

Diphtheria in the Americas - Summary of the situation

In 2019, Colombia, Haiti, and the Bolivarian Republic of Venezuela have reported confirmed cases. In 2018, the same three countries reported confirmed cases.

The following is a summary of the epidemiological situation reported by Colombia, Haiti, and Venezuela.

In **Colombia**, one confirmed case of diphtheria has been reported in 2019. The case is a 4-year-old Venezuelan national and resident of Cúcuta Municipality in Norte de Santander Department, with an unverifiable vaccination history. The case had onset of symptoms on 12 October 2019; the case was confirmed by clinical-epidemiological and laboratory criteria (a sample of pharyngeal pseudomembrane tested positive for *Corynebacterium diphtheriae* and the diphtheria toxin gene by real-time PCR). No secondary cases related to this case were reported.

In **Haiti**, between epidemiological week (EW) 32 of 2014 and EW 46 of 2019, there were 951 probable cases¹ reported, including 119 deaths; of the total cases, 287 were confirmed (278 laboratory-confirmed and 9 by epidemiological link) (**Table 1**).

Table 1. Probable and confirmed cases of diphtheria reported in Haiti, 2014-2019 (until EW 46 of 2019)².

Year	Probable cases	Confirmed cases*	Confirmed Deaths**	Case-fatality rate** (%)
2014	18	4	2	50%
2015	77	31	7	23%
2016	118	57	23	40%
2017	194	73	5	7%
2018	375	105	14	13%
2019	169	17	5	29%
Total	951	287	56	20%

*Confirmed by laboratory criteria or epidemiological link

**Among confirmed cases

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

¹ Per the Haiti MSPP, 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.

² Preliminary data subject to change based on retrospective investigation.

Suggested citation: Pan American Health Organization / World Health Organization. Epidemiological Update: Diphtheria. 6 December 2019, Washington, D.C.: PAHO/WHO; 2019

The number of probable cases reported between EW 1 and EW 46 of 2019 (169 cases) is higher than the number reported during the same period in 2017 (151 cases) but lower than reported during the same period in 2018 (360 cases) (**Figure 1**).

In 2019, among the 169 probable cases, 17 cases and 5 deaths were laboratory-confirmed. The case-fatality rate among cases confirmed by laboratory or epidemiological link was 23% in 2015, 40% in 2016, 7% in 2017, 13% in 2018, and 29% in 2019 as of EW 46.

Among confirmed cases in 2019, the highest incidence rates are among 6 to 14-year-olds and 1 to 5-year-olds. The 5 fatal cases occurred among 1 to 5-year-olds.

In 2019, the highest cumulative incidence rates of probable cases have been reported in the communes of Dondon (50.5 cases per 100,000 population) in Nord Department, Cerca Carvajal (26.5 cases per 100,000 population) in Centre Department, Thiotte (16.2 cases per 100,000 population) in Sud Est Department, and Arnaud (9.4 cases per 100,000 population) in Nippes Department.

Figure 1. Distribution of reported diphtheria cases by epidemiological week of symptom onset, Haiti, EW 32 of 2014 to EW 46 of 2019.

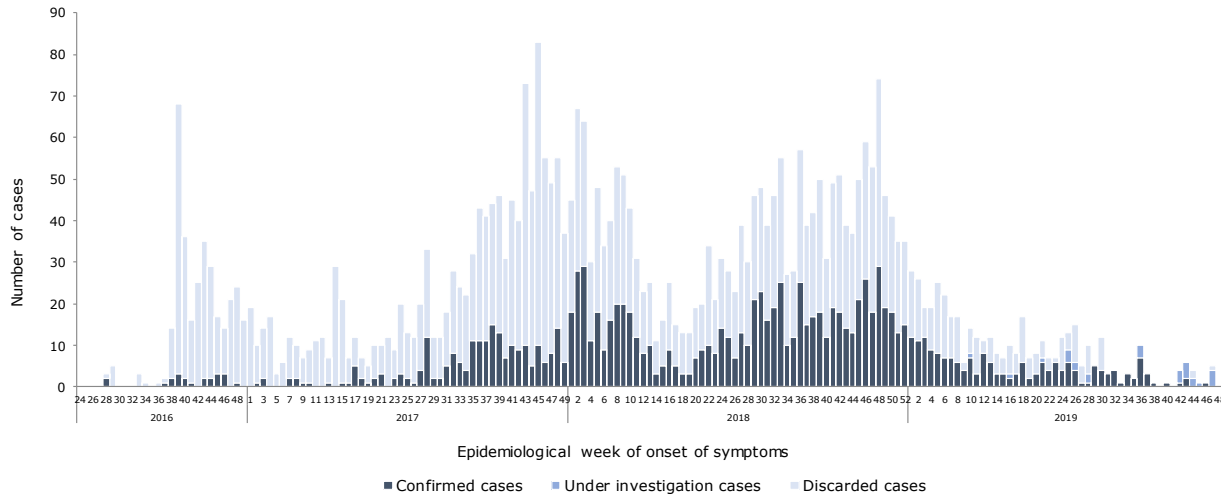


*Other cases refer to all cases with negative laboratory results, those for which test results are pending, or those for which viable samples were not available.

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 and as of EW 48 of 2019, a total of 3,033 suspected cases have been reported (324 cases in 2016, 1,040 in 2017, 1,208 in 2018, and 461 in 2019); of the total, 1,785 have been confirmed (579 by laboratory and 1,206 by clinical criteria or epidemiological link). A total of 291 deaths have been reported (17 in 2016, 103 in 2017, 151 in 2018, and 20 in 2019). In 2019, the highest age-specific case-fatality rates are among 5 to 9-year-olds (33%), followed by 1-year-olds (25%), and 40 to 49-year-olds (20%).³

Figure 2. Distribution of suspected and confirmed diphtheria cases by epidemiological week of symptom onset. Venezuela, EW 28 of 2016 to EW 48 of 2019.



Source: Data from the Venezuela Ministry of Popular Power for Health and reproduced by PAHO/WHO

In 2018, 22 federal entities and 99 municipalities reported confirmed cases. As of EW 48 of 2019, 17 federal entities and 65 municipalities have been affected. Thus, vaccination and control activities continue to be implemented.

Cases have been reported among all age groups. The incidence rates by age group is as follows: 5 cases per 100,000 population among persons aged less than 16 years; 8 cases per 100,000 population among 16 to 39-year-olds; and 4 cases per 100,000 population among persons aged 40-years-old and over⁴.

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

³ Case-fatality rates by age group provided in this PAHO/WHO Epidemiological Update differ from previous PAHO/WHO Epidemiological Updates, due to adjustments made by the Venezuela Ministry of Popular Power for Health.

⁴ Incidence rates by age group provided in this PAHO/WHO Epidemiological Update differ from previous PAHO/WHO Epidemiological Updates, due to adjustments made by the Venezuela Ministry of Popular Power for Health.

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.

PAHO/WHO stresses that the most at-risk populations are unvaccinated children under 5 years of age, school-aged children, 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 and their capacity of laboratory diagnosis through culture, ELEK test, and Polymerase Chain Reaction (PCR) for diphtheria toxin (tox) gene.

PAHO/WHO recommends 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>