



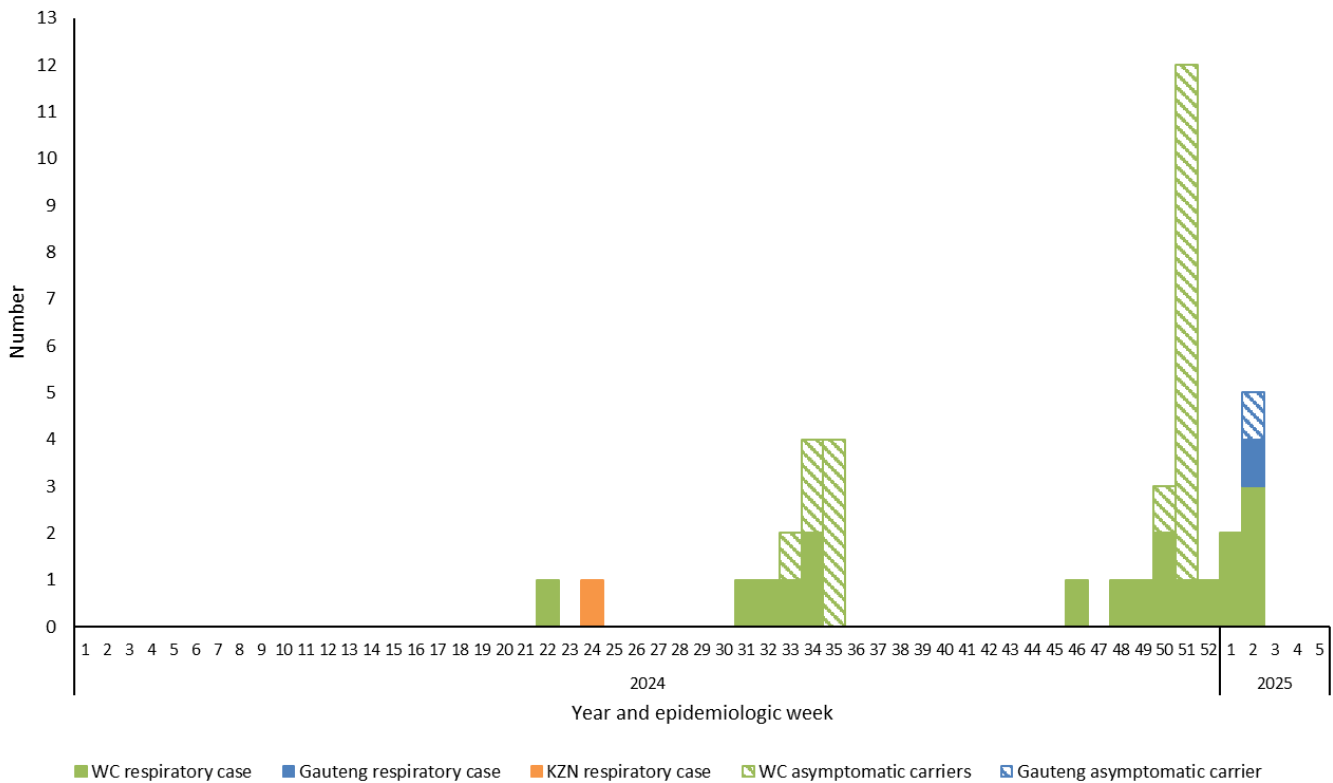
Toxigenic *Corynebacterium diphtheriae* disease in South Africa in 2024-2025

Alert: All clinicians throughout the country are urged to have a high index of suspicion for respiratory diphtheria in patients presenting with sore throat, low grade fever, malaise and an adherent membrane, and/or marked cervical lymphadenopathy (bull neck) and to notify suspected cases and collect oropharyngeal specimens for diagnostic laboratory testing.

Between 1 January 2024 and 15 January 2025, toxigenic *Corynebacterium diphtheriae* (*C. diphtheriae*) was detected in 40 individuals nationally. Of these, 20 individuals had respiratory diphtheria and 20 were asymptomatic carriers detected during contact tracing. The median age of those with respiratory diphtheria was 22 years with a range of 4-41 years (70%, 14/20 aged >18 years) and 5 of 20 (25%) individuals died. The majority (37/40, 92%) of individuals were from the Western Cape (18 with respiratory diphtheria and 19 asymptomatic carriers) (Figure 1).

- In the first 6 months of 2024, there were 2 respiratory diphtheria cases reported (Figure 1). This includes 1 case from Kwa-Zulu Natal and 1 from the Western Cape.
- From week 31 (week starting 29 July 2024) through week 37 (week starting 9 September 2024), there was a cluster of 3 respiratory diphtheria cases and 7 asymptomatic contacts testing positive for toxigenic *C. diphtheriae* in a community in the Western Sub-District in Cape Town, Western Cape Province. Two additional sporadic cases of respiratory diphtheria were reported in Cape Town, unlinked to the cluster.
- Since week 46 (week starting 11 November 2024) there has been a marked increase in diphtheria cases in the Western Cape Province with 12 respiratory diphtheria cases and 12 asymptomatic contacts testing positive for toxigenic *C. diphtheriae*. All cases were residing in the City of Cape Town. This increase included a cluster of 1 respiratory diphtheria case and 12 asymptomatic contacts testing positive for toxigenic *C. diphtheriae* linked to a correctional facility in Cape Town.

- In 2025 in week 2 (week starting 13 January 2025), one confirmed respiratory diphtheria case and 1 asymptomatic contact testing positive for toxigenic *C. diphtheriae*, have been reported in Gauteng.



WC= Western Cape, KZN= KwaZulu-Natal

Figure 1: Number of individuals testing positive for toxigenic *C. diphtheriae* (respiratory diphtheria cases and asymptomatic carriers), South Africa, 1 January 2024 to 15 January 2025

Clinical presentation of respiratory diphtheria

Respiratory diphtheria is a vaccine-preventable illness caused by toxigenic *C. diphtheriae* (and more rarely *C. ulcerans* or *C. pseudotuberculosis*), and can occur in persons of all ages.

The clinical presentation includes the following signs and symptoms:

- sore throat
- low-grade fever

Data are provisional as on date data extracted. Number of consultations/specimens are reported/analysed by date of consultation/specimen collection. Data cleaning is ongoing and this may result in some changes in subsequent reports.

- AND an adherent membrane of the nose, pharynx, tonsils, or larynx (Figure 2) - the membrane is greyish-white and firmly adherent to the tissue
- AND/OR enlarged glands in the neck (bull neck)
- toxin-mediated systemic signs including myocarditis, polyneuropathy and renal damage

Patient management

Treatment includes antibiotics (azithromycin or penicillin) to clear the organism from the throat and prevent onward transmission, and diphtheria anti-toxin (DAT) to neutralise unbound toxin. The dosage of DAT is determined by the severity of illness and weight of the patient. **Treatment should be started prior to laboratory confirmation.** Early administration of DAT may be life-saving and should not be delayed in cases with a high index of suspicion. Supportive care is primarily aimed at airway management and includes providing oxygen, monitoring with electrocardiogram and intubation or performance of a tracheostomy if necessary.

DAT is available in South Africa through provincial pharmacies although stocks are limited. Clinicians and pharmacist are advised to secure a source of DAT and set up emergency supply lines. Clinicians may refer to “Guidelines for diagnosis, testing, and treatment of diphtheria” on <https://www.nicd.ac.za/diseases-a-z-index/diphtheria/>. **Advice is available from the NICD doctor-on-call on 080 021 2552.** The NICD doctor on call is able to link clinicians to infectious disease experts to discuss individual cases if needed.



Figure 2: Example of the pseudomembrane caused by toxigenic *C. diphtheriae*

Photo courtesy <https://www.bestonlineemd.com/how-to-avoid-getting-diphtheria/>

Laboratory confirmation of *C. diphtheriae*

A throat swab should be collected, from below the membrane if possible, using a Dacron, Rayon or nylon-flocked swab. Ideally, the swab should be placed in Amies or modified Stuart's transport medium (this can be obtained from your local National Health Laboratory Service (NHLS) or private laboratory). However, it is possible to send a dry swab if transport medium is unavailable. The specimen should immediately be transported to the nearest diagnostic laboratory for primary culture on blood agar and ideally on selective and differential media like Hoyle's agar. All isolates and/or clinical specimens (including other *Corynebacterium* spp. e.g., *C. ulcerans* and *C. pseudotuberculosis*) should be sent to the National Institute for Communicable Disease (NICD) to confirm identification and toxin production. Please alert NICD prior to sending and label specimens clearly: "suspected diphtheria". Laboratory managers may use the NICD recommendations for diagnosis, testing, and treatment of diphtheria on <https://www.nicd.ac.za/diseases-a-z-index/diphtheria/>, for additional information.

Notification of cases

Respiratory diphtheria is a category 1 notifiable condition and should be notified within 24 hours.

All suspected cases should be notified urgently to district or provincial communicable disease coordinators (CDCCs) as per notifiable medical condition notification procedures. Contact tracing, including the taking of throat swabs, administration of prophylaxis (azithromycin) with or without catch-up vaccination should start prior to laboratory confirmation. <https://www.nicd.ac.za/nmc-overview/notification-process/>