

Diphtheria in the Americas - Summary of the situation

In 2018, three countries in the Region of the Americas (Colombia, Haiti, and the Bolivarian Republic of Venezuela) reported confirmed cases of diphtheria. In 2019, the outbreaks are ongoing in Haiti and Venezuela; both have reported cases in 2019 that occurred between December 2018 and January 2019.

The following is a summary of the epidemiological situation.

In **Colombia**, between epidemiological week (EW) 1 and EW 52 of 2018 there were 56 suspected diphtheria cases reported, of which 8 were confirmed, including 3 deaths. Among the suspected cases, one case fulfils the clinical criteria, with symptom onset in EW 50 of 2018; this is a 26-year-old female Venezuelan national living in Colombia. The laboratory results are pending for final classification of this case.

In **Haiti**, between EW 51 of 2014 and EW 52 of 2018, there were 785 probable cases¹ reported, including 106 deaths; of these, 264 were confirmed (257 by laboratory criteria and 7 by epidemiological link) (**Table 1**).

Table 1. Probable and confirmed diphtheria cases in Haiti, 2014-2018 (up to EW 52).

| Year | Probable cases | Confirmed cases* | Deaths (confirmed for diphtheria) | Case-fatality rate (%) |
|--------------|----------------|------------------|-----------------------------------|------------------------|
| 2014 | 23 | 4 | 2 | 50% |
| 2015 | 77 | 31 | 7 | 23% |
| 2016 | 118 | 57 | 22 | 39% |
| 2017 | 194 | 73 | 6 | 8% |
| 2018 | 373 | 99 | 14 | 14% |
| Total | 785 | 264 | 51 | 19% |

*by laboratory criteria or epidemiological link

Source: Haiti Ministère de la Santé Publique et de la Population (MSPP)

The number of probable and confirmed cases reported in 2018 is higher than the total number of cases reported in 2017 and 2016, an increase that is attributed to increased sensitivity of the national surveillance system. The case-fatality rate among cases confirmed by laboratory or epidemiological link was 23% in 2015, 39% in 2016, 8% in 2017, and 14% in 2018.

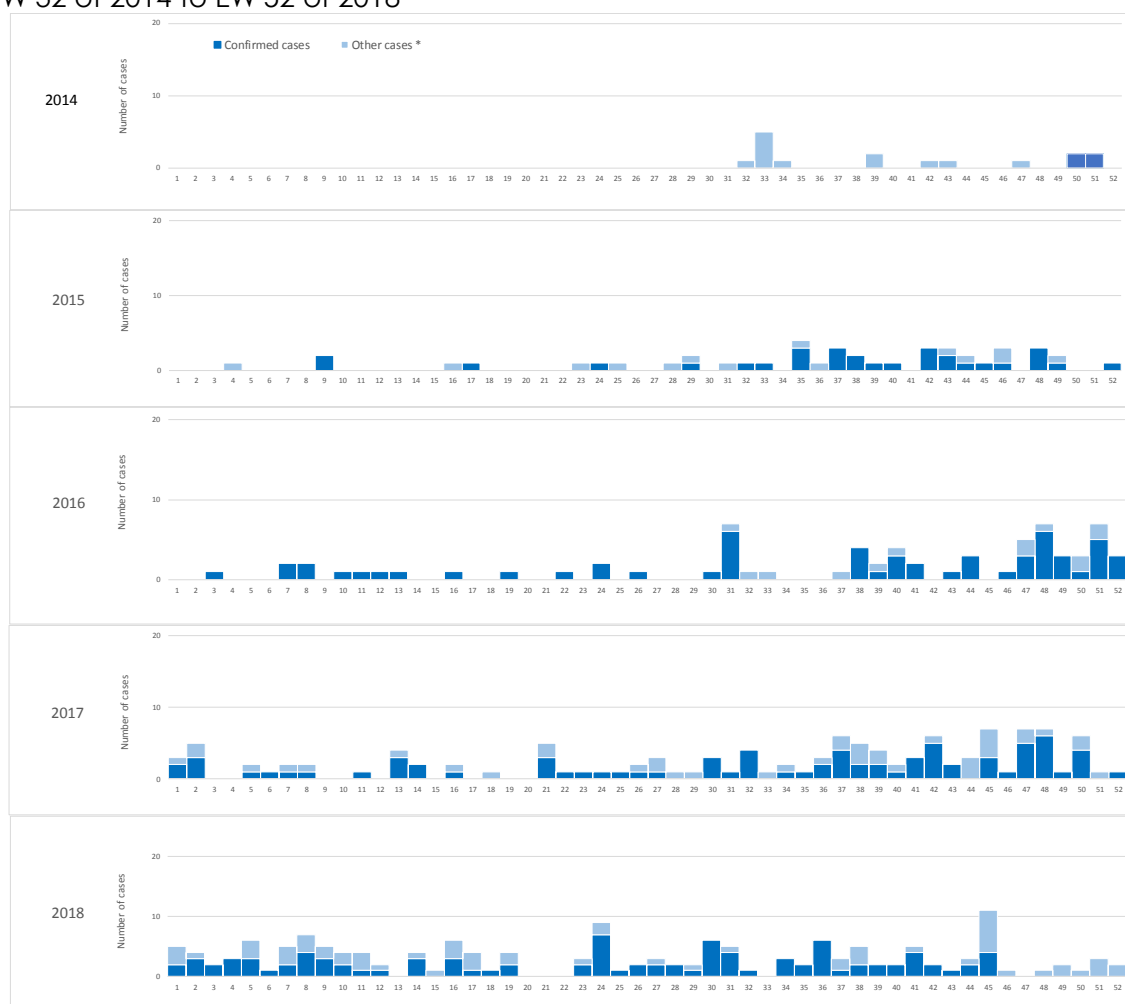
¹ Per the Haiti Ministry of Public Health and Population, a probable case is defined as any person, of any age, that presents with laryngitis, pharyngitis, or tonsillitis with false adherent membranes in the tonsils, pharynx and / or nasal pits, associated with edema of the neck.

In 2018, there were 373 probable cases reported (between EW 1 and EW 52), including 99 confirmed cases (94 by laboratory and 5 by epidemiological link). During the same period, there were 27 deaths reported (14 confirmed by laboratory or epidemiological link, 11 with no viable laboratory samples and 2 were discarded).

Among confirmed cases in 2018, the highest incidence rate is observed in the age group of 6 to 14-year-olds, followed by 1 to 5-year-olds. Most of the deaths (63%) occurred among the age group of 6 to 14-year-olds, followed by 1 to 5-year-olds.

In 2018, the highest cumulative incidence rates were reported in the municipalities of Gros-Morne, Artibonite Department (25.7 cases per 1000,000 population), Vallière, Nord-Est Department (21.2 cases per 100,000 population), La Victoire, Nord Department (9.5 cases per 100,000 population), and Cerca-Carvajal (12.9 cases per 100,000 population), Thomonde (11.3 cases per 100,000 population), and Savanette (22.1 cases per 100,000 population) in Centre Department.

Figure 1. Distribution of reported diphtheria cases by epidemiological week of onset of symptoms, Haiti, EW 32 of 2014 to EW 52 of 2018

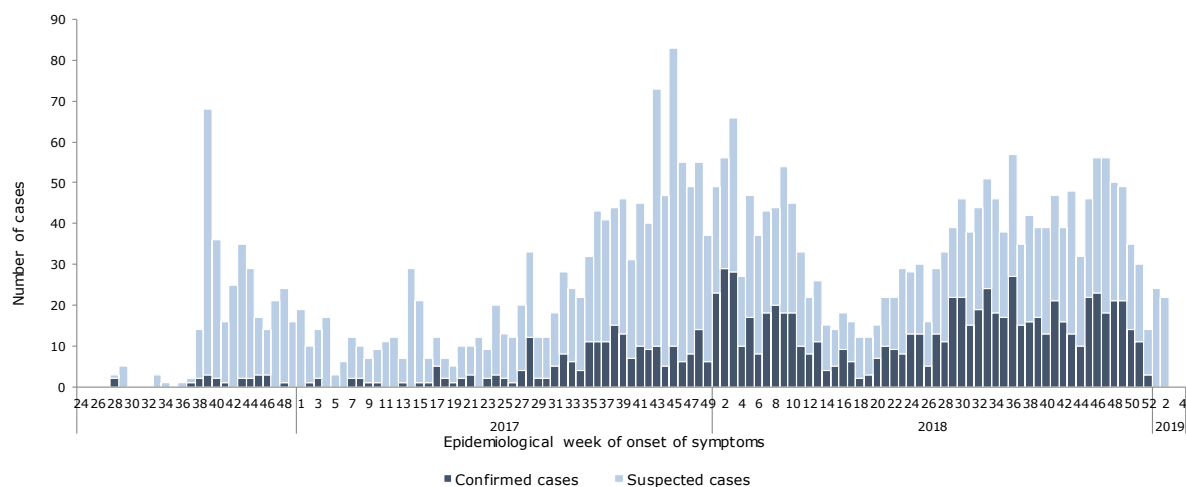


*Other cases refer to all cases with negative laboratory results, those for which test results are pending, or those for which viable samples were not available.

Source: Haiti Ministère de la Santé Publique et de la Population (MSPP). Data reproduced by PAHO/WHO

In **Venezuela**, the diphtheria outbreak that began in July 2016 remains ongoing (**Figure 2**). Since the beginning of the outbreak until EW 2 of 2019, a total of 2,512 suspected cases were reported (324 cases in 2016, 1,040 in 2017, 1,102 in 2018, and 46 in 2019); of these, 1,559 were confirmed (448 by clinical criteria, 607 by epidemiological link, and 504 by laboratory). A total of 270 deaths were reported (17 in 2016, 103 in 2017, and 150 in 2018²); 398 cases were discarded in 2018. The case-fatality rate among confirmed cases was 18% in 2016, 13% in 2017, and 20% in 2018.

Figure 2. Distribution of suspected and confirmed diphtheria cases by epidemiological week of onset of symptoms, Venezuela, EW 28 of 2016 to EW 2 of 2019



Source: SIS 04/EPI 12 years 2016, 2017, 2018. DVE/Coordination of Surveillance of Vaccine-Preventable Diseases. Venezuela Ministry of Popular Power for Health. Data reproduced by PAHO/WHO

In 2018, 22 federal entities and 99 municipalities have reported confirmed cases. Cases have been reported among all age groups. The incidence rate among children under 15 years old is 4 cases per 100,000 population, in 15 to 40-year-olds it is 3 cases per 100,000 population, and in persons over 40-years-old it is 1 case per 100,000 population.

As of EW 2 of 2019, there were 8 federal entities and 20 municipalities with 21 parishes reporting cases. Accordingly, vaccination and control activities continue to be implemented.

Advice for Member States

The Pan American Health Organization / World Health Organization (PAHO/WHO) reiterates to Member States the recommendations to continue their efforts to ensure vaccination coverage over 95% with the primary series (3 doses) and booster doses (3 doses). This vaccination scheme will provide protection throughout adolescence and adulthood (up to 39 years and possibly beyond). Booster doses of diphtheria vaccine should be given in combination with tetanus toxoid, using the same schedule and age-appropriate vaccine formulations, namely diphtheria, tetanus, and pertussis (DPT) for children aged 1 to 7 years old, and diphtheria toxoid (Td) for children over 7 years old, adolescents, and adults.

² In the PAHO/WHO. Epidemiological Update: Diphtheria. 29 October 2018, Washington, D.C.: PAHO/WHO; 2018, Available at: <https://bit.ly/2JmPQWB>, there were 167 deaths reported for 2018, with a cumulative case-fatality rate for 2016-2018 (as of EW 41) of 23%. The adjusted number was provided by the Venezuela International Health Regulations (IHR) National Focal Point.

PAHO/WHO stresses that the most at-risk populations are unvaccinated children under 5 years of age, schoolchildren, healthcare workers, military service personnel, inmate communities, and persons who, due to the nature of their occupation, are in contact with a large number of persons on a daily basis.

Although travelers do not have a special risk for diphtheria infection, it is recommended that national authorities remind travelers going to areas with diphtheria outbreaks to be properly vaccinated prior to travel in accordance with the national vaccination scheme established in each country. If more than five years have passed since their last dose, a booster dose is recommended.

PAHO/WHO recommends that Member States strengthen their surveillance systems for the early detection of suspected cases in order to initiate timely treatment of cases and follow-up of contacts, as well as maintaining a supply of diphtheria antitoxin.

Vaccination is key to preventing cases and outbreaks, and adequate clinical management reduces complications and mortality.

Sources of information

1. **Colombia** International Health Regulations (IHR) National Focal Point (NFP) report received by PAHO/WHO via email communication.
2. **Haiti** Ministère de la Santé Publique et de la Population (MSPP) report received by PAHO/WHO via email communication.
3. **Venezuela** International Health Regulations (IHR) National Focal Point (NFP) report received by PAHO/WHO via email communication.

References

1. Diphtheria vaccine: WHO position paper – August 2017. Available at: <http://bit.ly/2CCN7UW>
2. Final report of the 3rd Ad-Hoc Meeting of the Technical Advisory Group (TAG). Ad-hoc Virtual Meeting, March 19, 2018. Available at: <https://bit.ly/2wsLelk>