

## **II. Purpose**

This assessment explores the characteristics and impact of the 2009 H1N1 virus in selected southern hemisphere countries during the period of May to August, which coincides with their normal influenza season. This assessment is intended to assist the U.S. Government in its preparedness efforts. The selected countries include Argentina, Australia, Chile, New Zealand, and Uruguay as they more closely resemble the U.S. with respect to demographics and economic development.

## **III. Introduction**

This assessment contains information derived mainly from reports of the Ministries of Health of the selected countries covering the period from May 1 to August 24, 2009. Additional sources of information include official government publications, press releases, and reports from U.S. embassies abroad. The document is organized as follows: first, a narrative summary of the Southern Hemisphere experience is presented, along with a table comparing 2009 H1N1 outbreak characteristics, timelines and geographic distribution, virology, epidemiology, control measures implemented, and healthcare system and socioeconomic impacts (Table 1); second, an annex contains a more detailed analysis of these parameters by individual country.

The detection of the 2009 H1N1 virus in Mexico in April 2009 was followed immediately by the identification of laboratory confirmed cases in the U.S. and Canada. By May, widespread infection was occurring in North America, prompting the World Health Organization (WHO) to declare the first public health emergency of international concern under the revised 2005 International Health Regulations. The virus spread rapidly around the world, and on June 11, 2009, WHO raised the pandemic alert to Phase 6, indicating sustained spread globally. As of August 2009, the 2009 H1N1 virus is the predominant influenza A virus subtype reported in the world.

The virus spread to the Southern Hemisphere's temperate countries concurrent with the beginning of their annual influenza season, which typically occurs from May to October. The assessment of the epidemiological data, viral characteristics, morbidity and mortality, disease trends, health care and community mitigation practices and socio-economic impacts in Argentina, Australia, Chile, New Zealand, and Uruguay provides information that may be used for planning purposes for the upcoming influenza season in the Northern Hemisphere.

Implications drawn from this comparison of the characteristics and severity of the 2009 H1N1 outbreak in the selected countries to that in the U.S. may be limited. Surveillance systems and categories of data collected and reported differ substantially among countries. For example, some countries focus surveillance on patients with influenza-like illness (ILI) and perform laboratory diagnostic testing on a high percentage of suspect cases whereas other countries primarily test only the most severe cases. Some countries track the percentage of 2009 H1N1 virus with respect to influenza viruses while others calculate the percentage of 2009 H1N1 with respect to all respiratory viruses. With respect to affected age groups and hospitalization rates, Australia, Chile, New Zealand, and Uruguay report information based on laboratory confirmed 2009 H1N1 data while Argentina reports data on Acute Respiratory Infections. In addition, during the course

of the pandemic, access to medical care and approaches to antiviral treatment varied with location and evolved over the course of the event. Therefore only limited inferences or limited conclusions can be made regarding effectiveness of treatment are limited as are precise assessments of morbidity and mortality data. Thus, the data and observations included in this report should not be considered definitive but as a preliminary assessment to help guide the decision making in the U.S.

## **IV. Comparative Assessment Summary: The 2009 H1N1 Pandemic in Southern Hemisphere Countries**

### ***2009 H1N1 outbreak timelines and geographic distribution***

All five countries included in this report detected their first cases of 2009 H1N1 in late April (New Zealand) or May (Argentina, Australia, Chile and Uruguay). Similar to the U.S., soon after confirmation of the first case, the virus spread throughout each country, with the highest number of cases of ILI reported in late June or early July. All countries report that after mid July, disease activity in most parts of the country decreased (generally, a range of 6-7 weeks from first reports to peak event). This indicates that the duration of the current influenza season in the Southern Hemisphere, in which the 2009 H1N1 virus was the predominate strain, may be similar in length to an average seasonal influenza season.<sup>1</sup>

### ***Virology***

Virologic surveillance data indicates that the 2009 H1N1 virus has become the dominant influenza virus in all countries where it has been circulating. According to the WHO Global Influenza Surveillance Network (GISN), as of August 8, 79% of all influenza viruses currently detected globally was 2009 H1N1 (66% in the Northern Hemisphere and 89% in the Southern Hemisphere).

The 2009 H1N1 virus remains antigenically unchanged since it was first identified in April 2009. This indicates that the currently circulating 2009 H1N1 virus strains are similar to the strains being used for manufacturing the pandemic vaccine. Sequencing data indicate that the virus has been genetically and antigenically stable. The HHS Centers for Disease Control and Prevention (CDC) has performed genetic sequencing on over 1,484 genes from over 415 viral isolates from 331 cases including 256 cases from North America, 30 cases of 2009 H1N1 viruses from South American countries in the Southern Hemisphere (including Argentina, Brazil, Chile, Bolivia, Ecuador, Uruguay, and Paraguay) as well as from Colombia and Surinam, 19 cases from more than 12 countries in Central America and the Caribbean, 10 cases from Asia, 4 cases from Europe, 8 cases from Africa, and 2 cases from Oceania (specifically 2 cases from New Zealand). All 2009 H1N1 viral genes have a high degree of similarity, and show no differences over time or geographic location. Nearly all viruses tested have been sensitive to neuraminidase inhibitors

---

<sup>1</sup> Disease associated with 2009 H1N1 influenza is increasing in South Africa, which experienced a normal, two and half month season of seasonal influenza where influenza A (H3N2) virus predominated. Close monitoring of the situation in southern Africa will be critical in understanding how 2009 H1N1 may affect Africa, particularly given the higher prevalence of poverty, HIV/AIDS and malnutrition and limited access to health care.