## Index

<table>
<thead>
<tr>
<th>Title</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acronyms</td>
<td>iv</td>
</tr>
<tr>
<td>Background</td>
<td>1</td>
</tr>
<tr>
<td>Regional Data</td>
<td>3</td>
</tr>
<tr>
<td>PCR Influenza Surveillance</td>
<td>5</td>
</tr>
<tr>
<td>RSV Surveillance</td>
<td>6</td>
</tr>
<tr>
<td>SARI/ILI Surveillance</td>
<td>7</td>
</tr>
<tr>
<td>Frequency of Reporting</td>
<td>8</td>
</tr>
<tr>
<td>Shipments to WHO Collaborating Center at U.S. CDC</td>
<td>9</td>
</tr>
<tr>
<td>Influenza Vaccine</td>
<td>10</td>
</tr>
<tr>
<td>World Bank Income Groups</td>
<td>11</td>
</tr>
<tr>
<td>Virologic Surveillance Data</td>
<td>12</td>
</tr>
<tr>
<td>SARI Surveillance Data</td>
<td>13</td>
</tr>
<tr>
<td>Country Data</td>
<td>15</td>
</tr>
<tr>
<td>Argentina</td>
<td>17</td>
</tr>
<tr>
<td>Bolivia</td>
<td>19</td>
</tr>
<tr>
<td>Brazil</td>
<td>21</td>
</tr>
<tr>
<td>Canada</td>
<td>23</td>
</tr>
<tr>
<td>Chile</td>
<td>25</td>
</tr>
<tr>
<td>Colombia</td>
<td>27</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>29</td>
</tr>
<tr>
<td>Cuba</td>
<td>31</td>
</tr>
<tr>
<td>Dominica</td>
<td>33</td>
</tr>
<tr>
<td>Dominican Republic (DOR)</td>
<td>35</td>
</tr>
<tr>
<td>Ecuador</td>
<td>37</td>
</tr>
<tr>
<td>El Salvador</td>
<td>39</td>
</tr>
<tr>
<td>Grenada</td>
<td>41</td>
</tr>
<tr>
<td>Guatemala</td>
<td>43</td>
</tr>
<tr>
<td>Haiti</td>
<td>45</td>
</tr>
<tr>
<td>Jamaica</td>
<td>47</td>
</tr>
<tr>
<td>Mexico</td>
<td>49</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>51</td>
</tr>
<tr>
<td>Panama</td>
<td>53</td>
</tr>
<tr>
<td>Paraguay</td>
<td>55</td>
</tr>
<tr>
<td>Peru</td>
<td>57</td>
</tr>
<tr>
<td>Saint Lucia</td>
<td>59</td>
</tr>
<tr>
<td>Surinam</td>
<td>61</td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>63</td>
</tr>
<tr>
<td>United States of America (USA)</td>
<td>65</td>
</tr>
<tr>
<td>Uruguay</td>
<td>67</td>
</tr>
<tr>
<td>Annex</td>
<td>69</td>
</tr>
</tbody>
</table>
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARI</td>
<td>Acute respiratory infection</td>
</tr>
<tr>
<td>CARPHA</td>
<td>Caribbean Public Health Agency</td>
</tr>
<tr>
<td>CENETROP</td>
<td>Centro de Enfermedades Tropicales (Center for Tropical Diseases) (Santa Cruz, Bolivia)</td>
</tr>
<tr>
<td>EW</td>
<td>Epidemiological Week</td>
</tr>
<tr>
<td>ILI</td>
<td>Influenza-like illness</td>
</tr>
<tr>
<td>INLASA</td>
<td>Instituto Nacional de Laboratorios de Salud (National Institute of Health Laboratories) (La Paz, Bolivia)</td>
</tr>
<tr>
<td>INS</td>
<td>Instituto Nacional de Salud (National Institute of Health)</td>
</tr>
<tr>
<td>ORV</td>
<td>Other respiratory viruses</td>
</tr>
<tr>
<td>SARI</td>
<td>Severe acute respiratory infection</td>
</tr>
<tr>
<td>SEDES</td>
<td>Servicio Departamental de Salud (Departmental Health Service) (Bolivia)</td>
</tr>
<tr>
<td>ICU</td>
<td>Intensive care unit</td>
</tr>
<tr>
<td>RSV</td>
<td>Respiratory syncytial virus</td>
</tr>
</tbody>
</table>
Countries of the Americas have been developing surveillance systems to detect novel influenza subtypes and monitor seasonal influenza epidemics for more than ten years. 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 was 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), and these systems are often based upon similar surveillance protocols, such as the PAHO-CDC Generic Protocol for Influenza Surveillance (December 2006). The results of these efforts are a variety of systems, each of which contributes to the regional and global picture of influenza.

This publication represents a compilation of the respiratory virus surveillance systems which exist in countries throughout the Region. These data were obtained directly from the countries and represent an overview of the capacities which currently exist.

Each profile includes information about both epidemiological and laboratory surveillance, focusing on the following areas:

- Influenza/other respiratory virus surveillance systems (sentinel and national)
- Geographical distribution of sentinel surveillance sites (for ILI and SARI) and influenza laboratories
- Characteristics of the sentinel ILI and SARI surveillance systems
- Characteristics of national influenza laboratory capacity
- Information systems and reporting capacity
- Influenza viruses detected by epidemiological week (2010-2014)
- Influenza vaccine use
- Pandemic preparedness plans

Data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO questionnaires completed by epidemiology and/or national laboratory coordinators (see Annexes 1 and 2), influenza bulletins published online/distributed by the countries, country presentations in regional influenza meetings, and/or consultation with country influenza surveillance coordinators. Each document was submitted to the corresponding national counterpart for revision. Supplementary demographic data (indicated on the individual sheets) were collected from PAHO’s *Health Situation in the Americas: Basic Indicators*, and/or from country ministry of health data.

Profiles are organized first by sub-region (North to South), then alphabetically, and include all countries who responded in a timely manner to requests for data and approval.

The PAHO Influenza team disseminated an online survey to countries to provide updated data for their surveillance system. View here: [https://www.surveymonkey.com/r/2016flusurvey](https://www.surveymonkey.com/r/2016flusurvey)
REGIONAL DATA
94% (n=29) of participating labs attained a score of 90% or greater on the WHO EQAP for influenza.
Most countries use their SARI and ILI systems to identify possible RSV cases.
**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 case definition:** An acute respiratory infection with: measured fever of ≥ 38°C; and cough; with onset within the last 10 days.
FluNet is a global web-based tool for influenza virological surveillance first launched in 1997. The virological data entered into FluNet, e.g. number of influenza viruses detected by subtype, are critical for tracking the movement of viruses globally and interpreting the epidemiological data.

FluID is a global platform for data sharing that links regional influenza epidemiological data into a single global database. The platform accommodates both qualitative and quantitative data which facilitates the tracking of global trends, spread, intensity, and impact of influenza.
FluNet and FluID reporting is based on the number of reports submitted to the OPS office on a weekly basis.

The WHO CCs do additional antigenic characterization and antiviral resistance testing on samples sent to them from the countries.
FluNet and FluID reporting is based on the number of reports submitted to the OPS office on a weekly basis.
The World Bank categorizes countries into one of four different income groups.
FluNet and FluID reporting is based on the number of reports submitted to the OPS office on a weekly basis.

Flu and RSV regional graphs present the data submitted to PAHO/WHO over recent years – which helps determine seasonality.

---

**Distribution of influenza viruses by region, 2012-2016**

**Percent Positivity of Influenza & RSV, 2014-2016**
SARI-related percent positivity for influenza and RSV provides more insight on the epidemiologic situation in country.
### Sociodemographic Indicators

**Population**
- Population (per 1,000 population): 43,590.36
- Population Density (per km²): 15.6

**Mortality**
- Crude Mortality Rate (per 1,000 population): 7.7
- All-Cause <5 Mortality Rate (per 1,000 live births): 11.3
- Communicable Disease Mortality Rate (per 100,000 population): 80.3

**Public Health**
- Number of Physicians (per 10,000 population): 39.4
- Percentage of Rural Population: 8%
- Public Health Expenditure per Household (PPP*: int $): 1550

*PPP- Purchasing Power Parity

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Universal* /Sentinal</td>
<td>Yes / All cases*</td>
<td>Weekly</td>
<td>&lt;1 each year</td>
<td>1,304/ 3</td>
<td>Sistema nacional de Vigilancia de la salud (SNVS)</td>
<td>Partial</td>
<td>Online</td>
</tr>
<tr>
<td>Yes</td>
<td>Universal* /Sentinal</td>
<td>No/ Quota</td>
<td>Weekly</td>
<td>&lt;1 each year</td>
<td>1,304/ 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Universal*</td>
<td>No</td>
<td>Weekly</td>
<td>&lt;1 each year</td>
<td>1,304/ 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universal</td>
<td>Yes in deaths diagnosed with influenza</td>
<td>Weekly</td>
<td>N/A</td>
<td>N/A</td>
<td>Sistema nacional de Vigilancia de la salud (SNVS)</td>
<td>Partial</td>
<td>Online</td>
<td></td>
</tr>
</tbody>
</table>

1. In these cases, universal surveillance consists of weekly and aggregated reporting by age groups by all health facilities and no laboratory simple is recorded.
2. In universal surveillance, national recommendations are followed.
3. According to the Sentinel Units guide.

### Argentina

**Influenza and Other Respiratory Virus**

**Surveillance Map**

- SARI Hospitals (N=3): SARI - General Pueyrredon, Societiana De Beneficio, Hospital Iasi, Hospit Teilor Geriatric Schistoglu
- ILI Centers (N=3): RIVI - General Pueyrredon, UC Influenza - CONICET, UC Influenza Tacuman

1. National Influenza Centers (N=3)
   - National Institute of Infectious Diseases (Buenos Aires)
   - National Influenza Laboratory for Influenza and respiratory viruses and Coordinator of the National Network of Influenza and ILI
   - Methodology for the diagnosis of influenza: a rapid diagnostic test (RT-PCR), real-time RT-PCR, hemagglutination inhibition test (HAI), sequencing, and molecular analysis.
   - Molecular detection of other respiratory viruses: HMPV, SARSCoV, MERScoV, HCoV-OC43, HCoV-229E, HCoV-NL63, HCoV-HKU1, influenza A (H3N2) and influenza B.

2. Influenza and Respiratory Virus Laboratory, Virology Institute (UMC) (Córdoba)
   - IFA, RT-PCR, HAI, sequencing, serology, and entry-blocks for human-influenza virus subtype.

3. National Institute of Virology (Buenos Aires)
   - IFA, RT-PCR, HAI, sequencing, and entry-blocks for human-influenza virus subtype.

*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.
Bolivia
Influenza and Other Respiratory Virus

### Sociodemographic Indicators

**POPULATION**
- Population (per 1,000 population): 10,724.70
- Population Density (per km²): 10

**MORTALITY**
- Crude Mortality Rate (per 1,000 population): 7
- All-Cause <5 Mortality Rate (per 1,000 live births): 38.4
- Communicable Disease Mortality Rate (per 100,000 population): 226

**PUBLIC HEALTH**
- Number of Physicians (per 10,000 population): 4.7
- Percentage of Rural Population: 31%
- Public Health Expenditure per Household (PPP* int $): 332

*PPP- Purchasing Power Parity

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>Surveillance System</th>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SARI</strong></td>
<td>Yes</td>
<td>Sentinel</td>
<td>100%</td>
<td>Weekly</td>
<td>Monthly</td>
<td>8</td>
<td>Sistema Internacional on-line para la vigilancia IRAG</td>
<td>Yes</td>
<td>Online</td>
</tr>
<tr>
<td><strong>PNEUMONIA</strong></td>
<td>No*</td>
<td>National</td>
<td>No</td>
<td>Weekly</td>
<td>-</td>
<td>-</td>
<td>Sistema de informe nacional (SNIS)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>MORTALITY</strong></td>
<td>No</td>
<td>National</td>
<td>No</td>
<td>Weekly</td>
<td>-</td>
<td>-</td>
<td>Sistema de informe nacional (SNIS)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>INFLUENZA</strong></td>
<td>-</td>
<td>National</td>
<td>Yes</td>
<td>Weekly</td>
<td>Weekly</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Process que presenta Infección Respiratoria Aguda, con Fiebre ≥ 38 °C y tos, de no más de siete días de evolución, que requiere manejo ambulatorio.

### Information Systems

- SARI Hospitals (N=8): Instituto Nacional de Investigación y Desarrollo de la Salud en el Área de Infectología (INAISA) (La Paz)
- Technical capacity: IF, RT-PCR, viral isolation, ISOTROP (Santa Cruz)
- Technical capacity: IF, RT-PCR, viral isolation, Láb SEDES Cochabamba

*Laboratory with PCR capacity (N=3)

- INASA (La Paz)
- Technical capacity: IF, RT-PCR, viral isolation

*INFLUENZA MORTALITY*

Source: *Persona que presenta Infección Respiratoria Aguda, con Fiebre ≥ 38 °C y tos, de no más de siete días de evolución, que requiere manejo ambulatorio.*
### Composition

**Southern Hemisphere**

**Month of vaccine administration**

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
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<tbody>
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<td>2016</td>
<td>April</td>
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**% of older adults vaccinated**

<table>
<thead>
<tr>
<th>Year</th>
<th>% Vaccinated</th>
</tr>
</thead>
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<tr>
<td>2014</td>
<td>89%</td>
</tr>
</tbody>
</table>

**% of children <5 vaccinated**

<table>
<thead>
<tr>
<th>Year</th>
<th>% Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>44.4%</td>
</tr>
</tbody>
</table>

### Influenza & RSV Data

No data available.

### SARI Data

No data available.

### Intersectoral Meetings

- In progress

### Information-sharing Between Sectors

- Yes

### Surveillance of Unusual Respiratory Cases with Animal Exposure

- Yes

### Available

- Yes

### Part of an All-Hazards Plan

- No

### Year of Original Publication

- 2005

### Year of Last Revision/Update

- 2009

---

*Data from 2 sites reporting to FluNet: INLASA and CENETROP*

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2. WHO - World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1
5. Global Health Observatory (2015); http://www.who.int/whohealthinfo/global_burden_disease/previous_versions/en/
7. WHO - World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1
10. WHO - World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1
12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vacc Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240

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 by the countries, country presentations in regional influenza meetings, consultation with country influenza surveillance experts. The document was approved by the relevant national authority.
Brazil
Influenza and Other Respiratory Virus

**Sociodemographic Indicators**

- **Population**
  - Population (per 1,000 population): 207,847
  - Population Density (per km²): 25

- **Mortality**
  - Crude Mortality Rate (per 1,000 population): 6
  - All-Cause <5 Mortality Rate (per 1,000 live births): 16.4
  - Communicable Disease Mortality Rate (per 100,000 population): 93

- **Public Health**
  - Number of Physicians (per 10,000 population): 18.9
  - Percentage of Rural Population: 14%
  - Public Health Expenditure per Household (PPP* int $): 1388

*PPP - Purchasing Power Parity

**Surveillance System Characteristics**

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Source</th>
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</thead>
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<tr>
<td>No*</td>
<td>Sentinel</td>
<td>100%</td>
<td>Daily</td>
<td>Annual</td>
<td>115</td>
<td>Sígraingersipe Yes En línea</td>
</tr>
<tr>
<td>No**</td>
<td>Sentinel</td>
<td>100%</td>
<td>Daily</td>
<td>Annual</td>
<td>145</td>
<td></td>
</tr>
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<td></td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Universal</td>
<td>100%</td>
<td>Daily</td>
<td>Annual</td>
<td>All hospitals</td>
<td>Sína influenza web Yes Yes</td>
</tr>
</tbody>
</table>

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

**Information Systems**

- SARI Hospitals (N=115)
  - (Not displayed in map)

- ILI Site (N=141)
  - (Not displayed in map)

- National Influenza Centers (N=3)
  - Evandro Chagas Institute (Bahia)
    - Technical capacity: IF, RT-PCR, viral isolation
    - Average samples processed/year: 1,040
  - Adolfo Lutz Institute (São Paulo)
    - Technical capacity: IF, RT-PCR, viral isolation
    - Average samples processed/year: 3,744
  - Oswaldo Cruz Institute (Rio de Janeiro)
    - Technical capacity: IF, RT-PCR, viral isolation
    - Average samples processed/year: 1,548

Labroratories with PCR capacity (N=2)
### Human–Animal Interface for Influenza

#### DATA FROM SEVERE CASES

**SARI DATA**

#### DATA FROM AMBULATORY CASES

**ILI DATA**

#### VIROLOGIC DATA

**INFLUENZA DATA**

<table>
<thead>
<tr>
<th>Composition</th>
<th>Southern Hemisphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month of vaccine administration</td>
<td>April</td>
</tr>
<tr>
<td>% of older adults vaccinated</td>
<td>86%</td>
</tr>
<tr>
<td>% of children &lt;5 vaccinated</td>
<td>81.5%</td>
</tr>
</tbody>
</table>

| 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 |

---

**Composition**

- Southern Hemisphere

**Month of vaccine administration**

- April

**% of older adults vaccinated**

- 86%

**% of children <5 vaccinated**

- 81.5%

**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

---

- 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.

---

5. Global Health Observatory (GHO), Data, 2015: [http://apps.who.int/iris/bitstream/10665/169357/1/9789241564943-eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/169357/1/9789241564943-eng.pdf?ua=1)
11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics. [doi: 10.1111/j.1227](https://doi.org/10.1111/j.1227)
12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic H1N1. Vaccine 2016; Human Vaccines & Immunotherapeutics, 12:8, 2290-2214. DOI: 10.1089/216459515.2016.1101704

---

**Burden of Disease of Influenza**

- Intersectoral meetings: Yes
- Information-sharing between sectors: Yes
- Surveillance of unusual respiratory cases with animal exposure: Yes

---

**Human–Annual Interface**

- Human–Annual Interface

---

**Influenza Pandemic Preparedness Plan**

- Yes

---

**Influenza Vaccination**

- Yes

---

**Epidemiological Week**

- Yes

---

**No data available.**
### Sociodemographic Indicators

#### POPULATION

- **Population (per 1,000 population)**: 35,851.77
- **Population Density (per km²)**: 4

#### MORTALITY

- **Crude Mortality Rate (per 1,000 population)**: 7
- **All-Cause <5 Mortality Rate (per 1,000 live births)**: 4.9
- **Communicable Disease Mortality Rate (per 100,000 population)**: 23

#### PUBLIC HEALTH

- **Number of Physicians (per 10,000 population)**: 20.7
- **Percentage of Rural Population**: 18%
- **Public Health Expenditure per Household (PPP* int $)**: 4,610

*PPP - Purchasing Power Parity

---

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
</tr>
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<tbody>
<tr>
<td>J10-J18</td>
<td>National</td>
<td>Quota (Based on clinical presentation)</td>
<td>Weekly</td>
<td>N/A</td>
<td>Participating acute-care hospitals</td>
</tr>
<tr>
<td>-</td>
<td>National</td>
<td>100%</td>
<td>Variable (Weekly-Monthly)</td>
<td>N/A</td>
<td>Participating acute-care hospitals</td>
</tr>
</tbody>
</table>

### Information Systems

<table>
<thead>
<tr>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>FluWatch</td>
<td>No</td>
<td>Online</td>
</tr>
<tr>
<td>Canadian Institute for Health Information</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

---

### Surveillance Map

- **National Influenza Center (N=1)**
  - **National Microbiology Laboratory (Winnipeg)**
    - Technical capacity:
      - real-time RT-PCR
      - viral isolation, phenotypic
      - anti-viral sensitivity, genotyping
      - antigenic characterization by HA, micro-neutralization, whole genome sequencing
    - Average samples processed/year: 2,809

---

## Influenza Vaccine

### Composition

**Northern Hemisphere**

**Month of vaccine administration**
- October

**% of older adults vaccinated**
- 65% (≥65 years)

**% of children <5 vaccinated**
- 31% (6mo to 4yrs)

### Available
- Yes

### Intersectoral meetings
- No

### Information-sharing between sectors
- Yes

### Surveillance of unusual respiratory cases with animal exposure
- Yes

### Year of original publication
- 2004

### Year of last revision/update
- 2017

---

*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.*

---

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 Immunotherapeutics, 12:8, 2206–2214, DOI: 10.1080/21645515.2016.1157240
### Sociodemographic Indicators

#### Population

<table>
<thead>
<tr>
<th>Population (per 1,000 population)</th>
<th>17,948.14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population Density (per km²)</td>
<td>24</td>
</tr>
</tbody>
</table>

#### Mortality

| Crude Mortality Rate (per 1,000 population) | 5          |
| All-Cause < 5 Mortality Rate (per 1,000 live births) | 8.1        |
| Communicable Disease Mortality Rate (per 100,000 population) | 36         |

#### Public Health

| Number of Physicians (per 10,000 population) | 10.2       |
| Percentage of Rural Population               | 10%        |
| Public Health Expenditure per Household (PPP* int $) | 1,610     |

*PPP - Purchasing Power Parity

---

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>100%</td>
<td>1-2/ week- NIC; Daily- local laboratory</td>
<td>1 each year</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>Quota (5-10 samples/ week)</td>
<td>1-2/ week</td>
<td>Depends on evaluation</td>
<td>42</td>
<td>MINSA/ OPS</td>
<td>Yes</td>
<td>Online</td>
</tr>
<tr>
<td>Yes</td>
<td>National</td>
<td>100%</td>
<td>Daily</td>
<td>According to results and according to Quality assessment program</td>
<td>1 NIC 31 hospitals</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Surveillance Map

- **SARI Hospitals (N=7)**
  - Concepción (Hospital Guillermo Grant), Iquique, Puerto Montt, Santiago (Hospital San Juan de Dios), Hospital Militar Villa del Mar (Hospital Gustavo Frick), Temuco (Hospital de Temuco)

- **National Influenza Center (N=1)**
  - Public Health Institute of Chile: Respiratory and Enteric Viral Section
  - Technical capacity: Cell culture, IF, RT-PCR, viral isolation, sequencing, phenotypic and genotypic analysis of antiviral resistance
  - Average samples processed/year: 41,808

- **Labs with PCR capacity (N=8)**
  - Antofagasta, Concepción, Puerto Montt, Santiago, San Felipe, Temuco

- **Labs with IF capacity (N=24)**
  - Antofagasta, Arica, Atacama, Biobío (2), Coquimbo, Iquique, Los Lagos (2), Los Ríos, Metropolitana (5), Región del Bío-Bío, Región de Coquimbo, Región de Los Lagos, Región Metropolitana de Santiago, Región de O'Higgins, Valparaíso (1)
### Influenza Vaccine (2016)

<table>
<thead>
<tr>
<th>Composition</th>
<th>Southern Hemisphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month of vaccine administration</td>
<td>Apr to May</td>
</tr>
<tr>
<td>% of older adults vaccinated</td>
<td>55%</td>
</tr>
<tr>
<td>% of children &lt;5 vaccinated</td>
<td>65%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Available</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part of an all-hazards plan</td>
<td>No</td>
</tr>
<tr>
<td>Year of original publication</td>
<td>2007</td>
</tr>
<tr>
<td>Year of last revision/update</td>
<td>2010</td>
</tr>
</tbody>
</table>

### Burden of Disease

No data available.

### Intersectoral meetings

Yes

### Information-sharing between sectors

Yes

### Surveillance of unusual respiratory cases with animal exposure

Yes

---

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

**Population**
- Population (per 1,000 population): 48,228
- Population Density (per km²): 43

**Mortality**
- Crude Mortality Rate (per 1,000 population): 6
- All-Cause <5 Mortality Rate (per 1,000 live births): 15.9
- Communicable Disease Mortality Rate (per 100,000 population): 55

**Public Health**
- Number of Physicians (per 10,000 population): 14.7
- Percentage of Rural Population: 24%
- Public Health Expenditure per Household (PPP*: int $): 808

*SPP- Purchasing Power Parity

---

**Surveillance System Characteristics**

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>100%</td>
<td>Weekly</td>
<td>Yes</td>
<td>13</td>
<td>SIVIGILA</td>
<td>No</td>
<td>Online</td>
</tr>
<tr>
<td>No*</td>
<td>Sentinel</td>
<td>100%</td>
<td>Weekly</td>
<td>Yes</td>
<td>7</td>
<td>J09-J18</td>
<td>No</td>
<td>Online</td>
</tr>
<tr>
<td>Yes</td>
<td>National</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>5,321</td>
<td>J20-22</td>
<td>No</td>
<td>Online</td>
</tr>
<tr>
<td>No**</td>
<td>National</td>
<td>100%</td>
<td>Weekly</td>
<td>No</td>
<td>5,321</td>
<td>No**</td>
<td>Does not apply</td>
<td>Intranet</td>
</tr>
</tbody>
</table>

**Information Systems**

- SARI: Yes, Surveillance Map
- ILI Centers: Yes (N=7)

---

**Influenza and Other Respiratory Viruses**

**Surveillance Systems**
- SARI Hospitals (N=13)
- ILU Centers (N=7)

**Enterprise**
- Laboratories with PCR and IF capacity (N=3)
- Laboratories with IF capacity (N=5)

---

**Surveillance Map**
- National Influenza Center (N=1)
- Regional laboratories with PCR and IF capacity (N=5)
- Regional laboratories with IF capacity (N=5)

---

**Additional Notes**
- *Person presenting with Acute Respiratory Infections, 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 or ARI related causes.
### Composition

<table>
<thead>
<tr>
<th>Southern Hemisphere</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Month of vaccine administration</strong></td>
</tr>
<tr>
<td><strong>% of older adults vaccinated</strong></td>
</tr>
<tr>
<td><strong>% of children &lt;5 vaccinated</strong></td>
</tr>
</tbody>
</table>

### 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
Costa Rica

Influenza and Other Respiratory Virus

**Sociodemographic Indicators**

<table>
<thead>
<tr>
<th>POPULATION</th>
<th>MORTALITY</th>
<th>PUBLIC HEALTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (per 1,000 population): 4,947,481</td>
<td>Crude Mortality Rate (per 1,000 population): 5</td>
<td>Number of Physicians (per 10,000 population): 11.1</td>
</tr>
<tr>
<td>Population Density (per km²): 94</td>
<td>All-Cause &lt;5 Mortality Rate (per 1,000 live births): 9.7</td>
<td>Percentage of Rural Population: 23%</td>
</tr>
</tbody>
</table>

**Public Health**

- Communicable Disease Mortality Rate (per 100,000 population): 31
- Public Health Expenditure per Household (PPP*: $): 1350

---

**Surveillance System Characteristics**

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>Quota (5 samples/week)</td>
<td>Weekly</td>
<td>3/year</td>
<td>8</td>
<td>PAHOFLU Pilot (2 sites)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>Universal</td>
<td>-</td>
<td>-</td>
<td>All that report IU</td>
<td>-</td>
<td>Collective Bulletin VE-02</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>J12-J18</td>
<td>Universal</td>
<td>Quota (medical criteria)</td>
<td>-</td>
<td>All facilities</td>
<td>-</td>
<td>Compulsory notification collective VE-02</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>J00-J06</td>
<td>National</td>
<td>Quota (medical criteria)</td>
<td>-</td>
<td>All facilities</td>
<td>-</td>
<td>Compulsory notification collective VE-02</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>-</td>
<td>Universal</td>
<td>Quota (clinical pathology criteria)</td>
<td>Selection (clinical pathology criteria)</td>
<td>All facilities</td>
<td>-</td>
<td>Mortality registry</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>-</td>
<td>Sentinel</td>
<td>Quota ([sentinel]; 1/Health department)</td>
<td>Daily to every 2 days</td>
<td>-</td>
<td>8</td>
<td>Individual SARI registry (Annex 3)</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

---

**Information Systems**

- National Influenza Center (N=1)
  - National Influenza Center: INCENSA (Cartago)
  - Technical capacity: PCR, RT, IF, viral isolation, hemagglutination, cell culture
  - Average samples processed/year: 4,816

- Regional Laboratory with PCR capacity (N=3)
  - Hospital Nacional de Niños (San José)
  - Technical capacity: RT-PCR, IF

---

**Surveillance Map**

- SARI Hospitals (N=8): Alajuela (2), Cartago, Heredia, Liberia, Limón, Puntarenas, San José

*PPP - Purchasing Power Parity
DATA FROM SEVERE CASES | DATA FROM AMBULATORY CASES | VIROLOGIC DATA

Influenza Vaccine 2016

Influenza Pandemic Preparedness Plan

Burden of Disease of Influenza

Human-Animal Interface

Influenza - Animal Interface for Influenza

No data available.

DATA FROM SEVERE CASES | DATA FROM AMBULATORY CASES | VIROLOGIC DATA

INFLUENZA DATA

Composition

Southern Hemisphere

As of 2015

Month of vaccine administration

May

% of older adults vaccinated

89.4%

% of children <5 vaccinated

76.2%

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

No data available.
## Sociodemographic Indicators

### Population
- Population (per 1,000 population): 11,246,282
- Population Density (per km²): 102.3

### Mortality
- Crude Mortality Rate (per 1,000 population): 8.8
- All-Cause <5 Mortality Rate (per 1,000 live births): 5.5
- Communicable Disease Mortality Rate (per 100,000 population): 71.9

### Public Health
- Number of Physicians (per 10,000 population): 80.2
- Percentage of Rural Population: 23%
- Public Health Expenditure per Household (PPP* int $): 641.87

*PPP- Purchasing Power Parity

## Surveillance System Characteristics

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>National</td>
<td>100%</td>
<td>Daily</td>
<td>NA</td>
<td>NA</td>
<td>Boletín epidemiológico IPK</td>
<td>Boletín epidemiológico IPK</td>
<td>Boletín epidemiológico IPK</td>
</tr>
<tr>
<td>Yes</td>
<td>National</td>
<td>Quota (Outbreaks)</td>
<td>Daily</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Yes</td>
<td>National</td>
<td>100%</td>
<td>Daily</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Yes</td>
<td>National</td>
<td>Quota (Outbreaks)</td>
<td>Daily</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

## Information Systems

- **SARI**
  - National Influenza Center (N=1)
  - Habana
    - Technical capacity:
      - RT-PCR, IF, viral isolation, hemagglutination, cellular culture
      - Average samples processed/year: 3000

- **Mortality**
  - National

- **Pneumonia**
  - National

**Surveillance Map**

- National Influenza Center (N=1)
  - Habana
  - Technical capacity:
    - RT-PCR, IF, viral isolation, hemagglutination, cellular culture
    - Average samples processed/year: 3000

**Laboratories with PCR capacity (N=2)**
- Habana (1), Santiago (1)
- Technical capacity: RT-PCR, IF

**Laboratories with IF capacity (N=2)**
- Santiago de Cuba (1), Santa Clara-Villa Clara (1)
- Technical capacity: IF

**SARI** Hospitals
- Hospitals with ICU that care for SARI: 150
  - Not shown on map
<table>
<thead>
<tr>
<th>Composition</th>
<th>Southern Hemisphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month of vaccine administration</td>
<td>April</td>
</tr>
<tr>
<td>% of older adults vaccinated</td>
<td>99.7%</td>
</tr>
<tr>
<td>% of children &lt;5 vaccinated</td>
<td>NA</td>
</tr>
</tbody>
</table>

| 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 |

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.
### Sociodemographic Indicators

**POPULATION**
- Population (per 1,000 population): 72.68
- Population Density (per km²): 97

**MORTALITY**
- Crude Mortality Rate (per 1,000 population): 8
- All-Cause <5 Mortality Rate (per 1,000 live births): 21.2
- Communicable Disease Mortality Rate (per 100,000 population): NA

**PUBLIC HEALTH**
- Number of Physicians (per 10,000 population): NA
- Percentage of Rural Population: 30%
- Public Health Expenditure per Household (PPP*: int $): 577

*PPP: Purchasing Power Parity

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARI</td>
<td>Sentinel</td>
<td>100%</td>
<td>Weekly</td>
<td>Annually</td>
<td>1</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>SARI</td>
<td>National</td>
<td>Quota (6 samples/week)</td>
<td>Weekly</td>
<td>NA</td>
<td>7 health districts—52 health clinics; 1 gen hospital</td>
<td>Dominica Information System for Health (DISH) (in progress)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MORTALITY</td>
<td>National</td>
<td>No</td>
<td>No</td>
<td>NA</td>
<td>7 health districts—52 health clinics; 1 gen hospital</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Information Systems
- SARI Hospitals (N=1): Roseau Princess Margaret Hospital (general hospital with ICU)
DATA FROM SEVERE CASES

SARI DATA

No data available.

DATA FROM AMBULATORY CASES

No data available.

VIROLOGIC DATA

INFLUENZA & RSV DATA

*Data reported in months, not included in FluNet database

Composition

Southern Hemisphere

Month of vaccine administration

*V.2016

April

% of older adults vaccinated

*V.2014

NA

% of children <5 vaccinated

*V.2014

NA

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

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.


## Dominican Republic

### Influenza and Other Respiratory Virus

#### Sociodemographic Indicators

| Population (per 1,000 population) | 72.68 |
| Population density (per km²)      | 97    |

#### Mortality

| Crude Mortality Rate (per 1,000 population) | 8 |
| All-Cause <5 Mortality Rate (per 1,000 live births) | 21.2 |
| Communicable Disease Mortality Rate (per 100,000 population) | NA |

#### Public Health

| Number of Physicians (per 10,000 population) | NA |
| Percentage of Rural Population | 30% |
| Public Health Expenditure per Household (PPP* int $) | 577 |

*PPP - Purchasing Power Parity

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipments of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARI</td>
<td>Sentinel</td>
<td>Quota (5 samples/week)</td>
<td>Weekly</td>
<td>1-2 each year</td>
<td>5</td>
</tr>
<tr>
<td>INFLUENZA</td>
<td>Sentinel</td>
<td>All SARI/ILI cases</td>
<td>Weekly</td>
<td>1-2 each year</td>
<td>6</td>
</tr>
</tbody>
</table>

### Information Systems

<table>
<thead>
<tr>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sistema de información de vigilancia epidemiológica (SIVE)</td>
<td>Yes</td>
<td>Online</td>
</tr>
</tbody>
</table>

### Surveillance Map

- SARI Hospitals (N=6)
  - Azua (Taylor Regional Hospital), Santa Cruz (San Pedro de Macoris)
  - Santiago (Cibao Valley University Reference Hospital), Santo Domingo
  - Cerro Grande (University Hospital), Santo Domingo
  - Nueve de Julio (National University Hospital of the Autonomous University of Santo Domingo, Duarte)
  - Pabellón de la Salud (Hospital University of the Autonomous University of Santo Domingo)

- ILI Centers (N=3)
  - Guaynabo Municipal Hospital, Guaynabo
  - Santo Domingo (Santo Domingo Teaching Hospital, Primary Care Centers)

- Laboratories with IF Capacity (N=2)
  - National Public Health Laboratory
  - Technical capacity: IF, IF, PCR, viral isolation
  - Average samples processed/year: 1,207

- Laboratories with PCR Capacity (N=1)
  - CEMOSA Public Health and Epidemiology Investigation Laboratory
  - Technical capacity: IF, IF, PCR, viral isolation
  - Average samples processed/year: 6,000
### Composition

**Northern Hemisphere**

<table>
<thead>
<tr>
<th>Month of vaccine administration</th>
<th>Sep to Nov</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of older adults vaccinated</td>
<td>83%</td>
</tr>
<tr>
<td>% of children &lt;5 vaccinated</td>
<td>NA</td>
</tr>
</tbody>
</table>

### Available

- Yes
- Part of an all-hazards plan: Yes
- Year of original publication: 2009
- Year of last revision/update: 2017

### Intersectoral meetings

- In process

### Information-sharing between sectors

- In process

### Surveillance of unusual respiratory cases with animal exposure

- In process
**Ecuador**

**Influenza and Other Respiratory Viruses**

### Sociodemographic Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (per 1,000 population)</td>
<td>16,144.36</td>
</tr>
<tr>
<td>Population Density (per km²)</td>
<td>65</td>
</tr>
<tr>
<td>Crude Mortality Rate (per 1,000 population)</td>
<td>5</td>
</tr>
<tr>
<td>All-Cause &lt;5 Mortality Rate (per 1,000 live births)</td>
<td>21.6</td>
</tr>
<tr>
<td>Communicable Disease Mortality Rate (per 100,000 population)</td>
<td>97</td>
</tr>
</tbody>
</table>

### Public Health

<table>
<thead>
<tr>
<th>Metric</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Physicians (per 10,000 population)</td>
<td>17.2</td>
</tr>
<tr>
<td>Percentage of Rural Population</td>
<td>36%</td>
</tr>
<tr>
<td>Public Health Expenditure per Household (PPP× int $)</td>
<td>652</td>
</tr>
</tbody>
</table>

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>Surveillance System</th>
<th>WHO Case Definition Used</th>
<th>Surveillance Strategy</th>
<th>Sampling of Clinical Cases</th>
<th>Shipment of Samples to NIC (or Laboratory)</th>
<th>Evaluation of Surveillance Sites</th>
<th>Number of Sites</th>
<th>Lab and Epi Integration</th>
<th>Online Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARI</td>
<td>Yes</td>
<td>Sentinel</td>
<td>100%</td>
<td>Daily</td>
<td>Annual</td>
<td>16</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>PNEUMONIA</td>
<td>J09-J18</td>
<td>Universal</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>1839</td>
<td>SIVE Alerta</td>
<td>Yes</td>
</tr>
<tr>
<td>INFLUENZA</td>
<td>-</td>
<td>National</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Information Systems

- Severe acute respiratory infection surveillance system
- Online reporting
- SIVE Alerta
- National reporting

**Surveillance Map**

- National Influenza Center (N=1)
  - Technical capacity: IF, RT-PCR, viral isolation
  - Average samples processed/year: 6,240
- Regional Laboratories with PCR Capacity (N=2)
  - Technical capacity: RT-PCR, IF
- SARI Hospitals (N=16)
  - Azogues, Cuenca, Guayaquil (6), Imbabura, Nueva Loja, Guayaquil (6), Robore
### SARI DATA

Percentage of deaths from total hospitalizations, 2006.

### DATA FROM SEVERE CASES

### DATA FROM AMBULATORY CASES

No data available.

### VIROLOGIC DATA

No data available.

### INFLUENZA & RSV DATA

No data available.

### Table: Influenza Vaccine

<table>
<thead>
<tr>
<th>Composition</th>
<th>Northern Hemisphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month of vaccine administration</td>
<td>December</td>
</tr>
<tr>
<td>% of older adults vaccinated</td>
<td>69</td>
</tr>
<tr>
<td>% of children &lt;5 vaccinated</td>
<td>&gt;80</td>
</tr>
</tbody>
</table>

### 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

---

Unless otherwise specified all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO site 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.

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7. WHO-World Health Statistics, 2016; [http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1](http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1)


11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics. 2016; 12:1111111/121244

### El Salvador

**Influenza and Other Respiratory Viruses**

#### Sociodemographic Indicators

<table>
<thead>
<tr>
<th><strong>POPULATION</strong></th>
<th><strong>MORTALITY</strong></th>
<th><strong>PUBLIC HEALTH</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (per 1,000 population): 6,127.58</td>
<td>Crude Mortality Rate (per 1,000 population): 7</td>
<td>Number of Physicians (per 10,000 population): 16</td>
</tr>
<tr>
<td>Population Density (per km²): 296</td>
<td>All-Cause &lt;5 Mortality Rate (per 1,000 live births): 16.8</td>
<td>Percentage of Rural Population: 33%</td>
</tr>
</tbody>
</table>

#### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>Quota (5 samples/week)</td>
<td>Weekly</td>
<td>1-2 each year</td>
<td>4</td>
<td>VIGEPES</td>
<td>Yes</td>
<td>Online</td>
</tr>
</tbody>
</table>

| Yes | Sentinel | Quota (6 samples/week) | Yes | Weekly | 39 |

#### Influenza and Other Respiratory Viruses (SARI)

- **SARI Hospitals (N=4)**
  - Santa Ana ([Hospital San Juan de Dios Santa Ana])
  - San Salvador ([Hospital San Salvador 35 Benjamin Bloom, Cojutepeque ([Hospital Cojutepeque “Nuestra Señora de la Candelaria”], San Miguel ([Hospital San Miguel “San Juan de Dios”])

- **ILI Centers (N=8)**
  - Santa Ana (2), La Libertad (1), San Salvador (3), Cuscatlan (5), San Miguel (1)

#### National Influenza Center (N=1)

- Laboratorio Nacional de Referencia Doctor Max Belloch
- Technicians: IF, RT-PCR, viral isolation
- Average samples processed/year: 2,392

#### Laboratories with IP 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

*PPP – Purchasing Power Parity
DATA FROM SEVERE CASES
SARI DATA

Month of vaccine administration
April

% of older adults vaccinated
75%

% of children <5 vaccinated
NA

INFLUENZA & RSV DATA

No data available.

DATA FROM AMBULATORY CASES

Virologic Data

No data available.

Composition
Southern Hemisphere

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

Reference
11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics. doi 10.1111/hsn.12374
### Sociodemographic Indicators

#### POPULATION

- **Population (per 1,000 population)**: 106.83
- **Population Density (per km²)**: 314

#### MORTALITY

- **Crude Mortality Rate (per 1,000 population)**: 7
- **All-Cause <5 Mortality Rate (per 1,000 live births)**: 11.8
- **Communicable Disease Mortality Rate (per 100,000 population)**: NA

#### PUBLIC HEALTH

- **Number of Physicians (per 10,000 population)**: 6.6
- **Percentage of Rural Population**: 64%
- **Public Health Expenditure per Household (PPP* int $)**: 693

*PPP - Purchasing Power Parity

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>No*</td>
<td>National</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>52</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>National</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Sentinel</td>
<td>7</td>
<td>Weekly</td>
<td>No</td>
<td>36</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

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

### Information Systems

#### Surveillance Systems

- **SARI**
  - Hospital (N=3)
    - General Hospital (St. George's)
    - Princess Alice Hospital (St. Andrew's)
    - Princess Royal Hospital (Carriacou)
  - National
  - Sentinel

#### Influenza

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

#### Surveillance Map

- ILI Centres (N=52)
  - (Not displayed in map)
No data available.

### ARI DATA

<table>
<thead>
<tr>
<th>Month of vaccine administration</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of older adults vaccinated</td>
<td>NA</td>
</tr>
<tr>
<td>% of children &lt;5 vaccinated</td>
<td>31%</td>
</tr>
</tbody>
</table>

### INFLUENZA & RSV DATA

No data available.

### Composition

<table>
<thead>
<tr>
<th>Southern Hemisphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month of vaccine administration</td>
</tr>
<tr>
<td>% of older adults vaccinated</td>
</tr>
<tr>
<td>% of children &lt;5 vaccinated</td>
</tr>
</tbody>
</table>

### Available

<table>
<thead>
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<th>Yes</th>
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### Part of an all-hazards plan

<table>
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### Year of original publication

2009

### Year of last revision/update

2009

### MC Intersectoral meetings

<table>
<thead>
<tr>
<th>Yes</th>
</tr>
</thead>
</table>

### Information-sharing between sectors

<table>
<thead>
<tr>
<th>Yes</th>
</tr>
</thead>
</table>

### Surveillance of unusual respiratory cases with animal exposure

| No |
Guatemala
Influenza and Other Respiratory Viruses

**SOCIO DEMOGRAPHIC INDICATORS**

**POPULATION**
- Population (per 1,000 population): 16,555.56
- Population Density (per km²): 149

**MORTALITY**
- Crude Mortality Rate (per 1,000 population): 5
- All-Cause <5 Mortality Rate (per 1,000 live births): 29.1
- Communicable Disease Mortality Rate (per 100,000 population): 79

**PUBLIC HEALTH**
- Number of Physicians (per 10,000 population): 9.3
- Percentage of Rural Population: 50.5%
- Public Health Expenditure per Household (PPP*) int $: 245

*PPP - Purchasing Power Parity

**SURVEILLANCE SYSTEM CHARACTERISTICS**

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>6 samples/week</td>
<td>Daily (local laboratory) and Weekly (NIC)</td>
<td>Trimestral</td>
<td>3</td>
<td>Epificha (in process)</td>
<td>Yes</td>
<td>Website of the National Epidemiology Center</td>
</tr>
<tr>
<td>J18.9</td>
<td>Universal</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
<td>All services of the Ministry of Health</td>
<td>SIGSA No No</td>
<td></td>
</tr>
<tr>
<td>J00-J06; J09-J18; J20-J22</td>
<td>National</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
<td>All services of the Ministry of Health</td>
<td>SIGSA No No</td>
<td></td>
</tr>
</tbody>
</table>

**INFORMATION SYSTEMS**

- SARI Hospitals (N=5)
-ILI Centers (N=5)
-SIGSA
-Laboratories with Influenza Capacity (N=5)
-National Influenza Center (N=1)

**Surveillance Map**

[Map of Guatemala showing surveillance systems and cases]

**Surveillance Systems**

- SARI
- ILI
- PNEUMONIA
- INFLUENZA

**Guatemala Surveillance Map**

Source: [Surveillance Systems Map]
DATA FROM SEVERE CASES

No data available.

DATA FROM AMBULATORY CASES

No data available.

VIROLOGIC DATA

INFLUENZA & RSV DATA


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


12. Ropero A et al. Influenza vaccination in the Americas Progress and challenges after pandemic.Hum Vacc Immunotherapeutics, 12.8, 2206-2214. DOI: 10.1080/21645515.2016.1197240

**Composition**

**Southern Hemisphere**

**Month of vaccine administration**

*2016*

April and May

**% of older adults vaccinated**

*2014*

64%

**% of children <5 vaccinated**

*2014*

7.1%

**Available**

Yes

**Part of an all-hazards plan**

-  

**Year of original publication**

2007

**Year of last revision/update**

2013

**Intersectoral meetings**

No

**Information-sharing between sectors**

Yes

**Surveillance of unusual respiratory cases with animal exposure**

No
Haiti
Influenza and Other Respiratory Virus

**Sociodemographic Indicators**

<table>
<thead>
<tr>
<th>POPULATION</th>
<th>MORTALITY</th>
<th>PUBLIC HEALTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (per 1,000 population): 10,711.07</td>
<td>Crude Mortality Rate (per 1,000 population): 9</td>
<td>Number of Physicians (per 10,000 population): NA</td>
</tr>
<tr>
<td>Population Density (per km²): 389</td>
<td>All-Cause &lt;5 Mortality Rate (per 1,000 live births): 69</td>
<td>Percentage of Rural Population: 41%</td>
</tr>
<tr>
<td></td>
<td>Communicable Disease Mortality Rate (per 100,000 population): 405</td>
<td>Public Health Expenditure per Household (PPP*: int $): 117</td>
</tr>
</tbody>
</table>

*PPP - Purchasing Power Parity

**Surveillance System Characteristics**

<table>
<thead>
<tr>
<th>Surveillance System</th>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARI</td>
<td>Yes</td>
<td>Sentinel</td>
<td>Quota (10 samples/week)</td>
<td>No</td>
<td>Annual</td>
<td>6</td>
<td>FluNet &amp; FluD (in progress)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>ARI</td>
<td>No</td>
<td>National</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>652</td>
<td>MESI</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**Surveillance Map**

- SARI Hospitals (N=15)
  - Hôpital Foyer Saint Camille (Creole-Rouge-Baiepirre), Hôpital pédiatrique Saint Damien (Tabien), Hôpital Université de la Paix (Dahome), Hôpital de l’Université de l’École des Hautes Études Pratiques de Port-au-Prince, Hôpital Saint-Michel (Haut), Hôpital Saint-Denis (Cap-Haïtien), Hôpital Duclaux (Cap-Haïtien), Hôpital Hôpital Université de République Haïtienne, Hôpital Health Foundation (Jérémie), Hôpital ImmunoAide (Conception), Hôpital La Providence des Grosses (Gosier),
- National Laboratory with PCR Capacity (N=1)
  - Laboratoire National de Santé Publique (LNSP)
    - Technical capacity: RT-PCR
    - Average samples processed/year: 275
**Influenza Vaccine**

- **Composition**
  - Southern Hemisphere
  - Month of vaccine administration: April
  - % of older adults vaccinated: NA
  - % of children <5 vaccinated: NA

- **Available**
  - Yes

- **Part of an all-hazards plan**
  - NA

- **Year of original publication**
  - 2009

- **Year of last revision/update**
  - 2009

**Influenza & RSV Data**

- **No data available.**

**DATA FROM SEVERE CASES**

- No data available.

**DATA FROM AMBULATORY CASES**

- No data available.

**Virologic Data**

- No data available.

---

**Intersectoral meetings**

- NA

**Information-sharing between sectors**

- NA

**Surveillance of unusual respiratory cases with animal exposure**

- NA

---

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

<table>
<thead>
<tr>
<th>Population (per 1,000 population)</th>
<th>2,725.94</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population Density (per km²)</td>
<td>252</td>
</tr>
</tbody>
</table>

### Mortality

<table>
<thead>
<tr>
<th>Crude Mortality Rate (per 1,000 population)</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-Cause &lt;5 Mortality Rate (per 1,000 live births)</td>
<td>15.7</td>
</tr>
<tr>
<td>Communicable Disease Mortality Rate (per 100,000 population)</td>
<td>97</td>
</tr>
</tbody>
</table>

### Public Health

<table>
<thead>
<tr>
<th>Number of Physicians (per 10,000 population)</th>
<th>4.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Rural Population</td>
<td>45%</td>
</tr>
<tr>
<td>Public Health Expenditure per Household (PPP* int $)</td>
<td>431</td>
</tr>
</tbody>
</table>

*PPP - Purchasing Power Parity

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>100%</td>
<td>Weekly</td>
<td>Annually</td>
<td>6</td>
</tr>
<tr>
<td>ICD-10 codes</td>
<td>Sentinel</td>
<td>100%</td>
<td>Daily</td>
<td>-</td>
<td>77</td>
</tr>
<tr>
<td>Yes</td>
<td>National</td>
<td>100%</td>
<td>Daily</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Information Systems

<table>
<thead>
<tr>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tryton</td>
<td>Yes</td>
<td>Online</td>
</tr>
<tr>
<td>SARI</td>
<td>Sentinel</td>
<td></td>
</tr>
<tr>
<td>INFLUENZA</td>
<td>National</td>
<td></td>
</tr>
</tbody>
</table>

**Surveillance Map**

- SARI Hospitals [N=6]
- Kingston (Eustace Children’s Hospital, Kingston Public Hospital, University of the West Indies Hospital, Montego Bay (Montereau Children’s Hospital, Montego Bay (Caribbean Regional Hospital, St. Ann’s Bay (St. Ann’s Bay Hospital)]

- National Influenza Center [N=1]
  - University of the West Indies
  - Technical capacity: RT-PCR, IF, viral isolation
**DATA FROM SEVERE CASES**

**SARI DATA**

**DATA FROM AMBULATORY CASES**

**ARI DATA**

**VIROLOGIC DATA**

**INFLUENZA & RSV DATA**

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**Composition**

**Northern Hemisphere**

- **Month of vaccine administration**:
  - October

- **% of older adults vaccinated**:
  - NA

- **% of children <5 vaccinated**:
  - NA

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**Available**

- Yes

**Intersectoral meetings**

- Yes

**Information-sharing between sectors**

- Yes

**Surveillance of unusual respiratory cases with animal exposure**

- No*

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*However any unusual human event is a class 1 disease and need to be notified immediately on suspicion.

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Unless otherwise specified all data were collected by the PAHO/WHO Influenza Surveillance Team from one or more of the following sources: PAHO Questionnaires completed by epidemiology or laboratory experts; influenza bulletin 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.

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

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

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


11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics. doi: 10.1111/1911-1237/12374

**Sociodemographic Indicators**

**POPULATION**
- Population (per 1,000 population): 123,518.27
- Population Density (per km²): 65

**MORTALITY**
- Crude Mortality Rate (per 1,000 population): 5.78
- All-Cause <5 Mortality Rate (per 1,000 live births): 11.38
- Communicable Disease Mortality Rate (per 100,000 population): 58

**PUBLIC HEALTH**
- Number of Physicians (per 10,000 population): 21
- Percentage of Rural Population: 21%
- Public Health Expenditure per Household (PPP*: int $): 1,062

---

**SURVEILLANCE SYSTEM CHARACTERISTICS**

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
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<tbody>
<tr>
<td>No*</td>
<td>Sentinel</td>
<td>100%</td>
<td>Weekly</td>
<td>5/year***</td>
<td>398</td>
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<tr>
<td>No**</td>
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<td>10%/ day</td>
<td>Weekly</td>
<td>5/year***</td>
<td>560</td>
<td></td>
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<tr>
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<td>Weekly</td>
<td>5/year***</td>
<td>560</td>
<td>SISVEFLU Yes</td>
<td></td>
<td>Online</td>
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</table>

**INFORMATION SYSTEMS**

- **SARI**
  - No* Sentinel
  - 100% Clinical cases
  - Weekly shipment of samples
  - 5 visits/year
  - 398 sites
- **INFLUENZA**
  - Yes Sentinel
  - 100% Clinical cases
  - Weekly shipment of samples
  - 5 visits/year
  - 560 sites

*PPP - Purchasing Power Parity

---

**Mexico**

**Influenza and Other Respiratory Viruses**

---

**Surveillance Systems**

- **SARI**
  - No* Sentinel
  - 100% Clinical cases
  - Weekly shipment of samples
  - 5 visits/year
  - 398 sites
- **INFLUENZA**
  - Yes Sentinel
  - 100% Clinical cases
  - Weekly shipment of samples
  - 5 visits/year
  - 560 sites

---

**Surveillance Map**

- **SARI Hospitals [N=398]**
  - National Influenza Center (No-1)
- **ILC Centers [N=560]**
  - Regional Laboratories with PCR Capacity (N=37)

---

* 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 required as a cardinal symptom.

*** There are 5 visits during the year to different entities of the country where most of the sentinel sites are evaluated.
**DATA FROM SEVERE CASES**

**SARI DATA**

Composition: Northern Hemisphere

Month of vaccine administration: October 2016

% of older adults vaccinated: 90.6 in 2014

% of children <5 vaccinated: 79.1 in 2014

Available: Yes

Part of an all-hazards plan: Yes

Year of original publication: 2006

Year of last revision/update: 2010

**INTERSECTAL MEETINGS**

Yes

**INFORMATION-SHARING BETWEEN SECTORS**

Yes

**SURVEILLANCE OF UNUSUAL RESPIRATORY CASES WITH ANIMAL EXPOSURE**

Yes

**VVIROLOGIC DATA**

**ARI DATA**

**INFLUENZA & RSV DATA**

No data available.

**DATA FROM AMBULATORY CASES**

**Availa**

**Available: Yes**

**Part of an all-hazards plan: Yes**

**Year of original publication: 2006**

**Year of last revision/update: 2010**
Nicaragua
Influenza and Other Respiratory Viruses

**Sociodemographic Indicators**

**Population**
- Population (per 1,000 population): 6,082.03
- Population Density (per km²): 51

**Mortality**
- Crude Mortality Rate (per 1,000 population): 5
- All-Cause <5 Mortality Rate (per 1,000 live births): 22.1
- Communicable Disease Mortality Rate (per 100,000 population): 75

**Public Health**
- Number of Physicians (per 10,000 population): 9
- Percentage of Rural Population: 41%
- Public Health Expenditure per Household (PPP*: int $): 355

*PPP* - Purchasing Power Parity

**Surveillance System Characteristics**

<table>
<thead>
<tr>
<th>Surveillance System</th>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
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<tr>
<td>SARI</td>
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<td>&gt;1000 establishments</td>
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<td>-</td>
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<td>9</td>
<td>SIVEFLU</td>
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<td>No</td>
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</table>

**Information Systems**

- **SARI**
  - Name: Nicaragua
  - National Influenza Center
  - Technical capacity: IF, RT-PCR, viral isolation
  - Average samples processed/year: 5,223

- **Regional Laboratory with IF Capacity**
  - Name: Masaya (3), Managua (5)
  - Technical capacity: IF
<table>
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<tr>
<th>Composition</th>
<th>Southern Hemisphere</th>
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<td>% of older adults vaccinated</td>
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<tr>
<td>% of children &lt;5 vaccinated</td>
<td>NA</td>
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</table>

| 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 |
### Sociodemographic Indicators

**POPULATION**
- Population (per 1,000 population): 3,975.40
- Population Density (per km²): 53

**MORTALITY**
- Crude Mortality Rate (per 1,000 population): 4.6
- All-Cause <5 Mortality Rate (per 1,000 live births): 3.4
- Communicable Disease Mortality Rate (per 100,000 population): 41.2

**PUBLIC HEALTH**
- Number of Physicians (per 10,000 population): 15.7
- Percentage of Rural Population: 33%
- Public Health Expenditure per Household (PPP* int $): 1299

### Surveillance System Characteristics

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<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
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<th>Name</th>
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<td>Daily or weekly</td>
<td>Annual</td>
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<td>SISVG</td>
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<td>Online</td>
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<tr>
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<td>Sentinel</td>
<td>Weekly quota</td>
<td>Daily or weekly</td>
<td>Annual</td>
<td>19</td>
<td>SISVG</td>
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<td>Online</td>
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<td>National</td>
<td>-</td>
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<td>Annual</td>
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<td>Annual</td>
<td>45</td>
<td>SISVG</td>
<td>No</td>
<td>Online</td>
</tr>
</tbody>
</table>

### Information Systems

- **ILI Centers (N=12)**
  - Panama City (6), Chiriquí (2), Veraguas (2), Colon, San Miguel (2), Los Santos

- **SARI Hospitals (N=10)**
  - Panama City (3), Chiriquí (2), Veraguas, Colon, San Miguel, Panama Oeste, Los Santos

- **Regional Laboratory with PCR Capacity (N=1)**
  - Hospital Juan Domingo Obando

- **Laboratory with IF capacity (N=1)**
  - Hospital Luis Chico Fabrega

- **National Influenza Center (N=1)**
  - Laboratory for viral diseases (Laboratorio de Virología de Las Cánceres)
    - Technical capacities:
      - IF, RT-PCR, viral isolation
      - Average samples processed/year: 1,672

*PPP - Purchasing Power Parity"
**Composition**

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<th>Month of vaccine administration <em>n=2016</em></th>
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<td>% of older adults vaccinated <em>n=2014</em></td>
<td>68.8%</td>
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<td>% of children &lt;5 vaccinated <em>n=2014</em></td>
<td>21.7%</td>
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**Available**

- Yes

**Part of an all-hazards plan**

- 

**Year of original publication**

- 2009

**Year of last revision/update**

- 

**Intersectoral meetings**

- Yes

**Information-sharing between sectors**

- Yes

**Surveillance of unusual respiratory cases with animal exposure**

- Yes
Paraguay
Influenza and Other Respiratory Viruses

Sociodemographic Indicators

POPULATION

| Population (per 1,000 population) : 6,639.12 |
| Population Density (per km²) : 17 |

MORTALITY

| Crude Mortality Rate (per 1,000 population) : 6 |
| All-Cause <5 Mortality Rate (per 1,000 live births) : 20.5 |
| Communicable Disease Mortality Rate (per 100,000 population) : 77 |

PUBLIC HEALTH

| Number of Physicians (per 10,000 population) : 12.3 |
| Percentage of Rural Population : 40% |
| Public Health Expenditure per Household (PPP* int $) : 690 |

*PPP- Purchasing Power Parity

SURVEILLANCE SYSTEM CHARACTERISTICS

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
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<td>2-3 weekly</td>
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<td>ILI and SARI system</td>
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<td>ENOS</td>
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INFORMATION SYSTEMS

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<tr>
<td>19</td>
<td>Map</td>
<td>20</td>
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</tbody>
</table>

- SARI Hospitals (N=10)
  - Asunción (Instituto de Medición 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 Tabarre), Hospital General Padre Damián - Niños de Asunción I, 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 (LCP)
    - Technical capacity:
      - RT-PCR, viral isolation
    - Average samples processed/year: 5,460

- Regional Laboratory (N=2)
  - Laboratorio Hospital Pediatrónico de San Lorenzo
  - Laboratorio Hospital Ciudad del Este
### Composition

<table>
<thead>
<tr>
<th>Southern Hemisphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month of vaccine administration</td>
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<tr>
<td>% of older adults vaccinated</td>
</tr>
<tr>
<td>% of children &lt;5 vaccinated</td>
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</tbody>
</table>

#### 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 process |

#### Surveillance of unusual respiratory cases with animal exposure

| Yes |

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12. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics. doi: 10.1111/j.1365-3109.2012.04324.x
Peru
Influenza and Other Respiratory Virus

**Sociodemographic Indicators**

- **Population (per 1,000 population)**: 31,376.67
- **Population Density (per km²)**: 25

**Mortality**

- **Crude Mortality Rate (per 1,000 population)**: 67
- **All-Cause <5 Mortality Rate (per 1,000 live births)**: 16.9
- **Communicable Disease Mortality Rate (per 100,000 population)**: 121

**Public Health**

- **Number of Physicians (per 10,000 population)**: 11.3
- **Percentage of Rural Population**: 21%
- **Public Health Expenditure per Household (PPP* int $)**: 575

*PPP - Purchasing Power Parity

**Surveillance System Characteristics**

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
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</table>

**Information Systems**

- **Surveillance Map**
- **Laboratory with PCR Capacity (N=2)**
  - Cusco, Loreto
    - Technical capacity: IF, RT-PCR
- **Laboratories with IF Capacity (N=16)**
  - Ancash, Arequipa, Ayacucho, Cajamarca, Huancavelica, Junín, Lambayeque, Piura, Puno, Tacna, Tumbes, Ucayali
  - Technical capacity: IF
- **SARI Hospitals (N=7)**
  - Región Cusco, Región Lambayeque, Lima (2) Región Loreto, Región Puno, Región Tacna
- **Sentinel ILI Sites (N=21)**
  - (Not shown in map)
**Human-Animal Interface for Influenza**

**DATA FROM SEVERE CASES**
No data available.

**DATA FROM AMBULATORY CASES**
No data available.

**VIROLOGIC DATA**

**INFLUENZA & RSV DATA**

- % of older adults vaccinated: 89%
- % of children <5 vaccinated: 36.5%

---

**Composition**

- Southern Hemisphere

**Month of vaccine administration**

- April

**% of older adults vaccinated**

- *n=2016*
- 89%

**% of children <5 vaccinated**

- *n=2014*
- 36.5%

---

**Available**

- Yes

**Part of an all-hazards plan**

- No

**Year of original publication**

- 2007

**Year of last revision/update**

- 2014

**Intersectoral meetings**

- Yes

**Information-sharing between sectors**

- Yes

**Surveillance of unusual respiratory cases with animal exposure**

- Yes

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5. WHO - World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1
7. WHO - World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1
11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics - eLife. 10.1111/eLife.12274
### Sociodemographic Indicators

**Population**
- Population (per 1,000 population): 185
- Population Density (people per km²): 303

**Mortality**
- Crude Mortality Rate (per 1,000 population): 7
- All-Cause <5 Mortality Rate (per 1,000 live births): 14.3
- Communicable Disease Mortality Rate (per 100,000 population): NA

**Public Health Access**
- Number of Physicians (per 10,000 population): 1.1
- Percentage of Rural Population: 81%
- Public Health Expenditure per Household (PPP* int $): 829

### Surveillance System Characteristics

<table>
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<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
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<td>Hospitalization and Laboratory Database</td>
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### Information Systems

- SARI Hospitals (N=2)
  - Victoria Hospital, St. Jude Hospital (Vieux Fort)

- ILI Centres (N=36)
  - (Not displayed in map)
  - Arise (4), Babonneau (4), Canaries (1), Castries (5), Choiseul (3), Dennery (5), Gros Islet (5), Labone (2), Micoud (4), Soufrière (4), Vieux Fort (4)
**DATA FROM SEVERE CASES**

**SARI DATA**

*No data available.*

**DATA FROM AMBULATORY CASES**

**INFLUENZA & RSV DATA**

*No data available.*

---

**Composition**

**Southern Hemisphere**

**Month of vaccine administration**

*2016*

April

**% of older adults vaccinated**

*2014*

NA

**% of children <5 vaccinated**

*2014*

NA

---

**Available**

Yes

**Part of an all-hazards plan**

Yes

**Year of original publication**

2006

**Year of last revision/update**

2009

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**Intersectoral meetings**

In process

**Information-sharing between sectors**

In process

**Surveillance of unusual respiratory cases with animal exposure**

In process

---

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7. WHO, World Health Statistics, 2016; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
12. Ruperto S et al. Influenza vaccination in the Americas 2016; Human Vaccines Immunotherapeutics, 12(6), 2206-2214. DOI: 10.1080/21645515.2016.1117240

---
**Suriname**

Influenza and Other Respiratory Virus

### Sociodemographic Indicators

<table>
<thead>
<tr>
<th>POPULATION</th>
<th>MORTALITY</th>
<th>PUBLIC HEALTH ACCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (per 1,000 population): 542.98</td>
<td>Crude Mortality Rate (per 1,000 population): 7</td>
<td>Number of Physicians (per 10,000 population): NA</td>
</tr>
<tr>
<td>Population Density (per km²): 3</td>
<td>All-Cause &lt;5 Mortality Rate (per 1,000 live births): 21.3</td>
<td>Percentage of Rural Population: 34%</td>
</tr>
</tbody>
</table>

### Surveillance System Characteristics

<table>
<thead>
<tr>
<th>SURVEILLANCE SYSTEM CHARACTERISTICS</th>
<th>INFORMATION SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO case definition used</td>
<td>Name</td>
</tr>
<tr>
<td>Surveillance strategy</td>
<td>Sampling of clinical cases</td>
</tr>
<tr>
<td>SARI</td>
<td>Yes</td>
</tr>
<tr>
<td>PNEUMONIA</td>
<td>Yes</td>
</tr>
<tr>
<td>ARD</td>
<td>No* (Admission Diagnosis)</td>
</tr>
<tr>
<td>MORTALITY</td>
<td>No**</td>
</tr>
</tbody>
</table>

**Sentinel**

**FluID**

**LOGBOOK**

**TELEFONADE (Coastal)/ BOLLETJES (Interior)**

**EPI-INFO/MORT**

*PPP- Purchasing Power Parity

**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)**
  - Nicolae Jachimiperaar
  - Mungroo Street Ziektenhuis
  - Nicolae (MSZHN)
  - Paramaribo’s Lands Hospital (LH), Academic Hospital Paramaribo (AZP)

- **ILI Centers (N=1)**
  - Paramaribo-GROPAVO Center

- **National Laboratory with IF capacity (N=1)**
  - Bureau voor Openbare Gezondheidszorg
  - Technical capacity: IF

- **National Laboratory with PCR capacity (N=2)**
  - Medisch Wetenschappelijk Instituut (MWI)
  - Technical capacity: PCR-RT, IF
  - Technical capacity: multiplex PCR, IF
  - Currently this lab carries out research only, not surveillance
DATA FROM SEVERE CASES

SARI DATA

DATA FROM AMBULATORY CASES

ILI DATA

VIROLOGIC DATA

INFLUENZA & RSV DATA

Composition

Northern Hemisphere

Month of vaccine administration

November

% of older adults vaccinated

NA

% of children <5 vaccinated

NA

Available

Yes

Part of an all-hazards plan

No

Year of original publication

2009

Year of last revision/update

-

Intersectoral meetings

Yes

Information-sharing between sectors

Yes

Surveillance of unusual respiratory cases with animal exposure

-
Trinidad & Tobago
Influenza and Other Respiratory Virus

**SOCIODEMographic Indicators**

<table>
<thead>
<tr>
<th>POPULATION</th>
<th>MORTALITY</th>
<th>PUBLIC HEALTH ACCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (per 1,000 population): 1,353.895</td>
<td>Crude Mortality Rate (per 1,000 population): 8.23</td>
<td>Number of Physicians (per 10,000 population): 11.8</td>
</tr>
<tr>
<td>Population Density (per km²): 264</td>
<td>All-Cause &lt;5 Mortality Rate (per 1,000 live births): 14.5</td>
<td>Percentage of Rural Population: 92%</td>
</tr>
<tr>
<td></td>
<td>Communicable Disease Mortality Rate (per 100,000 population): 80</td>
<td>Public Health Expenditure Per household (PPP int $): 3428</td>
</tr>
</tbody>
</table>

**SURVEILLANCE SYSTEM CHARACTERISTICS**

<table>
<thead>
<tr>
<th>WHO case definition used</th>
<th>Surveillance strategy</th>
<th>Sampling of clinical cases</th>
<th>Shipment of samples to NIC (or laboratory)</th>
<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>Quota</td>
<td>Yes</td>
<td>No</td>
<td>2</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>No; ICD-10 codes: J00-06, 12-22</td>
<td>National</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>All hospitals</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>National</td>
<td>Quota</td>
<td>Yes</td>
<td>NA</td>
<td>All hospitals</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**INFORMATION SYSTEMS**

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

**Surveillance Map**

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

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

---

*PPP- Purchasing Power Parity*
DATA FROM SEVERE CASES

No data available.

DATA FROM AMBULATORY CASES

No data available.

VIROLOGIC DATA

INFLUENZA DATA

Composition

Northern Hemisphere

Month of vaccine administration

October

% of older adults vaccinated

16.3

% of children <5 vaccinated

6.1

Available

Yes

Intersectoral meetings

Yes

Part of an all-hazards plan

No

Information-sharing between sectors

Yes

Year of original publication

2005

Surveillance of unusual respiratory cases with animal exposure

Yes

Year of last revision/ update

2013

No data available.

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12. Roper A et al. Influenza vaccination in the Americas Progress and challenges after pandemic Hum Vac Imm 2016; Human Vaccines & Immunotherapeutics, 12:8, 2206-2214, DOI: 10.1080/21645515.2016.1157240
**United States of America**

**Influenza and Other Respiratory Virus**

### Sociodemographic Indicators

**POPULATION**
- Population (per 1,000 population): 321,418.82
- Population density (people per km²): 35

**MORTALITY**
- Crude Mortality Rate (per 1,000 population): 8
- All-Cause <5 Mortality Rate (per 1,000 live births): 6.5
- Communicable Disease Mortality Rate (per 100,000 population): 31

**PUBLIC HEALTH ACCESS**
- Number of Physicians (per 10,000 population): 24.5
- Percentage of Rural Population: 18%
- Public Health Expenditure Per household (PPP* int $): 8845

*PPP- Purchasing Power Parity

### Surveillance Systems

#### INFLUENZA

- **SARI**
  - WHO case definition used: No*
  - Surveillance strategy: Sentinel
  - Sampling of clinical cases: 100%
  - Shipment to NIC (or laboratory): No
  - Evaluation of sites surveillance: Annually
  - Number of sites: All hospitals in 70 counties
  - Laboratory confirmed influenza related hospitalizations: Yes
  - Online report: Online

- **ILI**
  - WHO case definition used: No**
  - Surveillance strategy: Sentinel
  - Sampling of clinical cases: Quota (see here)
  - Shipment to NIC (or laboratory): Weekly
  - Evaluation of sites surveillance: Annually
  - Number of sites: 2800 clinics
  - 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: Yes
  - Online report: Online

- **MORTALITY**
  - WHO case definition used: -
  - Surveillance strategy: National
  - Sampling of clinical cases: No
  - Shipment to NIC (or laboratory): No
  - Evaluation of sites surveillance: NA
  - Number of sites: All pneumonia and influenza deaths
  - Laboratory confirmed influenza related hospitalizations: National Center for Health Statistics (NCHS)
  - Online report: Yes

- **NREVSS**
  - WHO case definition used: -
  - Surveillance strategy: National
  - Sampling of clinical cases: 100%
  - Shipment to NIC (or laboratory): Weekly
  - Evaluation of sites surveillance: NA
  - Number of sites: >100 public Health & >300 clinical laboratories
  - Laboratory confirmed influenza related hospitalizations: WHO CC Lab System &NREVSS
  - Online report: Yes

* 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

---

**United States of America Surveillance Map**

**ILI Centers (N=2,900)**
- Includes: health centers in all 50 states, Puerto Rico, and the District of Columbia

**Hospitalization Surveillance Hospitals (N=240)**
- California (3 counties); Connecticut (2 counties); Georgia (Bocconies; Maryland (6 counties); Michigan (4 counties); Minnesota (7 counties); New Mexico (7 counties); New York (3 counties); Oregon (3 counties); Tennessee (18 counties); Ohio (10 counties); and Utah (1 city)
### Composition

<table>
<thead>
<tr>
<th>Northern Hemisphere</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Month of vaccine administration</strong></td>
</tr>
<tr>
<td>October</td>
</tr>
<tr>
<td><strong>% of older adults vaccinated</strong></td>
</tr>
<tr>
<td>NA</td>
</tr>
<tr>
<td><strong>% of children &lt;5 vaccinated</strong></td>
</tr>
<tr>
<td>NA</td>
</tr>
</tbody>
</table>

### 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

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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. WHO - World Health Statistics, 2015; http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1
11. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics. doi: 10.1111/j.1365-2179.2011.04275.x
**Uruguay**

**Influenza and Other Respiratory Virus**

**Sociodemographic Indicators**

<table>
<thead>
<tr>
<th>POPULATION</th>
<th>MORTALITY</th>
<th>PUBLIC HEALTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (per 1,000 population): 3,341.55</td>
<td>Crude Mortality Rate (per 1,000 population): 9</td>
<td>Number of Physicians (per 10,000 population): NA</td>
</tr>
<tr>
<td>Population density (per km²): 20</td>
<td>All-Cause &lt;5 Mortality Rate (per 1,000 live births): 21.2</td>
<td>Percentage of Rural Population: 30%</td>
</tr>
<tr>
<td></td>
<td>Communicable Disease Mortality Rate (per 100,000 population): NA</td>
<td>Public Health Expenditure per Household (PPP* int $): 577</td>
</tr>
</tbody>
</table>

**SURVEILLANCE SYSTEM CHARACTERISTICS**

<table>
<thead>
<tr>
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<th>Sampling of clinical cases</th>
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<th>Evaluation of surveillance sites</th>
<th>Number of sites</th>
<th>Name</th>
<th>Lab and epi integration</th>
<th>Online report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Sentinel</td>
<td>100%</td>
<td>Monday to Friday (to the NIC)</td>
<td>Monthly</td>
<td>7</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**INFORMATION SYSTEMS**

- Sentinel 100% Monday to Friday (to the NIC) Monthly 7 Yes Yes

**Surveillance Systems**

- **SAR** (Sentinel 100% Monday to Friday (to the NIC) Monthly 7 Yes Yes)

**Surveillance Map**

- National Influenza Center (N=1)
- Departamento de Laboratorio de Salud Pública
- Technical capacity:
  - IF, RT-PCR, viral isolation
- Average samples/year: 1,196

**Surveillance Systems Map**

- **SAR** (Hospitals N=44)
  - Canelones (1), Maldonado (1), Montevideo (3), Rivera (1), Paysandú (1)
### Composition

<table>
<thead>
<tr>
<th>Month of vaccine administration</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of older adults vaccinated</td>
<td>30%</td>
</tr>
<tr>
<td>% of children &lt;5 vaccinated</td>
<td>29%</td>
</tr>
</tbody>
</table>

### Intersectoral meetings

- Yes

### Information-sharing between sectors

- Yes

### Surveillance of unusual respiratory cases with animal exposure

- Yes

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1. U.S. Census Bureau, Population Pyramid, 2017; [https://www.census.gov/](https://www.census.gov/)
4. WHO-World Health Statistics, 2015; [http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1](http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1)
5. WHO-World Health Statistics, 2015; [http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1](http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf?ua=1&ua=1)
6. Hirve S. Seasonal influenza vaccine policy, use and effectiveness in the tropics and subtropics; doi: 10.1111/jvi.12374

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# Annex A: Case Definitions

<table>
<thead>
<tr>
<th>Case</th>
<th>Case Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Severe Acute Respiratory Infection (SARI)</strong></td>
<td>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. (WHO, 2014)</td>
</tr>
<tr>
<td><strong>Influenza-Like Illness (ILI)</strong></td>
<td>An acute respiratory infection with: measure fever of ≥38°C and cough. (WHO, 2014)</td>
</tr>
</tbody>
</table>