Epidemiology of Dengue in Latin America

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Dengue is a mosquito-borne viral disease. It is estimated that 50 million dengue infections occur each year with 500 000 cases of dengue hemorrhagic fever and at least 12 000 deaths, mainly among children. Globally, 2.5 billion people now live in over 100 countries or territories where dengue viruses can be transmitted [1].

The region of the Americas have experienced an important increase in the number of reported cases over the last 30 years, evolving from a low to a high endemicity situation, with indigenous transmission in almost all countries [2]. The only countries that have not reported indigenous cases are Canada, Uruguay, and Chile (continental territory).

Suspected and confirmed dengue cases in the Americas, severe or not severe, deaths and serotypes circulating are reported annually (on a weekly basis) to the Pan American Health Organization (PAHO) by the countries, and data are available from 1995 in the PAHO Dengue website [3]. More detailed information on dengue cases by age, seasonality, and data on serotypes circulating by region or departments of the countries is available on the Ministry of Health (MoH) websites of many countries in the region, such as Mexico, Brazil, Venezuela, Paraguay, etc.

SEROTYPES

The 4 dengue serotypes are circulating in the region, sometimes with a hyperendemic pattern (cocirculation of 2 or more serotypes). In 2013, the countries reporting the cocirculation of all serotypes were as follows: Mexico, Guatemala, Nicaragua, Colombia, Venezuela, French Guiana, Guadeloupe, Martinique, Brazil, Peru, and Argentina [2].

REPORTED CASES: OUTBREAKS

In 2013, record figures of more than 2 million dengue cases were reported, more than the total cases reported in the whole region in 2012 (Supplementary Figure 1). In the last 15 years, Brazil, Mexico, Colombia, and Venezuela have had the most important outbreaks in Latin America in terms of number of cases (Supplementary Figure 2). In 2013, 4 countries (Brazil, Mexico, Colombia, and Paraguay) had outbreaks, reporting the 83% of total dengue cases of that year [3].

SEASONALITY

Epidemic patterns of 3–5 years have been observed, with an increasing number of reported cases in the last 5 years. Cases have been reported with a seasonality pattern related to rainy season in most of countries. Countries such as Mexico and Honduras have cases mostly reported in the second half of the year, whereas Brazil, Peru, and Paraguay report cases mostly in the first half of the year. Colombia and Venezuela report cases during the whole year, with an increase of cases at rainy season [2, 4–6].

AGE DISTRIBUTION

There is a trend of severe cases in younger ages in the last 10 years in Latin America, compared with what had been observed previously (most frequent in young adults). For example, the highest incidence of cases in Venezuela in 2013 (>400 per 100 000 inhabitants) were reported in children <15 years old, including children <1 years old [7]. In Mexico, the dengue incidence for dengue and dengue severe is higher in people between 10 and 19 years old [2, 8].

ETIOLOGY

Some macro-determinant factors may contribute to the increasing dengue cases, such as the following: unprecedented population growth, unplanned and uncontrolled urbanization, poverty, population movement (migration, tourism), and climatic change.
CONTROL MEASUREMENTS: INTEGRATED MANAGEMENT STRATEGY

Countries continue with efforts for disease control through specific actions against Aedes mosquitoes and PAHO’s Integrated Management Strategy for dengue prevention and control. This strategy is a management model designed to strengthen national strategy, with a focus on reducing morbidity, mortality, and the societal and economic burden produced by outbreaks and epidemics. The main axis of action are as follows: (1) surveillance, to strength national surveillance systems; (2) environment, promoting public policies for the dengue control; (3) integrated vector management; (4) patient care (eg, the use of 2009 World Health Organization (WHO) Dengue clinical guidelines); (5) laboratory, with a regional network (Red de Laboratorios de Dengue de las Américas) of 22 national laboratories and 4 WHO collaborator centers; and (6) social communication, for the behavioral impact, eg, videos available via internet and addressed to children and adolescents (video game Pueblo Pitanga, available at www.pueblopitanga.com). This strategy has been implemented in 27 countries and territories of the Americas and has been evaluated in 22 countries. In addition, complementary measures such as a future dengue vaccine could represent an additional tool for Integrated Management Strategy for dengue prevention and control [9].

Supplementary Data

Supplementary materials are available at the Journal of the Pediatric Infectious Diseases Society online (http://jipids.oxfordjournals.org). Supplementary materials consist of data provided by the author that are published to benefit the reader. The posted materials are not copyedited. The contents of all supplementary data are the sole responsibility of the authors. Questions or messages regarding errors should be addressed to the author.

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