

# DIPHTHERIA RE-EMERGENCE IN EUROPE AND BELGIUM ANNO 2022

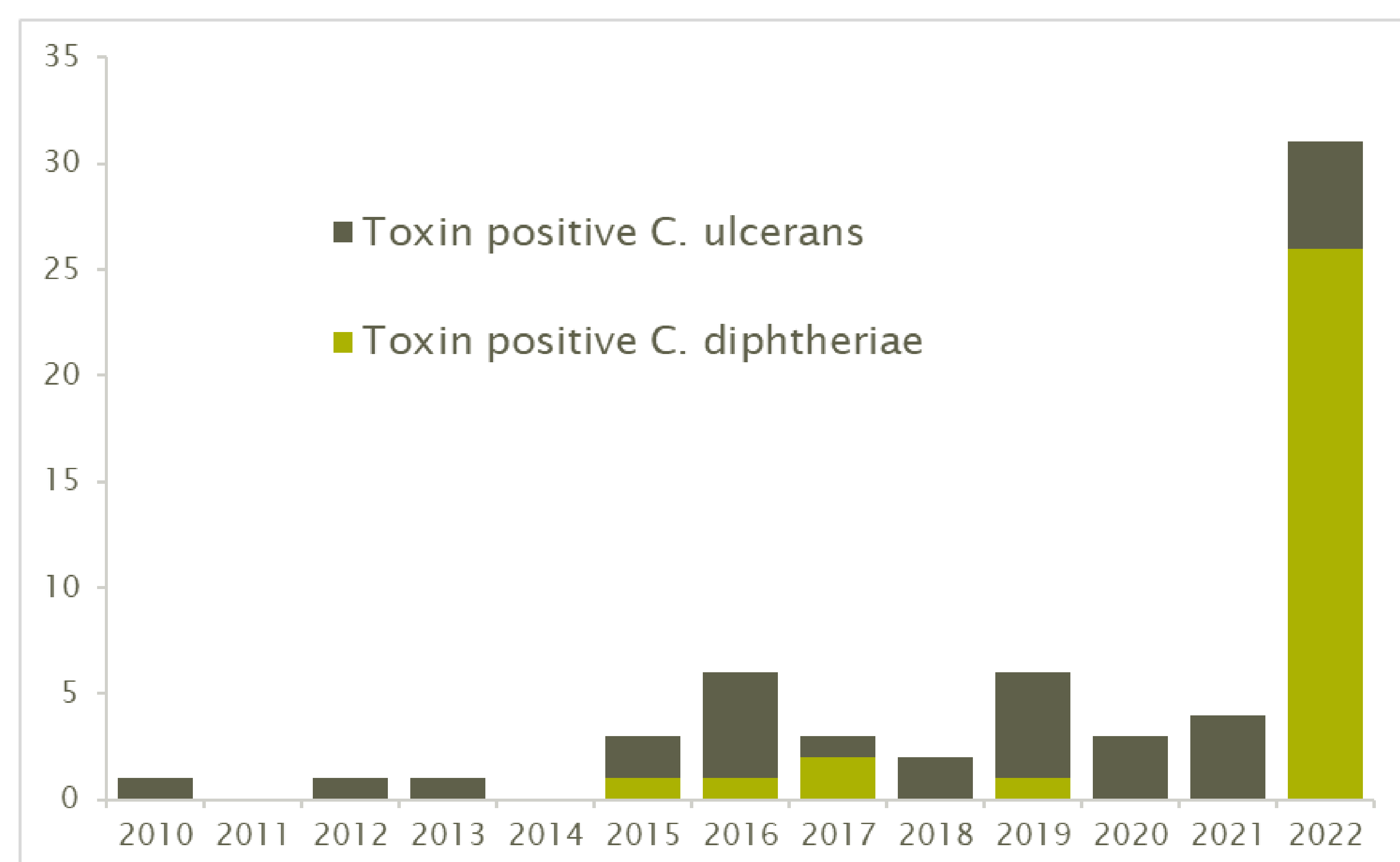
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## BACKGROUND

- Two main forms of diphtheria exist: cutaneous and respiratory, the latter being the most severe and potentially fatal.
- Both forms are caused by toxin-producing *Corynebacterium diphtheriae*, *C. ulcerans*, or (very rarely) *C. pseudotuberculosis*.
- Thanks to an effective vaccine and high vaccination coverage, diphtheria has been a rare disease in Europe for over two decades.<sup>1</sup>



▲ Figure 1: Cases of infection with potentially toxigenic corynebacteria in Belgium from 2010 to 2022. Number of registered *C. diphtheriae*, *C. ulcerans* and *C. pseudotuberculosis* infections in humans in Belgium, per year.

## RETURN TO BASELINE?

- National and international measures in response to emergence seem to have paid off.
- Cases decreased in december 2022 and first months of 2023, in Belgium and internationally.
- Screening and vaccination efforts still ongoing.

## CONCLUSIONS

- Diphtheria awareness and screening remain highly necessary, especially within the vulnerable migrant populations, who live in conditions that favor rapid transmission.
- Ongoing need for DAT availability, which remains difficult to access in many European countries.
- Antimicrobial resistance is becoming an issue that warrants concern and further investigation.<sup>3</sup>

## REFERENCES

- Wagner et al. (2012) Diphtheria in the postepidemic period, Europe, 2000-2009. *Emerg Infect Dis* 18 (217-225).
- ECDC Weekly Communicable Disease Threats Report, , 30 January - 5 February 2023, week 5.
- Koffler J. et al. (2022) Ongoing toxin-positive diphtheria outbreaks in a federal asylum centre in Switzerland, analysis July to September 2022. *Eurosurveillance*, 27 (44).

## 2022 RE-EMERGENCE – EUROPE

- Strong increase of toxigenic *C. diphtheriae* infections within the migrant population.
- Cases were mostly cutaneous, but some severe respiratory infections occurred as well.
- ECDC reports 371 diphtheria cases in migrants from 2022 to February 2nd 2023.<sup>2</sup>
- Several different MLST sequence types are represented, suggesting that the increase is not due to a single outbreak.

## 2022 RE-EMERGENCE – BELGIUM

- 25 toxigenic *C. diphtheriae* cases in migrants, including a severe respiratory infection requiring diphtheria antitoxin (DAT) treatment.
- Additionally one non-migrant-related *C. diphtheriae* and five *C. ulcerans* infections.
- In comparison: less than 30 diphtheria cases reported in Belgium from 2010 to 2021 (only five caused by *C. diphtheriae*).
- Of note: 2/25 strains were erythromycin-resistant.

▼ Figure 2: Phylogenetic tree of *C. diphtheriae* strains found in Belgium in 2022. Branch lengths are presented in logarithmic scale. Created with the Bigsdb GrapeTree plugin.

