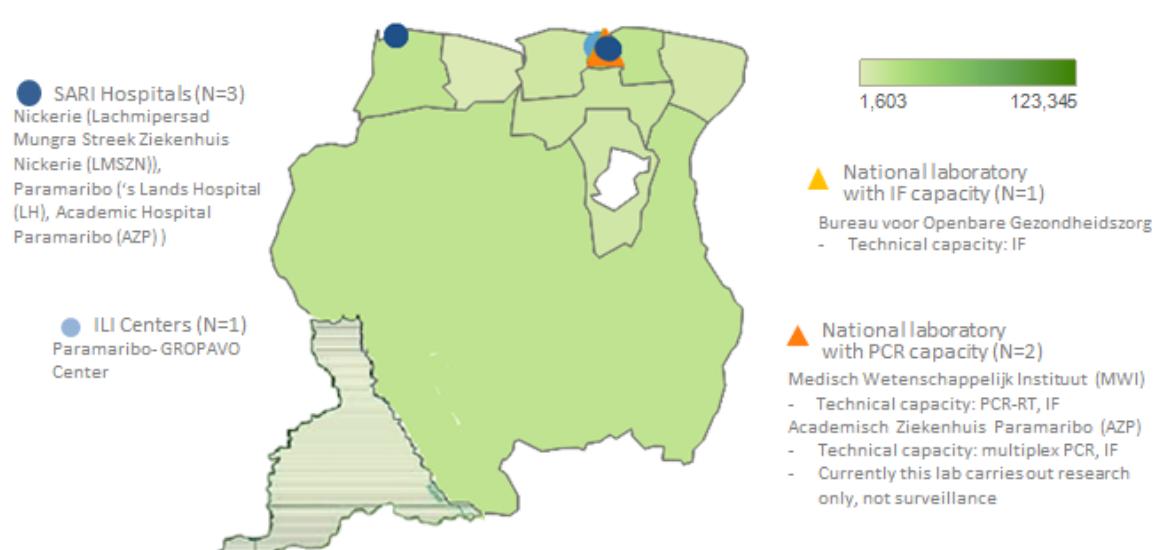
*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Daily	No	3	PAHOFlu	Yes	No
Yes	Sentinel	Quota (10 samples/week)	2 /week	No	1			
No* (Admission Diagnosis)	National	No	No	NA	5	LOGBOOK	No	No
No**	Sentinel	No	No	NA	80	TELEFONADE (Coastal)/ BOLLETJES (Interior)	No	No
NA	National	No	No	NA	5 hospitals & All doctors nationwide	EPI-INFO:MORT	No	No

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

Surveillance Map

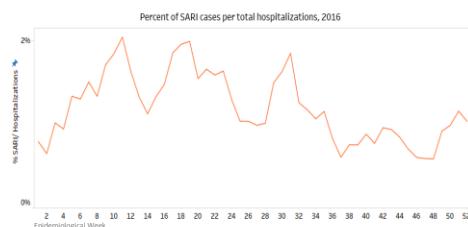


DATA FROM SEVERE CASES

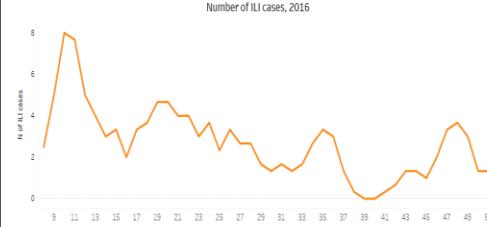
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

SARI DATA

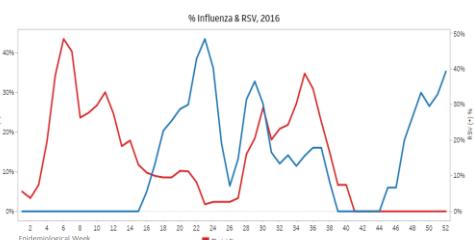


ILI DATA



INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Northern Hemisphere

Month of vaccine administration

*in 2016¹⁰

November

% of older adults vaccinated

*in 2014¹²

NA

% of children <5 vaccinated

*in 2014¹²

NA

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2009

Year of last revision/update

2009

FluID

Yes

FluNet

Yes

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

NA

Influenza Vaccine (0-12)

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human-Animal Interface for influenza

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.

- U.S. Census Bureau, Population Pyramid, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=b both&RT=0&Y=2017&R=18C+AC+AR+BF+BB+BL+BR+CA+C1+C2+CS+CU+DO+DR+EC+E5+GJ+GT+GY+HA+HJ+JM+MX+NU+PM+PA+PE+SC+ST+VC+NS+TD+US+UY+VE>
- World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>
- World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.DNST>
- World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CORT.IN>
- Global Health Observatory (GHO) Data, 2015, http://www.who.int/gho/child_health/mortality/mortality_under_five/en/
- WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
- WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
- World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>
- WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
- Hire S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003.doi:10.1371/journal.pone.0153003
- Hire S, S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/firv.12374
- Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Trinidad & Tobago

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 1,354</p> <p>Population Density (per km²)³: 264</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 8.23</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 14.5</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 80</p>	<p>Number of Physicians (per 10,000 population)⁷: 11.8</p> <p>Percentage of Rural Population⁸: 92%</p> <p>Public Health Expenditure per Household (PPP int \$)⁹: 3428</p>

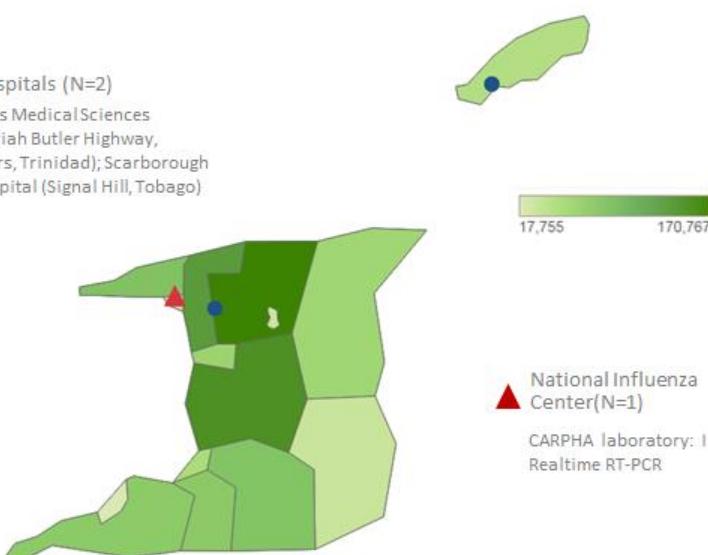
*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
	Yes	Sentinel	Quota	Yes	No	2		
	No; ICD-10 codes (J00-D6, 12-22)	National	NA	NA	NA	All hospitals	No	No
	Yes	National	Quota	Yes	NA	All hospitals		No

Surveillance Map

- SARI Hospitals (N=2)
 - Eric Williams Medical Sciences Complex (Uriah Butler Highway, Champ Fleurs, Trinidad); Scarborough General Hospital (Signal Hill, Tobago)



▲ National Influenza Center(N=1)
CARPHA laboratory: Influenza Realtime RT-PCR

DATA FROM SEVERE CASES

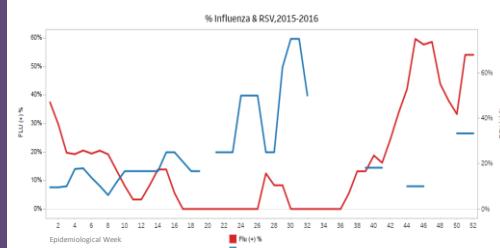
No data available.

DATA FROM AMBULATORY CASES

No data available.

VIROLOGIC DATA

INFLUENZA DATA
Average Percent Positivity during 2014-2016



Composition

Northern Hemisphere

Month of vaccine administration

October

*in 2016¹⁰

% of older adults vaccinated

16.3%

*in 2014¹²

% of children <5 vaccinated

6.1%

*in 2014¹²

FluID

No

FluNet

Yes

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2005

Year of last revision/ update

2013

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine¹⁰⁻¹²

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human- Animal Interface for Influenza

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, 2017: <https://www.census.gov/population/international/data/idb-region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=18C=AC.AR.BF.BB.BH.BL.BR.CA.CI.CO.CS.CU.DO.DR.EC.ES.GJ.GT.GY.HA.HO.JM.MX.NU.PM.PA.PE.SC.ST.VC.NS.TD.US.UV>
2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>
3. World Bank, Database 2015: <http://data.worldbank.org/indicator/EN.POP.DNST>
4. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>
5. Global Health Observatory (GHO) Data, 2015: http://www.who.int/gho/child_health/mortality/mortality_under_five/en/
6. WHO- World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
7. WHO- World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
8. World Bank, Database 2015: <http://data.worldbank.org/indicator/SP.RUR.TOTL>
9. WHO- World Health Statistics, 2015: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
10. Hirve S. 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003 doi:10.1371/journal.pone.0153003
11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374
12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immunol 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



United States of America

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Source¹</p>	<p>Population (per 1,000 population)²: 321,419</p> <p>Population Density (per km²)³: 35</p> <p>Crude Mortality Rate (per 1,000 population)⁴: 8</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 6.5</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 31</p>	<p>Number of Physicians (per 10,000 population)⁷: 24.5</p> <p>Percentage of Rural Population⁸: 18%</p> <p>Public Health Expenditure Per Household (PPP* int \$)⁹: 8845</p>

*PPP- Purchasing Power Parity

Surveillance Systems

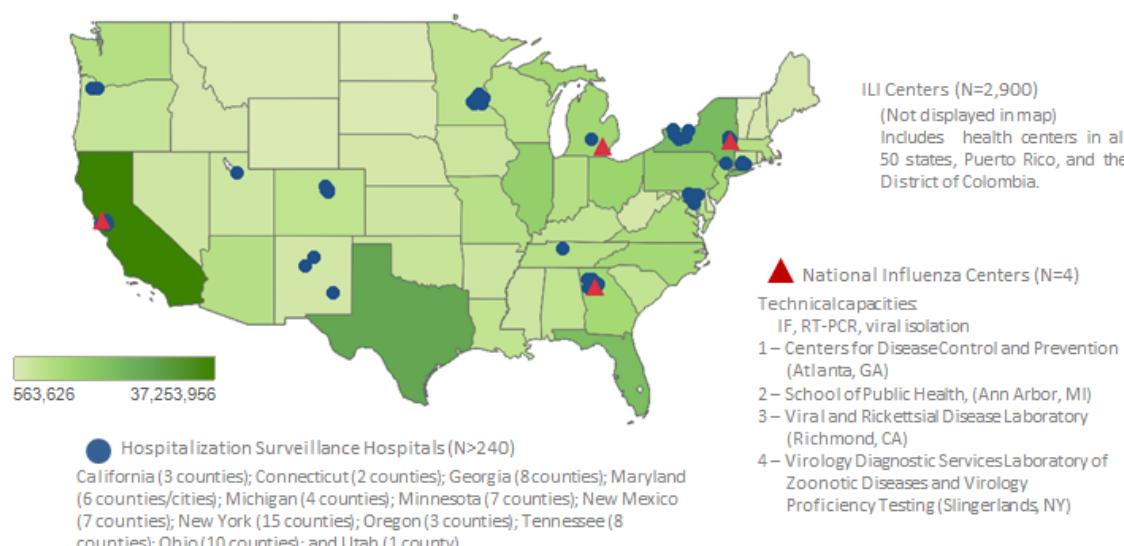


SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
WHO case definition used	Surveillance strategy	Clinical samples collected from cases	Shipment of samples to NIC (or laboratory)	Evaluation of surveillance sites	Number of sites	Name	Lab and epi integration	Online report
No*	Sentinel	100%	No	Annually	All hospitals in 70 counties	FluServ-NET	Yes	Online
No**	Sentinel	Quota (see here)	Weekly	Annually	2800 clinics	ILINet	Yes	Online
NA	National	No	No	NA	All pneumonia and influenza deaths	National Center for Health Statistics (NCHS)	Yes	Online
NA	National	100%	Weekly	NA	>100 public health & >300 clinical laboratories	WHO CC Lab System & NREVSS	Yes	Online

* Laboratory-confirmed influenza-related hospitalizations

** Fever (temperature of 100°F [37.8°C] or greater) and a cough and/or a sore throat without a KNOWN cause other than influenza

Surveillance Map

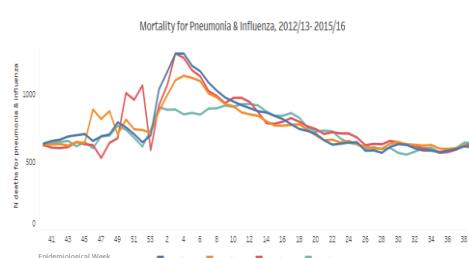


DATA FROM SEVERE CASES

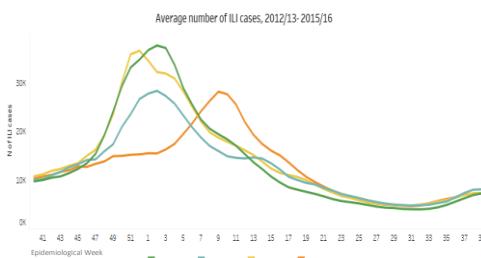
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

MORTALITY DATA

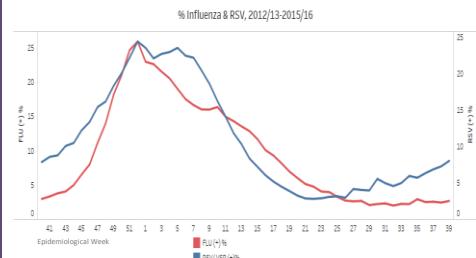


ILI DATA



INFLUENZA DATA

Average Percent Positivity during 2014-2016



Composition

Northern Hemisphere

Month of vaccine administration

*since 2016¹⁰

October

% of older adults vaccinated

*in 2014¹²

NA

% of children <5 vaccinated

*in 2014¹²

NA

FluID

Yes

FluNet

Yes

Available

Yes

Part of an all-hazards plan

Yes

Year of original publication

1997

Year of last revision/update

2016

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine 10-12

Influenza Pandemic Preparedness Plan

FluID/ FluNet Reporting

Human- Animal Interface for Influenza

Unless otherwise specified all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO online survey, 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, 2017; <https://www.census.gov/population/international/data/db/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,BR,CA,CI,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NU,PM,PA,PE,SC,ST,VC,NS,TD,US,U,V,E>
2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>
3. World Bank, Database 2015, <http://data.worldbank.org/indicator/EN.POP.NSTN>
4. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>
5. Global Health Observatory (GHO) Data, 2015, http://www.who.int/gho/child_health/mortality/mortality_under_five/en/
6. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
7. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
8. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.RUR.TOTL>
9. WHO- World Health Statistics, 2015, http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003
11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374
12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immn 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Uruguay

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 3,342 Population density (per km²)³: 20</p> <p>Source¹</p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 9 All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 10.1 Communicable Disease Mortality Rate (per 100,000 population)⁶: 46</p>	<p>Number of Physicians (per 10,000 population)⁷: 37.4 Percentage of Rural Population⁸: 5% Public Health Expenditure per Household (PPP* int \$)⁹: 1594</p>

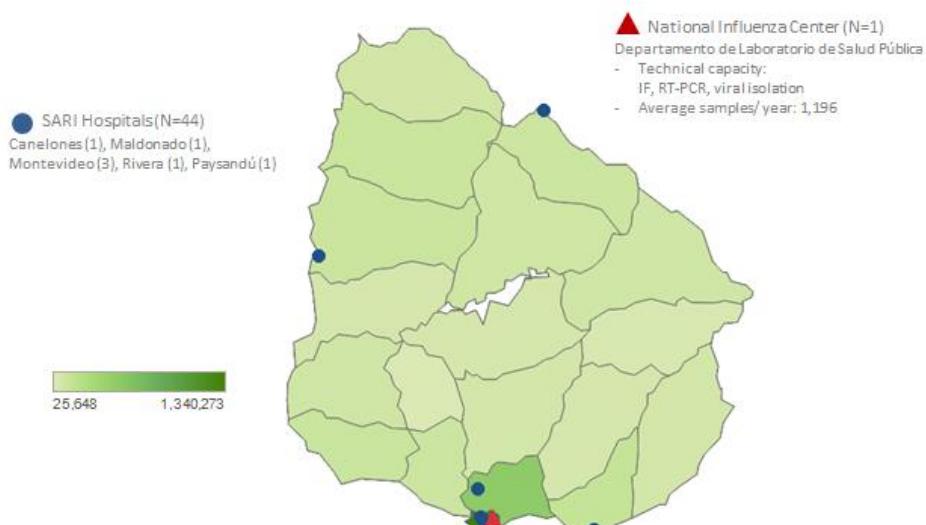
*PPP- Purchasing Power Parity

Surveillance Systems



SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
Yes	Sentinel	100%	Weekdays (to the NIC)	Monthly	7	NA	Yes	Online
No	Sentinel	100%	Weekdays (to the NIC)	Monthly	7			

Surveillance Map



DATA FROM SEVERE CASES

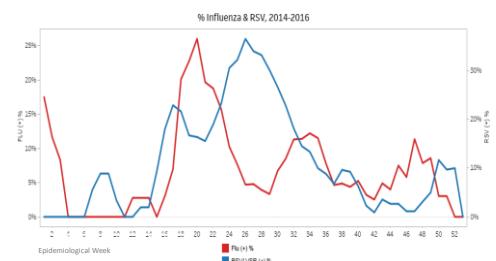
DATA FROM AMBULATORY CASES

VIROLOGIC DATA

No data available.

No data available.

INFLUENZA & RSV DATA
Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

*since 2016¹³

April

% of older adults vaccinated

*in 2014¹²

30%

% of children <5 vaccinated

*in 2014¹²

29%

FluID

In progress

FluNet

Yes

Available

Yes

Part of an all-hazards plan

Yes

Year of original publication

2010

Year of last revision/update

2010

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

Yes

Influenza Vaccine^{10,11}

FluD/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/idb/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=1&C=AC,AR,BF,BB,BH,BL,BR,CA,CL,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HQ,JM,MX,NU,PM,PA,PE,SC,ST,VC,N,TD,US,UY,VE>
2. World Bank, Database 2015, <http://data.worldbank.org/indicator/SP.POP.TOTL>,
3. World Bank, Database 2015; <http://data.worldbank.org/indicator/EN.POP.DNST>
4. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>
5. Global Health Observatory (GHO) Data, 2015; http://www.who.int/gho/chld_health/mortality/mortality_under_five/en/
6. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
7. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
8. World Bank, Database 2015; <http://data.worldbank.org/indicator/SP.RUR.TOTL>
9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4): e0153003. doi:10.1371/journal.pone.0153003
11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics. doi: 10.1111/irv.12374
12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240



Venezuela (Bolivarian Republic of)

Influenza and Other Respiratory Viruses

Sociodemographic Indicators

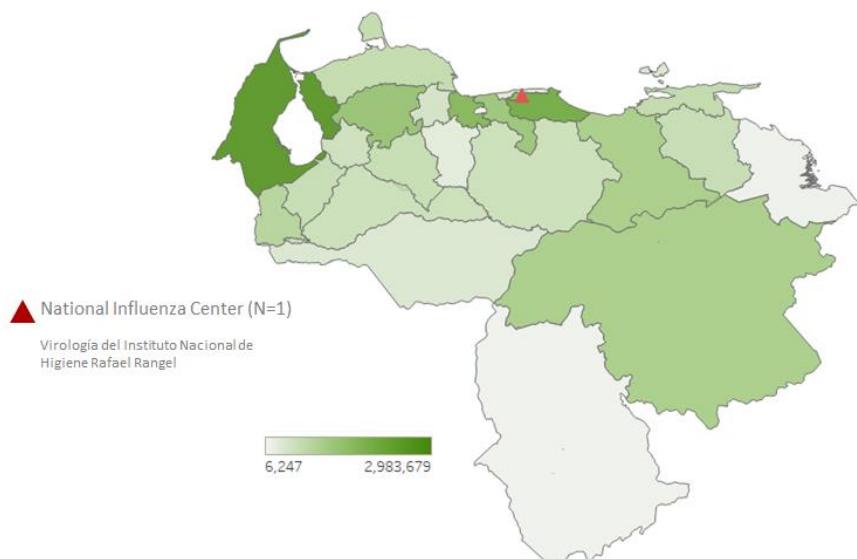
POPULATION	MORTALITY	PUBLIC HEALTH
<p>Population (per 1,000 population)²: 31,108</p> <p>Population Density (per km²)³: 35</p> <p><small>Source⁴</small></p>	<p>Crude Mortality Rate (per 1,000 population)⁴: 6</p> <p>All-Cause Mortality Rate Among <5 Years of Age (per 1,000 live births)⁵: 14.9</p> <p>Communicable Disease Mortality Rate (per 100,000 population)⁶: 58</p>	<p>Number of Physicians (per 10,000 population)⁷: NA</p> <p>Percentage of Rural Population⁸: 11%</p> <p>Public Health Expenditure per Household (PPP* int \$)⁹: 835</p>

*PPP- Purchasing Power Parity

Surveillance Systems

SURVEILLANCE SYSTEM CHARACTERISTICS						INFORMATION SYSTEMS		
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	Lab and epi integration	Online report
NA	National	100%	Weekly	NA	24	SIS, EPI-12	Yes	Online

Surveillance Map



DATA FROM SEVERE CASES

DATA FROM AMBULATORY CASES

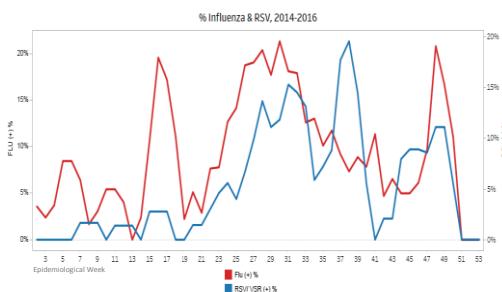
VIROLOGIC DATA

No data available.

No data available.

INFLUENZA & RSV DATA

Average Percent Positivity during 2014-2016



Composition

Southern Hemisphere

Month of vaccine administration

April

*in 2016¹⁰

% of older adults vaccinated

9.6%

*in 2014¹²

% of children <5 vaccinated

24.1%

*in 2014¹²

FluD

No

FluNet

Yes

Available

Yes

Part of an all-hazards plan

No

Year of original publication

NA

Year of last revision/update

NA

Intersectoral meetings

NA

Information-sharing between sectors

NA

Surveillance of unusual respiratory cases with animal exposure

NA

Influenza Vaccination 10-12

Influenza Pandemic Preparedness Plan

FluD/ FluNet Reporting

Human-Animal Interface for Influenza

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, 2017; <https://www.census.gov/population/international/data/db/region.php?N=%20Results%20&T=12&A=both&RT=0&Y=2017&R=-1&C=AC,AR,BF,BB,BH,BL,BR,CA,CL,CO,CS,CU,DO,DR,EC,ES,GJ,GT,GY,HA,HO,JM,MX,NP,PA,PE,SC,ST,VC,NS,TD,US,UY,VE>
2. World Bank, Database 2015. <http://data.worldbank.org/indicator/SP.POP.TOTL>
3. World Bank, Database 2015. <http://data.worldbank.org/indicator/EN.POP.DNST>
4. World Bank, Database 2015. <http://data.worldbank.org/indicator/SP.DYN.CDRT.IN>
5. Global Health Observatory (GHO) Data, 2015. http://www.who.int/gho/child_health/mortality/mortality_under_five/en/
6. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
7. WHO-World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
8. World Bank Database 2015. <http://data.worldbank.org/indicator/SP.RUR.TOTL>
9. WHO- World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
10. Hirve S, 2016; Influenza Seasonality in the Tropics and Subtropics – When to Vaccinate? PLoS ONE 11(4); e0153003.doi:10.1371/journal.pone.0153003
11. Hirve S, Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/irv.12374
12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immn 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

ANNEXES A-B





Annex A: Case Definitions

Case	Case Definition
Severe Acute Respiratory Infection (SARI)	An acute respiratory infection with: history of fever or measured fever of $\geq 38^{\circ}\text{C}$; and cough; with onset within the last 10 days; and requires hospitalization. (WHO, 2014)
Influenza-Like Illness (ILI)	An acute respiratory infection with: measure fever of $\geq 38^{\circ}\text{C}$ and cough. (WHO, 2014)

Annex B: Online Survey

Pages: 1-17

OBJECTIVE:

During the last two years, there have been tremendous advances in the region related to influenza surveillance. In order to capture the capacity that exists in the region and identify areas for further strengthening, PAHO is conducting this surveillance survey.

This survey will serve as an update to the [2014 surveillance inventory](#), (PAHO, 2014).

INSTRUCTIONS:

To complete this survey, simply submit your answers for the questions provided throughout the survey. Please submit the survey to PAHO (flu@paho.org) by December 19, 2016. The survey should take approximately 15-20 minutes to complete.

Note on lab-specific questions: If you are unable to answer lab-specific questions and need to consult your NIC, please leave these answers blank and submit the rest of the survey to us. We will contact the NIC with these lab-specific questions.

General Survey Information

1. Country Name

2. Contact information for the person completing this information

Name	<input type="text"/>
Company	<input type="text"/>
City/Town	<input type="text"/>
State/Province	<input type="text"/>
Country	<input type="text"/>
Email Address	<input type="text"/>
Phone Number	<input type="text"/>

3. Position of the person completing the survey:

Section 1. Surveillance Systems

This section is to capture data related to each of the following systems:SARI, ILI, ARI, Pneumonia, Mortality, Influenza.

Please click on a system for which you collect data and this will take you to specific questions regarding that system. Upon completion of the data for that system, you will be able to proceed to questions for another system. Please compete questions for all systems for which you collect data.

SARI / ILI / ARI / PNEUMONIA / MORTALITY SYSTEMS

4. What is the syndrome/disease under surveillance?

- SARI
- ILI
- ARI
- Pneumonia
- Mortality
- Influenza

Section 1a. SARI Surveillance Systems

GENERAL SURVEILLANCE INDICATORS

5. Is the WHO case-definition used?

- Yes, WHO case definition is used (*SARI case definition: An acute respiratory infection with: history of fever or measured fever of ≥ 38 C°; and cough; with onset within the last 10 days; and requires hospitalization.*)
- No, WHO case definition is not used

Section 1a. SARI Surveillance Systems

6. If the WHO case definition is not used, please write in the definition that is used:

7. In what year was this surveillance system established?

8. Is this surveillance sentinel or national? (see choices for descriptions below)

- Sentinel surveillance (specific sentinel sites provide data)
- National surveillance (all hospitals throughout the country provide data)

Section 1a. SARI Surveillance Systems

SENTINEL SURVEILLANCE QUESTIONS

9. If sentinel surveillance, How many sites are currently conducting this surveillance?

10. If sentinel surveillance is conducted, Please list the sites and their locations: (Please provide the sites in the following format: NAME (LOCATION); NAME (LOCATION); NAME (LOCATION); etc...)

NATIONAL SURVEILLANCE QUESTIONS

11. If national surveillance is conducted how many sites/hospitals are included in this surveillance?

SAMPLING INDICATORS

12. Are clinical samples collected from surveillance cases?

- Yes
- No

Section 1a. SARI Surveillance Systems

CLINICAL SAMPLES COLLECTED

13. Are clinical samples collected from all cases or is there a quota for sample collection?

- All cases
- Quota

Section 1a. SARI Surveillance Systems

QUOTA-SPECIFIC QUESTIONS

14. If a specific quota is used, what method is used to choose cases to collect samples from?

15. If a specific quota is used, please provide the specific quota per week.

16. If a specific quota is used, how many samples are collected each week?

LAB SHIPMENT INDICATORS

17. Do you ship samples to the NIC (or other laboratory)?

- Yes
- No

Section 1a. SARI Surveillance Systems

18. How frequently are samples shipped to the NIC (or other laboratory)?(Frequency per week)

DATA ANALYSIS INDICATORS

19. Is there a national protocol for monitoring and evaluating SARI sentinel sites?

- Yes
- No

Section 1a. SARI Surveillance Systems

20. How frequently do the members of the surveillance team visit sentinel centers for evaluation, quality control, or assessment?

- Weekly
- Monthly
- Quarterly
- Annually
- Other (please define)

INFORMATION SYSTEM & DATA DISSEMINATION INDICATORS

21. Do you use an information system to capture surveillance data?

- Yes
- No
- In progress

Section 1a. SARI Surveillance Systems

22. Name of the information system

23. Does the information system integrate virologic and epidemiologic data?

- Yes
- No

24. Do you publish an online report or bulletin with influenza-related data?

- Yes
- No

Section 1a. SARI Surveillance Systems

25. If you publish an online report or bulletin with influenza-related data, please provide a link to the report if available:

End of SARI Surveillance System section.

Please see below to continue to the next section.

26. Do you have additional syndromes/diseases under surveillance? If so, please pick one of the following or no additional:

- ILI
- ARI
- Pneumonia
- Mortality
- Influenza
- No additional surveillance systems

Section 1b. ILI Surveillance Systems

GENERAL SURVEILLANCE INDICATORS

27. Is the WHO case-definition used?

- Yes, WHO case definition is used (ILI case definition: An acute respiratory infection with: measured fever of $\geq 38^{\circ}\text{C}$ and cough; with onset within the last 10 days.)
- No, WHO case definition is not used

Section 1b. ILI Surveillance Systems

28. If the WHO case definition is not used, please write in the definition that is used:

29. In what year was this surveillance system established?

30. Is this surveillance sentinel or national? (see choices for descriptions below)

- Sentinel surveillance (specific sentinel sites provide data)
- National surveillance (all hospitals throughout the country provide data)

Section 1b. ILI Surveillance Systems

SENTINEL SURVEILLANCE QUESTIONS

31. If sentinel surveillance, How many sites are currently conducting this surveillance?

32. If sentinel surveillance is conducted, Please list the sites and their locations:(Please provide the sites in the following format: NAME (LOCATION); NAME (LOCATION); NAME (LOCATION); etc...)

NATIONAL SURVEILLANCE QUESTIONS

33. If national surveillance is conducted how many sites/hospitals are included in this surveillance?

SAMPLING INDICATORS

34. Are clinical samples collected from surveillance cases?

- Yes
 No

Section 1b. ILI Surveillance Systems

CLINICAL SAMPLES COLLECTED

35. Are clinical samples collected from all cases or is there a quota for sample collection?

- All cases
 Quota

Section 1b. ILI Surveillance Systems

QUOTA-SPECIFIC QUESTIONS

36. If a specific quota is used, what method is used to choose cases to collect samples from?

37. If a specific quota is used, please provide the specific quota per week.

38. If a specific quota is used, how many samples are collected each week?

LAB SHIPMENT INDICATORS

39. Do you ship samples to the NIC (or other laboratory)?

- Yes
 No

Section 1b. ILI Surveillance Systems

40. How frequently are samples shipped to the NIC (or other laboratory)?(Frequency per week)

DATA ANALYSIS INDICATORS

41. Is there a national protocol for monitoring and evaluating ILI sentinel sites?

- Yes
 No

Section 1b. ILI Surveillance Systems

42. How frequently do the members of the surveillance team visit sentinel centers for evaluation, quality control, or assessment?

- Weekly
- Monthly
- Quarterly
- Annually
- Other (please define)

INFORMATION SYSTEM & DATA DISSEMINATION INDICATORS

43. Do you use an information system to capture surveillance data?

- Yes
- No
- In progress

Section 1b. ILI Surveillance Systems

44. Name of the information system

45. Does the information system integrate virologic and epidemiologic data?

- Yes
- No

46. Do you publish an online report or bulletin with influenza-related data?

- Yes
- No

Section 1b. ILI Surveillance Systems

47. If you publish an online report or bulletin with influenza-related data, please provide a link to the report if available:

End of ILI Surveillance System section.
Please see below to continue to the next section.

48. Do you have additional syndromes/diseases under surveillance? If so, please pick one of the following or no additional:

- SARI
- ARI
- Pneumonia
- Mortality
- Influenza
- No additional surveillance systems

Section 1c. Pneumonia Surveillance Systems

GENERAL SURVEILLANCE INDICATORS

49. Please provide the exact case definition used for Pneumonia.

50. Do you utilize the ICD codes?

- Yes
- No

Section 1c. Pneumonia Surveillance Systems

51. If yes, please specify all the ICD codes used for pneumonia:

52. In what year was this surveillance system established?

53. Is this surveillance sentinel or national? (see choices for descriptions below)

- Sentinel surveillance (specific sentinel sites provide data)
- National surveillance (all hospitals throughout the country provide data)

Section 1c. Pneumonia Surveillance Systems

SENTINEL SURVEILLANCE QUESTIONS

54. If sentinel surveillance, How many sites are currently conducting this surveillance?

55. If sentinel surveillance is conducted, Please list the sites and their locations:(Please provide the sites in the following format: NAME (LOCATION); NAME (LOCATION); NAME (LOCATION); etc...)

NATIONAL SURVEILLANCE QUESTIONS

56. If national surveillance is conducted how many sites/hospitals are included in this surveillance?

SAMPLING INDICATORS

57. Are clinical samples collected from surveillance cases?

- Yes
- No

Section 1c. Pneumonia Surveillance Systems

CLINICAL SAMPLES COLLECTED

58. Are clinical samples collected from all cases or is there a quota for sample collection?

- All cases
- Quota

Section 1c. Pneumonia Surveillance Systems

QUOTA-SPECIFIC QUESTIONS

59. If a specific quota is used, what method is used to choose cases to collect samples from?

60. If a specific quota is used, please provide the specific quota per week.

61. If a specific quota is used, how many samples are collected each week?

LAB SHIPMENT INDICATORS

62. Do you ship samples to the NIC (or other laboratory)?

- Yes
- No

Section 1c. Pneumonia Surveillance Systems

63. How frequently are samples shipped to the NIC (or other laboratory)?(Frequency per week)

INFORMATION SYSTEM & DATA DISSEMINATION INDICATORS

64. Do you use an information system to capture surveillance data?

- Yes
- No
- In progress

Section 1c. Pneumonia Surveillance Systems

65. Name of the information system

66. Does the information system integrate virologic and epidemiologic data?

- Yes
- No

67. Do you publish an online report or bulletin with influenza-related data?

- Yes
- No

Section 1c. Pneumonia Surveillance Systems

68. If you publish an online report or bulletin with influenza-related data, please provide a link to the report if available:

End of Pneumonia Surveillance System section.

Please see below to continue to the next section.

69. Do you have additional syndromes/diseases under surveillance? If so, please pick one of the following or no additional:

- SARI
- ILI
- ARI
- Mortality
- Influenza
- No additional surveillance systems

GENERAL SURVEILLANCE INDICATORS

70. Please provide the exact case definition used for ARI.

71. Do you utilize the ICD codes?

- Yes
- No

72. If yes, please specify all the ICD codes used for pneumonia:

73. In what year was this surveillance system established?

74. Is this surveillance sentinel or national? (see choices for descriptions below)

- Sentinel surveillance (specific sentinel sites provide data)
- National surveillance (all hospitals throughout the country provide data)

SENTINEL SURVEILLANCE QUESTIONS

75. If sentinel surveillance, How many sites are currently conducting this surveillance?

76. If sentinel surveillance is conducted, Please list the sites and their locations:(Please provide the sites in the following format: NAME (LOCATION); NAME (LOCATION); NAME (LOCATION); etc...)

NATIONAL SURVEILLANCE QUESTIONS

77. If national surveillance is conducted how many sites/hospitals are included in this surveillance?

SAMPLING INDICATORS

78. Are clinical samples collected from surveillance cases?

- Yes
- No

CLINICAL SAMPLES COLLECTED

79. Are clinical samples collected from all cases or is there a quota for sample collection?

- All cases
- Quota

QUOTA-SPECIFIC QUESTIONS

80. If a specific quota is used, what method is used to choose cases to collect samples from?

81. If a specific quota is used, please provide the specific quota per week.

82. If a specific quota is used, how many samples are collected each week?

LAB SHIPMENT INDICATORS

83. Do you ship samples to the NIC (or other laboratory)?

- Yes
- No

Section 1d. ARI Surveillance Systems

84. How frequently are samples shipped to the NIC (or other laboratory)?(Frequency per week)

INFORMATION SYSTEM INDICATORS

85. Do you use an information system to capture surveillance data?

- Yes
- No
- In progress

Section 1d. ARI Surveillance Systems

86. Name of the information system

87. Does the information system integrate virologic and epidemiologic data?

- Yes
- No

88. Do you publish an online report or bulletin with influenza-related data?

- Yes
- No

Section 1d. ARI Surveillance Systems

89. If you publish an online report or bulletin with influenza-related data, please provide a link to the report if available:

End of ARI Surveillance System section.
Please see below to continue to the next section.

90. Do you have additional syndromes/diseases under surveillance? If so, please pick one of the following or no additional:

- SARI
- ILI
- Pneumonia
- Mortality
- Influenza
- No additional surveillance systems

Section 1e. Mortality Surveillance Systems

GENERAL SURVEILLANCE INDICATORS

91. In what year was this surveillance system established?

92. Is this surveillance sentinel or national? (see choices for descriptions below)

- Sentinel surveillance (specific sentinel sites provide data)
- National surveillance (all hospitals throughout the country provide data)

Section 1e. Mortality Surveillance Systems

SENTINEL SURVEILLANCE QUESTIONS

93. If sentinel surveillance, How many sites are currently conducting this surveillance?

94. If sentinel surveillance is conducted, Please list the sites and their locations:(Please provide the sites in the following format: NAME (LOCATION); NAME (LOCATION); NAME (LOCATION); etc...)

NATIONAL SURVEILLANCE QUESTIONS

95. If national surveillance is conducted how many sites/hospitals are included in this surveillance?

SAMPLING INDICATORS

96. Are clinical samples collected from surveillance cases?

- Yes
- No

Section 1e. Mortality Surveillance Systems

CLINICAL SAMPLES COLLECTED

97. Are clinical samples collected from all cases or is there a quota for sample collection?

- All cases
- Quota

Section 1e. Mortality Surveillance Systems

QUOTA-SPECIFIC QUESTIONS

98. If a specific quota is used, what method is used to choose cases to collect samples from?

99. If a specific quota is used, please provide the specific quota per week.

100. If a specific quota is used, how many samples are collected each week?

LAB SHIPMENT INDICATORS

101. Do you ship samples to the NIC (or other laboratory)?

- Yes
- No

Section 1e. Mortality Surveillance Systems

102. How frequently are samples shipped to the NIC (or other laboratory)?(Frequency per week)

DATA ANALYSIS INDICATORS

103. Do you aggregate mortality data between epidemiological and virologic causes?

- Yes
- No

Section 1e. Mortality Surveillance Systems

104. If you do, what groups are mortality data divided into

- SARI-related mortality data
- SARI/ILI- related mortality data
- Pneumonia-related mortality data
- Influenza-Related mortality data
- Influenza positivie SARI mortality data

Other (please define)

INFORMATION SYSTEM INDICATORS

105. Do you use an information system to capture surveillance data?

- Yes
- No
- In progress

Section 1e. Mortality Surveillance Systems

106. Name of the information system

107. Does the information system integrate virologic and epidemiologic data?

- Yes
- No

108. Do you publish an online report or bulletin with influenza-related data?

- Yes
- No

Section 1e. Mortality Surveillance Systems

109. If you publish an online report or bulletin with influenza-related data, please provide a link to the report if available:

End of Mortality Surveillance System section.

Please see below to continue to the next section.

110. Do you have additional syndromes/diseases under surveillance? If so, please pick one of the following or no additional :

- SARI
- ILI
- Pneumonia
- ARI
- Influenza
- No additional surveillance systems

Section 1f. Influenza Surveillance Systems

GENERAL SURVEILLANCE INDICATORS

111. In what year was this surveillance system established?

112. Do you have a National Influenza Center?

- Yes
- No

Section 1f. Influenza Surveillance Systems

NIC QUESTIONS

113. If you do have a NIC, please list the name and location of NIC(s).

114. Year established the NIC:

115. Is this surveillance sentinel or national? (see choices for descriptions below)

- Sentinel surveillance (specific sentinel sites provide data)
- National surveillance (all hospitals throughout the country provide data)

Section 1f. Influenza Surveillance Systems

NON-NIC QUESTIONS

116. If you do not have a NIC, please list the name and location of the laboratory(ies) that conduct testing

117. Is this surveillance sentinel or national? (see choices for descriptions below)

- Sentinel surveillance (specific sentinel sites provide data)
- National surveillance (all hospitals throughout the country provide data)

Section 1f. Influenza Surveillance Systems

SENTINEL SURVEILLANCE QUESTIONS

118. If sentinel surveillance, How many sites are currently conducting this surveillance?

119. If sentinel surveillance is conducted, Please list the sites and their locations:(Please provide the sites in the following format: NAME (LOCATION); NAME (LOCATION); NAME (LOCATION); etc...)

NATIONAL SURVEILLANCE QUESTIONS

120. If national surveillance is conducted how many sites/hospitals are included in this surveillance?

SAMPLING INDICATORS

121. Are clinical samples collected from surveillance cases?

- Yes
- No

Section 1f. Influenza Surveillance Systems

CLINICAL SAMPLES COLLECTED

122. Are clinical samples collected from all cases or is there a quota for sample collection?

- All cases
- Quota

Section 1f. Influenza Surveillance Systems

QUOTA-SPECIFIC QUESTIONS

123. If a specific quota is used, what method is used to choose cases to collect samples from?

124. If a specific quota is used, please provide the specific quota per week.

125. If a specific quota is used, how many samples are collected each week?

LAB SHIPMENT INDICATORS

126. Do you ship samples to the NIC (or other laboratory)?

- Yes
- No

Section 1f. Influenza Surveillance Systems

127. How frequently are samples shipped to the NIC (or other laboratory)?(Frequency per week)

INFORMATION SYSTEM INDICATORS

128. Do you use an information system to capture surveillance data?

- Yes
- No
- In progress

Section 1f. Influenza Surveillance Systems

129. Name of the information system

130. Does the information system integrate virologic and epidemiologic data?

- Yes
- No

131. Do you publish an online report or bulletin with influenza-related data?

- Yes
- No

Section 1f. Influenza Surveillance Systems

132. If you publish an online report or bulletin with influenza-related data, please provide a link to the report if available:

End of Influenza Surveillance System section.
Please see below to continue to the next section.

133. Do you have additional syndromes/diseases under surveillance? If so, please pick one of the following or no additional:

- SARI
- ILI
- Pneumonia
- ARI
- Mortality
- No additional surveillance systems

Section 2. Influenza Pandemic Preparedness Plan

134. Does the country have a pandemic influenza preparedness plan?

- Yes
- No

Section 2. Influenza Pandemic Preparedness Plan

PREPAREDNESS PLAN QUESTIONS

135. Is this influenza preparedness plan part of an all-hazards plan?

- Yes
 No

136. Year of original publication of the pandemic influenza preparedness plan:

137. Year of last revision/update to the pandemic influenza preparedness plan:

Section 3. Supplementary Questions

THESE QUESTIONS ARE BEING ASKED FOR INTERNAL USE AND INFORMATION.

THIS DATA WILL NOT BE INCLUDED IN THE FACT SHEETS THAT ARE PUBLISHED IN THE UPDATED 2016 SURVEILLANCE GUIDEBOOK.

Epidemiologic Indicators: SARI, ILI, Pneumonia, ARI

138. Please provide the following information for SARI, ILI, Pneumonia, and ARI data:

	Age	Baselines
SARI	<input type="text"/>	<input type="text"/>
ILI	<input type="text"/>	<input type="text"/>
Pneumonia	<input type="text"/>	<input type="text"/>
ARI	<input type="text"/>	<input type="text"/>

139. Please fill in the numerator and denominator you use for the following calculations (if calculated):

	Numerator	Denominator
SARI % of total hospitalizations	<input type="text"/>	<input type="text"/>
ILI % of total consultations	<input type="text"/>	<input type="text"/>
Pneumonia % of total hospitalizations	<input type="text"/>	<input type="text"/>
ARI % of total consultations	<input type="text"/>	<input type="text"/>

140. Please list the years available for the following Epidemiologic Indicators:

SARI:	<input type="text"/>
ILI:	<input type="text"/>
Pneumonia:	<input type="text"/>
ARI:	<input type="text"/>

Mortality Indicators: Influenza; RSV; SARI; Pneumonia

141. Please provide the following information for Mortality data:

Surveillance conducted?	Stratified by influenza subtype/type?	Stratified by risk group?	Stratified by age group?
Influenza Associated Mortality	<input type="text"/>	<input type="text"/>	<input type="text"/>
RSV Associated Mortality	<input type="text"/>	<input type="text"/>	<input type="text"/>
SARI Associated Mortality	<input type="text"/>	<input type="text"/>	<input type="text"/>
Pneumonia Associated Mortality	<input type="text"/>	<input type="text"/>	<input type="text"/>

142. If you do stratify any of the above mortality-related categories in age groups, please list the age groups:

Influenza-Associated Mortality:

RSV-Associated Mortality:

SARI-Associated Mortality:

Pneumonia-Associated Mortality:

143. Please list the years available for the following Mortality Indicators:

Influenza-Associated Mortality:

RSV-Associated Mortality:

SARI-Associated Mortality:

Pneumonia-Associated Mortality:



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.



Pan American
Health
Organization



World Health
Organization
Americas

REGIONAL OFFICE FOR THE Americas