Epidemiological Update
Diphtheria

3 July 2019

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, Haiti and Venezuela reported confirmed cases.

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

In **Haiti**, between epidemiological week (EW) 32 of 2014 and EW 22 of 2019, there were 852 probable cases[1] reported, including 108 deaths; of these, 276 were confirmed (267 by laboratory criteria and 9 by epidemiological link) (**Table 1**).

Table 1. Probable and confirmed diphtheria cases reported in Haiti, 2014-2019 (until EW 22 of 2019)[2].

Year	Probable cases	Confirmed cases*	Deaths**	Case-fatality rate** (%)
2014	18	4	2	50%
2015	77	31	7	23%
2016	118	57	22	39%
2017	194	73	6	8%
2018	375	105	14	13%
2019	70	6	1	17%
Total	**852**	**276**	**52**	**19%**

*Confirmed by laboratory criteria or epidemiological link
**Among confirmed cases
Source: Haiti Ministère de la Santé Publique et de la Population (MSPP)

The number of probable and confirmed cases reported between EW 1 and EW 22 of 2019 (70 cases) is higher than the number reported during the same period in 2017 (55 cases) but lower than the number reported during the same period in 2018 (147 cases).

Of the 70 probable cases reported in 2019, 6 cases and one death were laboratory-confirmed. The case-fatality rate among cases confirmed by laboratory or epidemiological link was 23% in 2015, 39% in 2016, 8% in 2017, 13% in 2018, and 17% in 2019.

[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.
[2] Preliminary data subject to change based on retrospective investigation.

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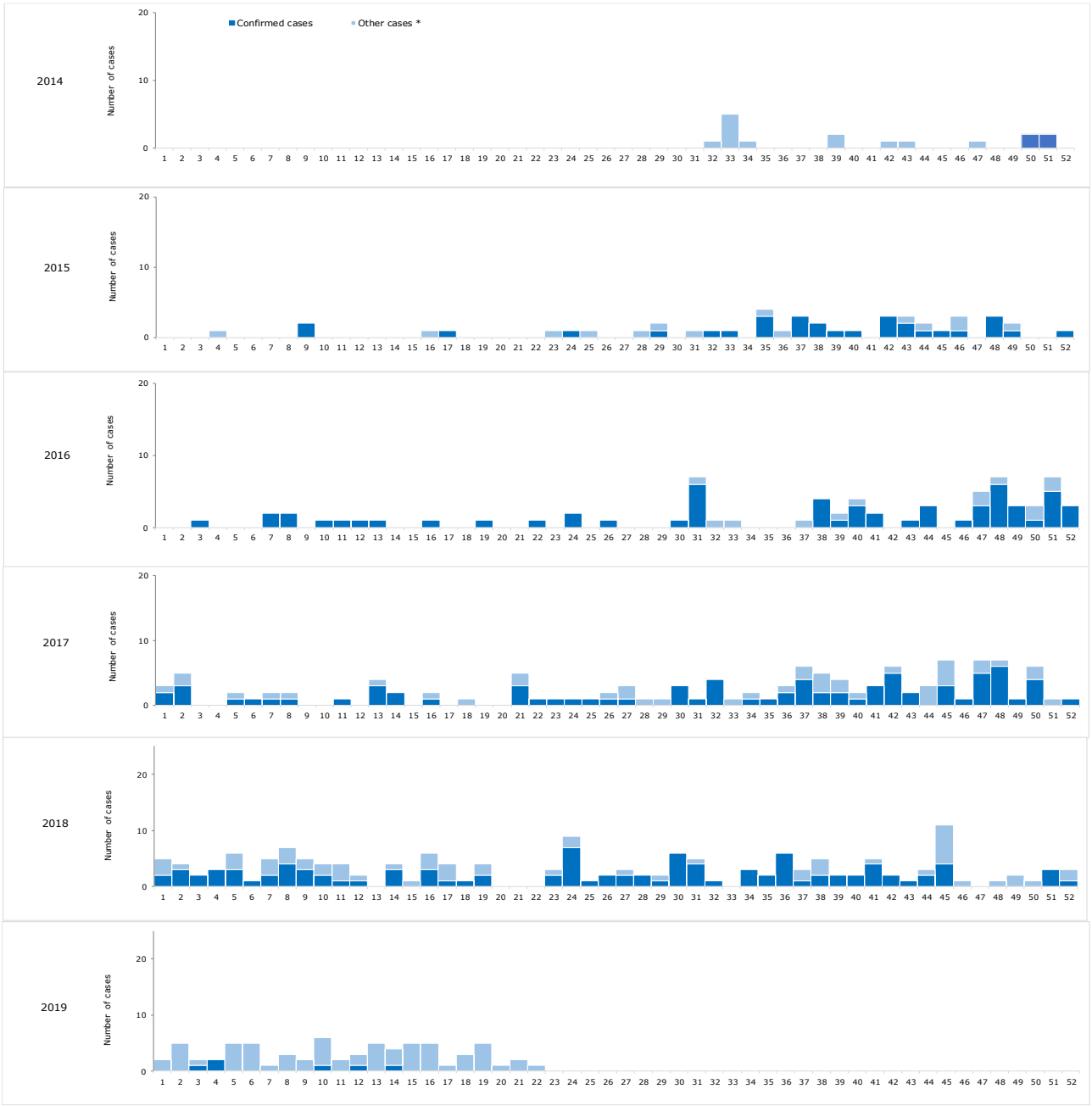
Among confirmed cases in 2019, the highest incidence rates are among 6 to 14-year-olds followed by 1 to 5-year-olds. The fatal case occurred in a 5-year-old child.

In 2019, the highest cumulative incidence rates of probable cases have been reported in the communities of Thiotte (5.73 cases per 100,000 population) in Sud-Est Department and in Trou du Nord (4.09 cases per 100,000 population) and Acul du Nord (3.58 cases per 100,000 population) in Nord Department.

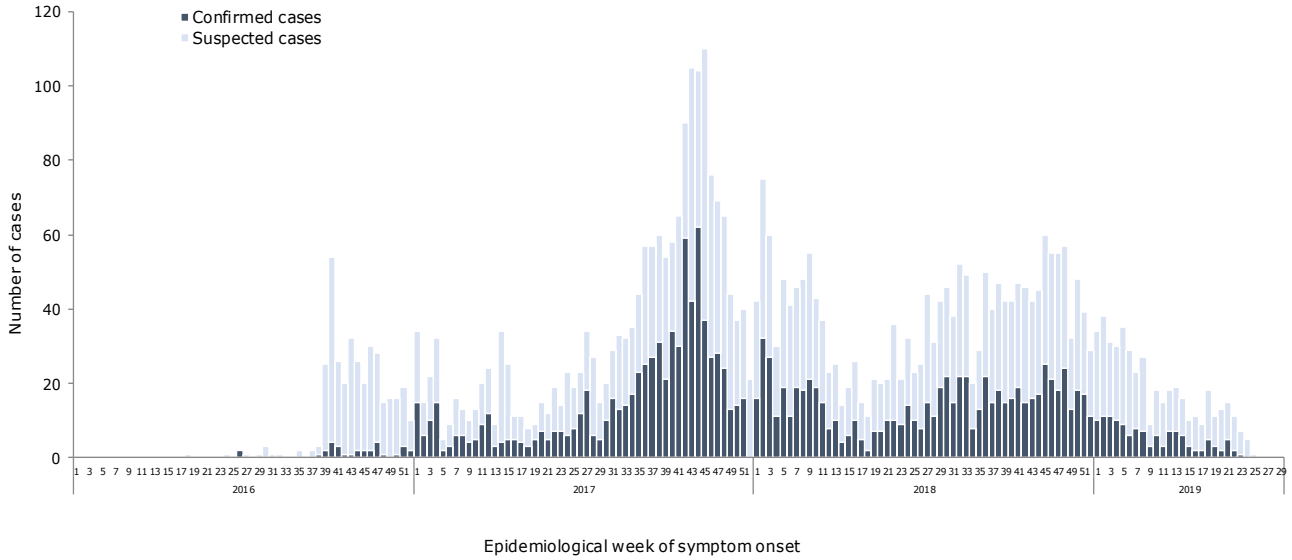
Figure 1. Distribution of reported diphtheria cases by epidemiological week of symptom onset, Haiti, EW 32 of 2014 to EW 22 of 2019.



*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 as of EW 25 of 2019, a total of 2,897 suspected cases were reported (324 cases in 2016, 1,040 in 2017, 1,208 in 2018, and 324 in 2019); of these, 1,721 were confirmed (571 by laboratory and 1,151 by clinical criteria or epidemiological link). A total of 286 deaths were reported (17 in 2016, 103 in 2017, 151 in 2018, and 15 in 2019). In 2019, the highest case-fatality rates occurred among 5 to 9-year-olds (7%), followed by 10 to 15-year-olds (4%)[3].

Figure 2. Distribution of suspected and confirmed diphtheria cases by epidemiological week of symptom onset, Venezuela, EW 28 of 2016 to EW 25 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 have reported confirmed cases. As of EW 25 of 2019, 9 federal entities, 10 municipalities, and 14 parishes are affected. Therefore, vaccination and control activities continue to be implemented.

Cases have been reported among all age groups. The incidence rate among children under 15-year-olds is 4 cases per 100,000 population, among 15 to 40-year-olds is 3 cases per 100,000 population, and among persons over 40-year-olds is 1 case per 100,000 population[4].

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

[3],[4] Case fatality and incidence rates remain unchanged, in relation to the Diphtheria Epidemiological Update published on May 10, because they were not updated by the country.

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, 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 and their capacity of laboratory diagnosis through culture, ELEK test, and 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/2wsLeIk