PAHO

Pan American Health Organization

World Health Organization Regional Office for the Americas

Epidemiological Update Diphtheria

3 March 2020

Diphtheria in the Americas - Summary of the situation

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

In 2020, Haiti and the Bolivarian Republic of Venezuela have reported confirmed cases.

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

In **Haiti**, between epidemiological week (EW) 32 of 2014 and EW 8 of 2020, there were 1,002 probable cases[1] reported, including 126 deaths; of the total cases, 334 were confirmed (325 laboratory-confirmed and 9 by epidemiological link) (**Table 1**).

Table 1. Probable and confirmed cases of diphtheria reported in Haiti, 2014-2020 (until EW 8 of 2020)[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	77	5	6%
2018	375	101	14	14%
2019	195	55	12	22%
2020	25	9	2	22%
Total	**1,002**	**334**	**65**	**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.

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The number of probable cases reported between EW 1 and EW 52 of 2019 (195 cases) is higher than the number reported during the same period in 2017 (194 cases) but lower than reported during the same period in 2018 (375 cases).

The number of probable cases reported between EW 1 and EW 8 of 2020 (25 cases) is lower than the number reported during the same period in 2018 (55 cases) and in 2019 (29 cases) (**Figure 1**).

In 2019, among the 195 probable cases, 55 cases and 12 deaths were laboratory-confirmed. The case-fatality rate among cases confirmed by laboratory or epidemiological link was 23% in 2015, 40% in 2016, 6% in 2017, 14% in 2018, and 22% in 2019.

Between EW 1 and EW 8 of 2020, among the 25 probable cases, 9 cases and 2 deaths were laboratory-confirmed. The case-fatality rate among cases confirmed by laboratory or epidemiological link was 22% in 2020.

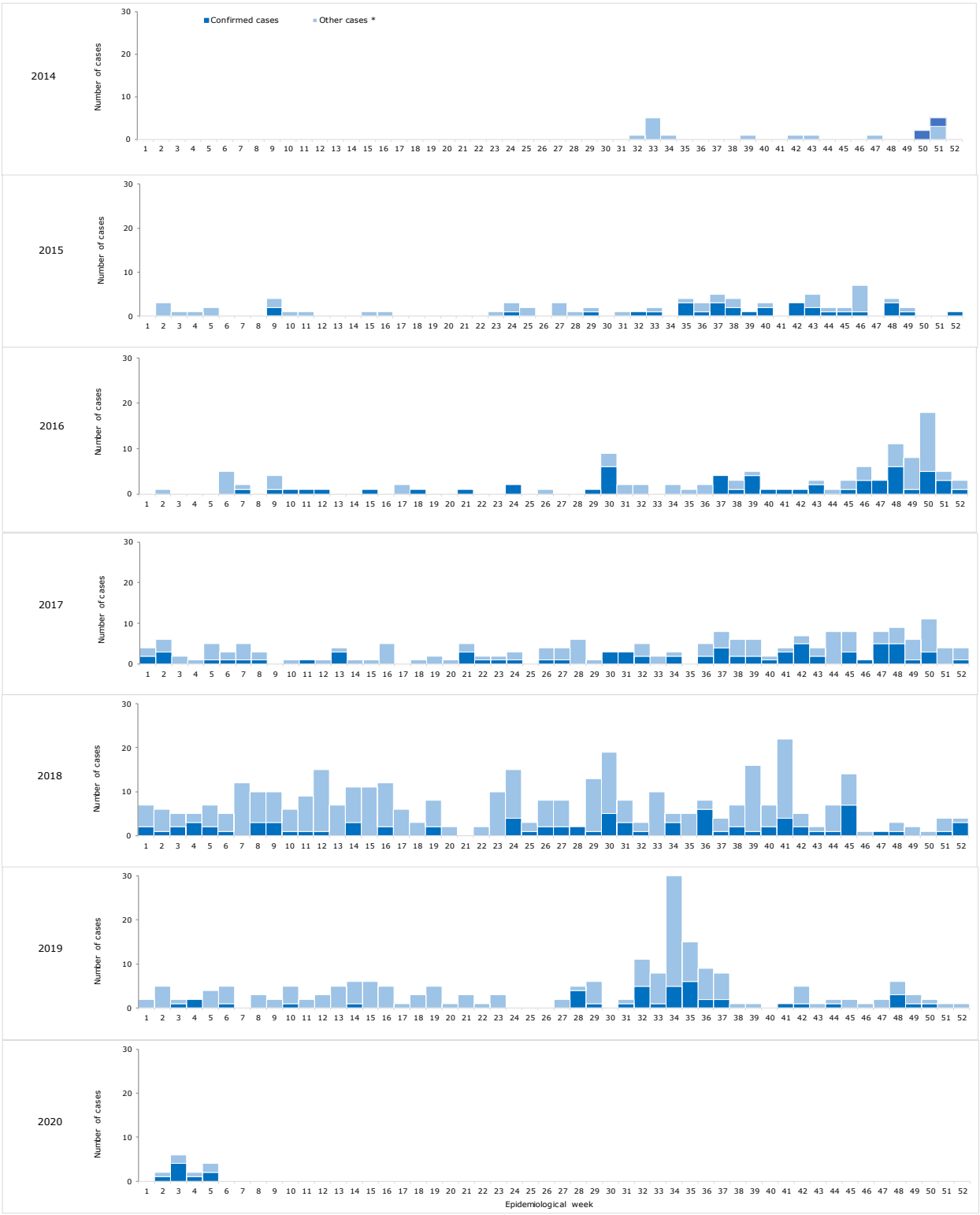
In 2019, the highest incidence rates of confirmed cases are among 6 to 14-year-olds and 1 to 5-year-olds. The 12 fatal cases occurred among 1 to 5-year-olds.

In 2020, the highest incidence rates of confirmed cases are among 6 to 14-year-olds and 1 to 5-year-olds. The two fatal cases occurred among 6 to 14-year-olds.

In 2019, the highest cumulative incidence rates of probable cases have been reported in the communes of Dondon (63.82 cases per 100,000 population) in the Nord Department, Cerca Carvajal (45.54 cases per 100,000 population) in the Centre Department, and Thiotte (14.18 cases per 100,000 population) in the Sud Est Department.

In 2020, the highest cumulative incidence rates of probable cases have been reported in the communes of La Vallee (7.32 cases per 100,000 population) in the Sud Est Department and Port à Piment (4.7 cases per 100,000 population) in the Sud Department.

Figure 1. Distribution of reported diphtheria cases by epidemiological week of symptom onset, Haiti, EW 32 of 2014 to EW 5 of 2020.



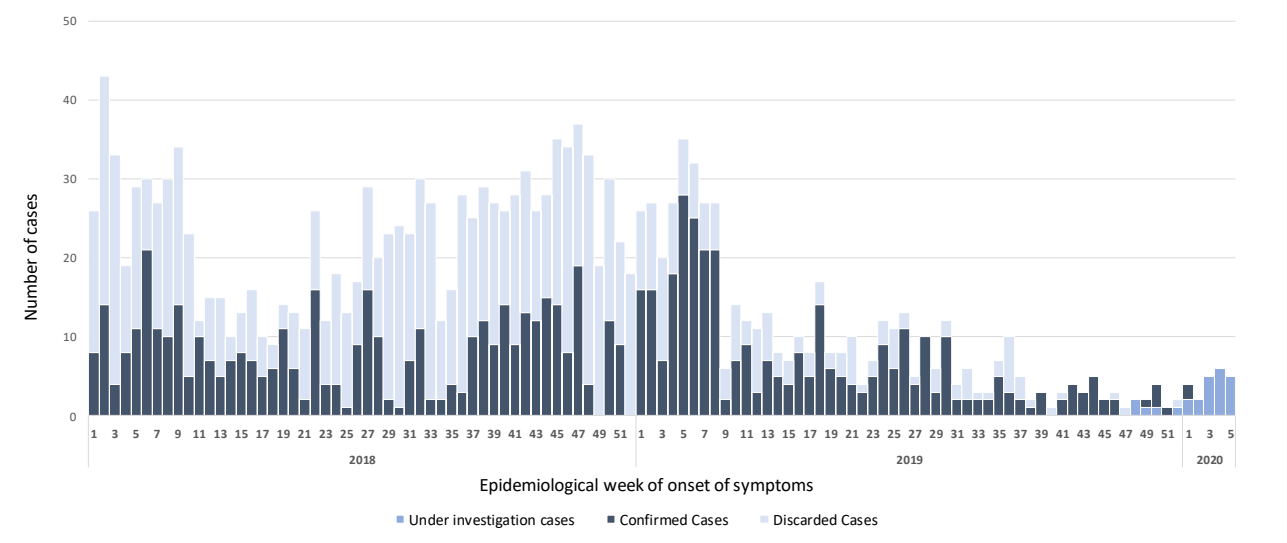
*Other cases refer to all cases with negative laboratory results, those for which test results are pending, or those for which viable samples were not available.

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 52 of 2019, a total of 3,060 suspected cases have been reported (324 cases in 2016, 1,040 in 2017, 1,208 in 2018, and 488 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 292 deaths have been reported (17 in 2016, 103 in 2017, 151 in 2018, and 21 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]

Between EW 1 and EW 5 of 2020, a total of 25 suspected cases have been reported, of the total, 2 have been confirmed (1 by laboratory and 1 by clinical criteria or epidemiological link).

Figure 2. Distribution of suspected and confirmed diphtheria cases by epidemiological week of symptom onset. Venezuela, EW 28 of 2016 to EW 5 of 2020.



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

Between EW 1 and EW 5 of 2020, 2 federal entities and 2 municipalities have been affected. In 2019, 17 federal entities and 65 municipalities were affected. In 2018, 22 federal entities and 99 municipalities reported confirmed cases. Vaccination and control activities continue to be implemented.

In 2019, cases were reported among all age groups. The incidence rates by age group is: 0.18 cases per 100,000 population among persons aged less than 1 year-old; 0.74 cases per 100,000 population among 1 year-olds; 0.69 cases per 100,000 population among 5 to 9-year-old; 0.38 cases per 100,000 population among 10 to 15-year-olds; 0.55 cases per 100,000 population among 30 to 39-year-olds; 0.46 cases per 100,000 population among 40 to 49-year-olds; and 0.25 cases per 100,000 population among persons 50-years-old and over.[4]

[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.

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.

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. **Haiti** Ministère de la Santé Publique et de la Population (MSPP) report received by PAHO/WHO via email communication.

2. **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