

## Overview

### Useful For

Confirmation of the clinical diagnosis of diphtheria

### Reflex Tests

Test ID	Reporting Name	Available Separately	Always Performed
RMALD	Ident by MALDI-TOF mass spec	No, (Bill Only)	No
ISAE	Aerobe Ident by Sequencing	No, (Bill Only)	No
REFID	Additional Identification Procedure	No, (Bill Only)	No

### Testing Algorithm

When this test is ordered, the reflex tests may be performed and charged.

### Method Name

ConventionalCultureTechnique

### NY State Available

Yes

## Specimen

### Specimen Type

Varies

### Specimen Required

**Specimen Type:** Nasopharynx or throat

**Collection Container/Tube:** Swab

**Submission Container/Tube:** Modified Stuart transport device (T092 or T515)

**Specimen Volume:** Entire specimen

**Additional Information:** Specimen source is required.

### Reject Due To

All specimens will be evaluated by Mayo Clinic Laboratories for test suitability.

### Specimen Stability Information

Specimen Type	Temperature	Time
Varies	Ambient (preferred)	24 hours
	Refrigerated	24 hours

## Clinical and Interpretive

### Clinical Information

*Corynebacterium diphtheriae* is the etiological agent of diphtheria and occurs in 2 forms, respiratory and cutaneous diphtheria. Respiratory diphtheria may be further classified into pharyngeal, tonsillar, laryngeal, and the less common anterior nasal diphtheria. Due to vaccination programs in the United States, diphtheria is now a rarely reported disease. *Corynebacterium diphtheriae* is primarily spread by droplets from coughing or sneezing. The incubation period averages 2 to 5 days. The illness is characterized by fever, malaise, and sore throat with a distinguishing thick pseudomembrane present over the involved mucosa. A swab from beneath the pseudomembrane is the preferred specimen for culture. The organisms multiplying at the infection site produce a toxin, diphtheria toxin, which may result in systemic complications affecting the heart, nervous system, etc.

In patients with a clinical diagnosis of possible diphtheria, appropriate specimens should be collected for culture; patients should be placed in appropriate isolation and consideration given to administration of empiric antitoxin (available in the United States through the Centers for Disease Control and prevention) and antibiotics; respiratory and airway support may be required.

### Reference Values

No growth of *Corynebacterium diphtheriae*

### Interpretation

A positive result supports a diagnosis of diphtheria. The pathogenesis of the associated disease relates to production phage-encoded diphtheria toxin. Since isolates of *Corynebacterium diphtheriae* may or may not harbor genes to produce the toxin, they should be further tested for diphtheria toxin production.

A negative result is evidence against a diagnosis of diphtheria but does not definitively rule out this disease since culture may be negative because of prior antimicrobial therapy or organism present below the limit of detection of the assay.

### Clinical Reference

Mandell GL, Bennett JE, Dolin R: In Principles and Practice of Infectious Diseases. Sixth edition. Philadelphia, PA, Elsevier Inc, 2005, pp 2457-2465

## Performance

### Method Description

Culture is performed using sheep blood agar and the selective medium, cystine-tellurite blood agar, incubated at 35 degrees C in a CO<sub>2</sub>-enriched atmosphere. Colonies of *Corynebacterium diphtheriae* are gray-black on tellurite-containing agar, while usual oral flora is inhibited. Suspect colonies are identified by conventional methods to rule-out *Corynebacterium diphtheriae*. For Mayo Clinic patients or Mayo Clinic Laboratories clients from Minnesota, isolates identified as *Corynebacterium diphtheriae* are forwarded to the Minnesota Department of Health for toxin testing. (Synder JW: *Corynebacterium diphtheriae* Cultures. In Clinical Microbiology Procedures Handbook. Edited by LS Garcia. Washington DC, American Society for Microbiology, 2010, section 3.11.7)

**PDF Report**

No

**Day(s) and Time(s) Test Performed**

Monday through Sunday; Continuously

**Analytic Time**

3 days

**Maximum Laboratory Time**

5 days

**Specimen Retention Time**

2 days

**Performing Laboratory Location**

Rochester

**Fees and Codes****Fees**

- Authorized users can sign in to [Test Prices](#) for detailed fee information.
- Clients without access to Test Prices can contact [Customer Service](#) 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact [Customer Service](#).

**Test Classification**

This test uses a standard method. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the U.S. Food and Drug Administration.

**CPT Code Information**

87081-Corynebacterium diphtheriae culture

87077-Identification by MALDI-TOF mass spec (if appropriate)

87077-Additional identification procedure (if appropriate)

87153-Aerobe identification by sequencing (if appropriate)

**LOINC® Information**

Test ID	Test Order Name	Order LOINC Value
CDIP	C. diphtheria Culture	16676-9

Result ID	Test Result Name	Result LOINC Value
CDIP	C. diphtheria Culture	16676-9