Update
New virus *Influenza* A (H1N1)

Regional Report
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The data and information of this report are updated daily and are available at: http://new.paho.org/hq/index.php?option=com_frontpage&Itemid=1&lang=en Data can change as new notifications from countries are received.

The information is obtained from official websites of the Ministries of Health of the countries of the Americas and information submitted by the International Health Regulations (IHR) National Focal Points.

Summary of the current situation

Up to **29 May 2009**, **15,871 confirmed cases** of the new virus influenza A (H1N1) infection, including **113 deaths**, have been notified in **19 countries** of the Americas: Argentina, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras Mexico, Panama, **Paraguay**, Peru, United States, Uruguay and **Venezuela**. **(Figure 1)**

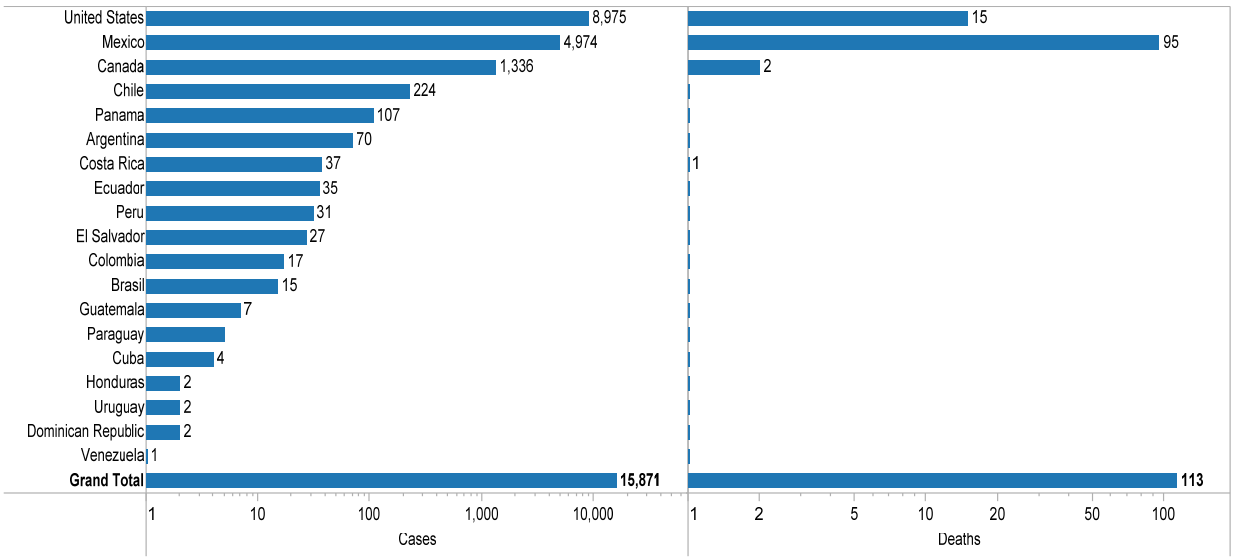
The date of the onset of symptoms of the first confirmed case was 28 March 2009 in the United States.

WHO is not recommending any travel restrictions related to the outbreak of the *Influenza* A (H1N1) virus.

In the Americas Region, there were **1.471 confirmed cases** more than the previous day.

Paraguay and Venezuela have been reported **their first cases** (**5** cases and **1** case respectively), increasing to **19** the **countries** affected in the Region of the Americas

Figure 1. Number of confirmed cases and deaths by the new virus *Influenza* A (H1N1) Countries of the Americas - Updated to 29 May 2009



Source: Ministries of Health of the countries of the Americas.

Considerations for assessing the severity of an influenza pandemic

The WHO pandemic phases1 are based on the geographical spread of a pandemic virus and are intended as a global call to countries to increase their alertness and readiness. However, within each phase, countries may find it useful to assess the specific severity parameters of a pandemic at the national or regional level, as such assessments can be used to efficiently target and scale the use of limited resources and interventions aimed at lowering pandemic-associated morbidity and mortality.

Assessment of the severity of a pandemic is complex. Experience has shown that past influenza pandemics have varied in terms of severity, and that the associated health impacts may vary significantly based on a variety of factors.

First, severity may vary from country to country and among different population groups or geographical locales. Therefore, a single assessment of severity at the global level may not be relevant or helpful to countries. Second, severity will likely change as an event unfolds over time. As a result, monitoring is essential to detect changes in disease patterns, disease complications, transmissibility, virulence and other such factors. Third, the robustness of a severity assessment will reflect the quality and availability of information about the virus and the people who are susceptible to infection. Such information is most limited at the beginning of a pandemic. Furthermore, some parameters of severity, such as the case-fatality ratio, require information on the number of deaths and of the number of people who have been infected; this understanding takes time to develop.

Determinants of severity

Pandemic severity has many dimensions, including economic and social consequences. However, WHO's guidance on assessment of pandemic severity is based on effects on human health.3 The guidance is focused principally at the population level rather than at the individual level.

Given these considerations, the "impact" of a pandemic on a population is a function of 3 determinants: (i) the pandemic virus and its virological characteristics, as well as the epidemiological and clinical manifestations; (ii) the vulnerability of the population; and (iii) the capacity of the population for response.

An assessment of these 3 determinants will provide the most complete estimate of pandemic severity at national and subnational levels. Each of these aspects is described in more detail in the sections below.

The pandemic virus

WHO has advised countries to perform a national comprehensive assessment of the epidemiological, clinical and virological characteristics of the pandemic virus. Some of these characteristics will vary as a result of climate, time of year, population density and the further evolution of the pandemic virus over time. Therefore, comprehensive assessments should be made by the first affected countries and also by as many other countries as possible as the situation evolves. Interpretation of these data will require additional information about the context in which they were collected, the methods for case-finding and how the assessments were carried out. Key data for such assessments include:

Epidemiological characteristics

- total number of suspected and confirmed cases, and deaths;
- distribution of cases and deaths by age and sex;
- distribution of cases by health status (that is, people
- at risk for complications of seasonal influenza compared with healthy people);
- clinical attack rate;
- case-fatality ratio; and
- estimates of the incubation period, reproduction number (R0) and other transmission characteristics

Clinical characteristics

- signs and symptoms of illness;
- clinical course and outcome;
- number and proportion of hospitalized cases, cases in intensive care, cases requiring mechanical ventilation; and
- proportion of cases with sub-clinical infection, typical influenza-like illness, and severe illness.

Virological characteristics

- sensitivity to antiviral agents;
- molecular markers of severity; and
- antigenicity.

Although countries will differ in their capacity to carry out assessments, WHO encourages all countries to collect and report information. All data gathered on early cases, even if limited, will still be useful for determining subsequent control, management and mitigation activities.

WHO will provide such updated summary information on a regular basis to allow countries to tailor their response measures as needed.

Table 1 summarizes epidemiological, clinical and virological data available to WHO to date, including data provided by countries, results of modeling analyses, results of special studies and other, global analyses.

Table 1 Characteristics of reported cases of new influenza A (H1N1) virus infections in humans

Characteristic	Measurement(a)
Epidemiological aspects	
Total number of cases and deaths	10 of 6764 confirmed cases have died in the United States, 80 of 4174 cases have died in Mexico, 1 of 921 cases have died in Canada and 1 of 33 cases have died in Costa Rica.(f) No deaths were reported by the remaining 42 affected countries or by Chinese Taipei.(i)
Age	Predominantly younger age groups (<30 years) are affected.(c) Range of age medians: 16–25 years,(b, c, d) (data reported directly to WHO). Overall age range: 3 months to 81 years.(b
Sex (male:female ratio)	Approximately 50:50.(b, d)
Clinical attack rate	High clinical attack rates estimated from selected groups (such as 33% of 1996 schoolchildren in one outbreak).(c)
Incubation period	Median 3–4 days (data reported directly to WHO). Range: 1–7 days.(c, d)
Reproduction number (R0)	1.4–1.6 estimated based on modeling of preliminary data from a closed community in Mexico.(j)
Community-level spread(k)	Confirmed in Mexico and the United States.(c, d)
Human exposure to swine	None reported.(b, d)
Clinical aspects	
Overall clinical features	Primarily influenza-like illness (ILI) in affected people.(b, c, d, e) Gastrointestinal symptoms have been reported in some countries,(c, d) including in 38% of outpatients in the United States.(e) Some countries have reported cases of mild or sub-clinical illness without fever.(c) – Principalement syndrome de type grippal (STG).(b, c, d, e)
Clinical features of severe cases	No reports of severe disease in most affected countries.(c, d) Limited severe disease reported in patients aged >65 years (data reported directly to WHO). Severe illness generally characterized by pneumonia and respiratory failure.(e) Coinfection and secondary bacterial infection in hospitalized patients are rare to date (data reported directly to WHO).
Hospitalization	No hospitalizations for illness in many affected countries.(c, d) Approximately 2–5% of confirmed cases in Canada and the United States and 6% in Mexico have been hospitalized.(f) Few cases hospitalized for illness are adults aged >60 years.(c)
Predisposing risk factors to severe illness	A moderate proportion of severe cases were considered to be at increased risk.(g) 64% of 30 hospitalized cases in California (USA)(h) and 46% of 45 fatal cases in Mexico(e) had underlying medical conditions. Predisposing factors were absent in about half of cases insome reports.(b) Severe disease has been noted in some pregnant women. Of 30 hospitalized cases in California (USA), 17% were pregnant.(h)
Virological aspects	
Sensitivity to antivirals	Neuraminidase inhibitors (oseltamivir, zanamivir): yes.(b) Adamantanes (amantadine, rimantadine): no.(b)
Rate of evolution	No faster than other influenza viruses.(l) As of 4 May 2009, only 5 amino acid differences were found among new influenza (H1N1) viruses evaluated by the WHO Collaborating Centre in Atlanta, GA, USA, (CDC).(l)
Molecular markers of severity	No known molecular transmissibility/pathogenicity markers or motifs, nor any further reassortments.(l)
Circulation in animals	Mostly unknown; 1 swine farm in Ontario reported an outbreak.(m)

Note. When assessing severity, responding agencies and organizations must consider that the situation is continuously evolving and investigations are ongoing. Therefore, the numbers below may not be the latest available.

a) References given in parentheses. When no reference is given, data were reported directly to WHO.
b) Novel Swine-Origin Influenza A (H1N1) Virus Investigation Team. Emergence of a novel swine-origin influenza A (H1N1) virus in humans. New England Journal of Medicine, 7 May 2009 (E-pub ahead of print) (10.1056/nejmoa0903810) (http://content.nejm.org/cgi/content/full/NEJMoa0903810?query=TOC)
c) New influenza A (H1N1) virus infections: global surveillance summary, May 2009. Weekly Epidemiological Record, 2009; 80:173–178 (http://www.who.int/wer/2009/wer8420/en/index.html).
d) WHO technical consultation on the severity of disease caused by the new influenza A (H1N1) virus infections(http://www.who.int/csr/resources/publications/swineflu/technical_consultation_2009_05_06/en/index.html). – WHO technical consultation on the severity of disease caused by the new I*nfluenza* A(H1N1) virus infections (http://www.who.int/csr/resources/publications/swineflu/technical_consultation_2009_05_06/en/index.html).
e) Human infection with new influenza A (H1N1) virus: clinical observations from Mexico and other affected countries, May 2009. Weekly Epidemiological Record, 2009; 84, 185–196 (http://www.who.int/wer/2009/wer8421/en/index.htm).
f) As these numbers represent only confirmed cases, case-fatality ratios cannot be calculated from these data.
g) People who are at risk for complications of seasonal influenza, such as the very young, pregnant women and those with underlying medical conditions. –
h) MMWR, Hospitalized Patients with Novel Influenza A (H1N1) Virus Infection — California, April — May, 2009, 22 May 2009/58(19); 536-541 (http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5819a6.htm?s_cid=mm5819a6_e).
i) WHO. Influenza A (H1N1) update 39, 26 May 2009 (http://www.who.int/csr/don/2009_05_26/en/index.html).
j) Fraser C et al. Pandemic potential of a strain of influenza A (H1N1): early findings. Science, 11 May 2009, 10.1126/science.1176062.
k) Community-level spread: occurrence of cases without a link to known cases.
l) WHO. Joint WHO–OFFLU technical teleconference to discuss human–animal interface aspects of the current influenza A (H1N1) situation. 4 May 2009 (http://www.who.int/csr/resources/publications/swineflu/who_offllu_technical/en/index.html).
m) World Organisation for Animal Health. OIE immediate notification, 02/05/2009: A/H1N1 influenza, Canada. WAHID Interface; 22 (http://www.oie.int/wahis/public.php?page=weekly_report_index&admin=0).

Vulnerability of populations

The vulnerability of a population to a pandemic virus is related in part to the level of pre-existing immunity to the virus in the population and the proportion of people who have medical or other conditions that may increase the risk for serious or fatal illness.

Pre-existing immunity

Depending on the pandemic virus, certain segments of the population (for example, the elderly) might already be partially immune because of previous infection. Descriptive data on age-specific attack rates, hospitalization rates and mortality rates and comparing them with corresponding data for typical seasonal influenza will be essential to confirm laboratory findings. Additional information on possible cross-protection may be derived from serological studies.

People at increased risk

Typically, infants and young children, the elderly, pregnant women, people with chronic underlying diseases such as cardiovascular, respiratory and liver disease, diabetics and people with immunosuppression related to malignancy, HIV infection or other diseases are at increased risk for complications of seasonal influenza. In developed countries, most fatal infections by seasonal influenza occur in the elderly.

In many under-resourced countries, the burden of seasonal influenza, as well as the segments of the population that may be disproportionately affected, have not been well documented. Additional factors, such as malnutrition, infection with other infectious diseases (for example, malaria, tuberculosis and bacterial pneumonia) may also be present. In addition, such countries often have a higher proportion of younger rather than older people, and high pregnancy rates, both of which may increase the impact of pandemic influenza.

Each country should regularly assess its own level of vulnerability to guide their mitigation measures. WHO is currently developing tools to assist countries in performing such vulnerability assessments.

Capacity for response

The capacity of a country to respond will also determine the vulnerability of a population. Key capacities include:

- access to health care;
- communication and social mobilization; and
- advance preparedness and planning.

Countries can use information about both the pandemic virus and their own vulnerability to determine possible options and resources needed to increase their national capacity to respond.

Health care

The level of access and quality of health services affect the impact of any pandemic. The same virus that has only a modest impact on morbidity and mortality in countries with strong health systems can be severe in countries where health systems are weak, supplies of medicines (including antibiotics) are limited, and hospitals are crowded, poorly equipped and understaffed.

During a pandemic, health systems may need to provide the usual health-care services while attending to an influx of patients with influenza. In order to limit morbidity and mortality, health-care facilities and resources should:

- treat people who have severe pandemic-related illness;
- give priority for treatment of people at increased risk for complications of pandemic influenza;
- use adequate triage and infection control measures; and
- provide the necessary care and treatment for other life-threatening medical conditions in the population.

WHO will continue to provide guidance5 on treatment measures, with particular emphasis on health care in lower-resourced countries.

Communication and social mobilization

Communication and social mobilization are critical for an effective national response to a pandemic.6 Countries are in the best position to determine the most effective means of providing regularly updated information to health-care and other essential workers, the public and other national stakeholders. Information that should be communicated includes what is known and not known about the pandemic virus and the disease it causes; appropriate home-based care; when to seek medical help; who might be increased risk for complications and more severe disease; sources of medical care and treatment; and measures people can take to reduce their risk of infection.

Communication and social mobilization should encourage the people in the community to become partners in the response and recognize that all have an important role to play.

Advance planning and preparedness to increase resilience

Advance planning and preparedness can help countries to make and implement the necessary decisions to reduce the impact of a pandemic. In some cases, under resourced countries may be able to apply experiences such as mass campaigns to distribute vaccines and medications, management of chaotic events (such as famines or outbreaks of infectious diseases) that have required delivery of health care to large numbers of people in improvised settings. Country capacity might, as necessary, be supplemented by assistance from nongovernmental organizations, United Nations agencies and other internal and external organizations and social networks.

Each country should regularly assess its capacity to respond in view of the epidemiological, clinical and virological characteristics of the pandemic virus and its own vulnerabilities. WHO is currently developing tools to assist countries in performing such assessments.

References:

1. WHO Global Influenza Programme. Aide-memoire: WHO pandemic phase descriptions and main actions by phase (available at http://www.who.int/csr/disease/influenza/GlPA3AideMemoire.pdf; accessed May 2009).
2. Pandemic influenza prevention and mitigation in low resource communities. Geneva, World Health Organization, 2009 (available at http://www.who.int/csr/resources/publications/swineflu/PI_summary_low_resource_02_05_2009.pdf; Accessed May 2009)
3. See http://www.who.int/csr/disease/swineflu/assess/disease_swineflu_assess_20090511/en/ and http://www.who.int/csr/resources/publications/swineflu/technical_consultation_2009_05_06/en/
4. For the most current version of WHO's recommendations on case-based reporting for new influenza A (H1N1) virus infection, see http://www.who.int/csr/resources/publications/swineflu/interim_guidance/en/index.html
5. See http://www.who.int/csr/resources/publications/swineflu/clinical_management/en/index.html
6. See http://www.who.int/csr/resources/publications/WHO_CDS_2005_32/en/index.html

Source: Weekly Epidemiological Record - 29 may 2009 - No. 22, 2009, 84, 197–212 - http://www.who.int/wer

For further information visit the PAHO portal for the new Influenza virus A (H1N1): http://new.paho.org/hq/index.php?option=com_content&task=blogcategory&id=805&Itemid=569&lang=en

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