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Diphtheria (Corynebacterium diphtheriae) 2019 Case Definition | CDC  
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National Notifiable Diseases Surveillance System (NNDSS)  
Explore Topics  
Search  
Search  
Clear Input  
For Everyone  
About About National Notifiable Diseases Surveillance System  
What is Case Surveillance?  
Case Surveillance Modernization  
Infectious Disease Tables  
Non-Infectious Disease Data  
Technical Resource Center  
Case Surveillance in Action  
Contact Us  
View all  
Related Topics:  
NDC Application  
View All  
search  
close search  
search  
National Notifiable Diseases Surveillance System (NNDSS)  
Menu  
Close  
search  
For Everyone  
About About National Notifiable Diseases Surveillance System  
What is Case Surveillance?  
Case Surveillance Modernization  
Infectious Disease Tables  
Non-Infectious Disease Data  
Technical Resource Center  
Case Surveillance in Action  
Contact Us  
View All  
Related Topics  
NDC Application  
View All  
National Notifiable Diseases Surveillance System (NNDSS)  
About About National Notifiable Diseases Surveillance System  
What is Case Surveillance?  
Case Surveillance Modernization  
Infectious Disease Tables  
Non-Infectious Disease Data  
Technical Resource Center  
Case Surveillance in Action  
Contact Us  
View All  
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Case Definitions  
Message Mapping Guides  
Supporting Documents for Implementation  
Event Codes & Other Surveillance Resources  
Diphtheria (  
Corynebacterium diphtheriae  
)  
2019 Case Definition  
Diphtheria (  
Corynebacterium diphtheriae  
)  
2019 Case Definition  
NOTE:  
A surveillance case definition is a set of uniform criteria used to define a disease for public health surveillance. Surveillance case definitions enable public health officials to classify and count cases consistently across reporting jurisdictions. Surveillance case definitions are not intended to be used by healthcare providers for making a clinical diagnosis or determining how to meet an individual patient’s health needs.  
CSTE Position Statement(s)  
18-ID-03  
Background  
Diphtheria is caused by toxin-producing  
Corynebacterium diphtheriae (C. diphtheriae)  
. This disease primarily manifests as respiratory infections that may result in death, but it may also present as mild infections in non-respiratory sites, such as the skin. While respiratory diphtheria is now extremely rare, non-respiratory infections caused by toxin-producing bacteria have recently been detected. Non-respiratory disease caused by toxin-producing  
C. diphtheriae  
may act as a source of transmission and can lead to new respiratory and non-respiratory diphtheria disease; both respiratory and non-respiratory disease caused by toxin-producing bacteria require public health follow-up. This diphtheria surveillance case definition better reflects the epidemiology of diphtheria in the U.S, in order to focus efforts on identifying disease caused by toxin-producing bacteria and appropriately guide public health interventions.  
Clinical Criteria  
Upper respiratory tract illness with an adherent membrane of the nose, pharynx, tonsils, or larynx  
OR  
Infection of a non-respiratory anatomical site (e.g., skin, wound, conjunctiva, ear, genital mucosa)  
Laboratory Criteria For Diagnosis  
Confirmatory laboratory evidence:  
Isolation of  
C. diphtheriae  
from any site  
AND  
Confirmation of toxin-production by Elek test or by another validated test capable of confirming toxin-production  
Supportive laboratory evidence:  
Histopathologic diagnosis  
Epidemiologic Linkage  
Epidemiologic linkage requires direct contact with a laboratory-confirmed case of diphtheria.  
Criteria to Distinguish a New Case from an Existing Case  
Individuals without evidence of clinical criteria as described by the diphtheria surveillance case definition but for whom toxin-producing  
Corynebacterium diphtheriae  
is confirmed via laboratory testing (isolation and toxigenicity testing by modified Elek test or other validated test capable of confirming toxin-production) should not be classified as cases. These individuals are considered carriers of the bacteria and are not reportable.  
Case Classification  
Suspected  
In the absence of a more likely diagnosis, an upper respiratory tract illness with each of the following:  
an adherent membrane of the nose, pharynx, tonsils, or larynx  
AND  
absence of laboratory confirmation  
AND  
lack of epidemiologic linkage to a laboratory-confirmed case of diphtheria.  
OR  
Histopathologic diagnosis  
Confirmed  
An upper respiratory tract illness with an adherent membrane of the nose, pharynx, tonsils, or larynx and any of the following:  
isolation of toxin-producing  
Corynebacterium diphtheriae  
from the nose or throat  
OR  
epidemiologic linkage to a laboratory-confirmed case of diphtheria.  
OR  
An infection at a non-respiratory anatomical site (e.g., skin, wound, conjunctiva, ear, genital mucosa) with  
isolation of toxin-producing  
C. diphtheriae  
from that site  
Case Classification Comments  
Cases of laboratory-confirmed, non-toxin-producing  
C. diphtheriae  
(respiratory or non-respiratory) should not be reported by state or local health departments to CDC as diphtheria cases.  
Negative laboratory results may be sufficient to rule-out a diagnosis of diphtheria; however, clinicians should carefully consider all lab results in the context of the patient's vaccination status, antimicrobial treatment, and other risk factors.  
PCR (polymerase chain reaction) and MALDI-TOF (matrix assisted laser desorption/ionization-time of flight mass spectrometry) diagnostics for  
C. diphtheriae  
, when used alone, do not confirm toxin production. These tests, when used, should always be combined with a test that confirms toxin production, such as the Elek test.  
Related Case Definition(s)  
Diphtheria (  
Corynebacterium diphtheriae  
) | 2010 Case Definition  
Diphtheria (  
Corynebacterium diphtheriae  
) | 1995 Case Definition  
Diphtheria (  
Corynebacterium diphtheriae  
) | 1990 Case Definition  
Back to Top  
Sources  
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NNDSS receives and shares case data from state, local, and territorial health departments to help public health monitor, control, and prevent serious diseases.  
View All  
About About National Notifiable Diseases Surveillance System  
What is Case Surveillance?  
Case Surveillance Modernization  
Infectious Disease Tables  
Non-Infectious Disease Data  
Technical Resource Center  
Case Surveillance in Action  
Contact Us  
View All  
Sign up for Email Updates  
Contact CDC  
Organization  
Policies  
Web Policies  
Languages  
Languages  
Español  
Language Assistance  
Archive  
CDC Archive  
Public Health Publications  
Contact Us  
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Policies  
Web Policies  
Languages  
Languages  
Español  
Language Assistance  
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