Coryneform Bacteria - other than Corynebacterium spp (LTR79340)

Edit Approved By: Dragan, Tatiana (07/31/2023) **Revision: 4.10**

Organism

Coryneform Bacteria – other than Corynebacterium spp

- *Arthrobacter spp*
- *Brevibacterium spp*
- *Cellulomonas spp*
- *Cellulosimicrobium spp*
- *Curtobacterium spp*
- *Dermabacter spp*
- *Exiguobacterium spp*
- *Helcobacillus ssp*
- *Leifsonia spp*
- *Microbacterium spp*
- *Oerskovia spp*
- *Turicella spp*

Clinical

- ***Arthrobacter spp***- These organisms are usually found in soil. Some species may represent normal commensal flora in humans. They have been rarely isolated from clinical specimens in association with bacteremia, urinary tract infection and catheter/device infections.
- ***Brevibacterium spp*** –*B. casei* is the species most commonly isolated from clinical specimens. *Brevibacterium spp.* are found in dairy products. These organisms may be part of the normal skin flora. They have been associated with bacteremia, septicemia, meningitis, implant infections, brain abscess and peritonitis. They have also been implicated with malodorous feet.
- ***Cellulomonas spp*** – These organisms are isolated from soil environments. They have rarely been associated with bacteremia, wound infections and cholecystitis.
- ***Cellulosimicrobium spp***- This organism is closely related to *Oerskovia spp*. and is found in soil environment. It has been associated with bacteremia, foreign body infections, pneumoniae, cholecystitis, pyonephrosis, endophthalmitis, soft tissue infection, and osteomyelitis often in immunocompromised patients.
- ***Curtobacterium spp*** – These organisms are plant pathogens. A pathogenic role for these organisms has not been established.
- ***Dermabacter spp*** – This organism may be part of the normal human skin flora. It may be involved in opportunistic infections and has been associated with bacteremia, wound, and ocular infections.
- ***Exiguobacterium spp*** – This organism has been isolated from skin, wounds, blood cultures and CSF. Its pathogenic role appears to be low. It has been associated with cases of pseudobacteremia
- ***Helcobacillus massiliensis*** – This organism is part of the Dermabacteraceae family and has been isolated from a case of cutaneous infection with erythrasma.
- ***Leifsonia spp*** – This organism is rarely encountered in clinical specimens. It was formerly was classified as a *Corynebacterium spp.*

Coryneform Bacteria – other than Corynebacterium spp, Continued

Clinical (continued)

- ***Microbacterium spp*** – These organisms are usually found in soil and have been recovered from hospital environments. Associated with bacteremia, foreign body and wound infections.
- ***Oerskovia spp*** –These organisms are a rare human pathogen and are usually acquired from the environment (soil).
- ***Turicella spp*** – This organism has been isolated from ear specimens. Its role in ear infections has not been fully established.

Usual susceptibility pattern

- ***Arthrobacter spp*** – These organisms are usually susceptible to vancomycin. Susceptibility to penicillin, cephalosporins and gentamicin is variable. They are often resistant to ciprofloxacin. Multiresistant strains of A. woluwensis have been reported.
- ***Brevibacterium spp*** – These organisms are usually susceptible to doxycycline (more active than tetracycline), vancomycin, gentamicin, and rifampin. They are usually resistant to penicillin (particularly *B. casei* and *B. otitidis*) and may also show resistance to cephalosporins, erythromycin, clindamycin, meropenem and quinolones.
- ***Cellulomonas spp*** – These organisms are usually susceptible to beta lactams, vancomycin, tetracycline and rifampin.
- ***Cellulosimicrobium spp*** – These organisms are usually susceptible to vancomycin and linezolid. They are often resistant to cefotaxime, clindamycin, ciprofloxacin and penicillin.
- ***Curtobacterium spp*** – These organisms are usually susceptible to macrolides and rifampin.
- ***Dermabacter spp*** – *D. hominis* is usually susceptible to vancomycin and doxycycline (more active than tetracycyline). This organism has been shown to be resistant to aminoglycosides, quinolones, rifampin, macrolides and clindamycin. Susceptibility to beta-lactams is variable.
- ***Exiquobacterium spp*** – Little is known about the susceptibility pattern of these organisms.
- ***Helcobacillus massiliensis*** –Little is known about the susceptibility pattern of this organism.
- ***Leifsonia spp*** – These organisms may have elevated MICs to vancomycin and penicillin susceptibility.
- ***Microbacterium spp*** – *M. resistens* and other *Microbacterium* spp. may be nonsusceptible to vancomycin. They are usually susceptible to meropenem, linezolid and doxycycline. Susceptibility to other antibiotics is unpredictable.
- ***Oerskovia spp*** – Little is known about the susceptibility pattern of these organisms.
- ***Turicella spp*** – Resistance to erythromycin and clindamycin has been described. MICs to beta-lactam agents are typically low. These organisms are generally susceptible to quinolones, rifampin, doxycycline (more active than tetracycline), linezolid and vancomycin.

Coryneform Bacteria – other than Corynebacterium spp, Continued

Susceptibility method

Etest method using Mueller-Hinton agar with 5% sheep blood incubated in 5% CO_2 at 35°C for 20-24 hours. Incubation should be prolonged for 48 hours for slow growing organisms.

Note:

For Etest use 1.0 McFarland suspension in broth.
Isolates demonstrating susceptible results for beta-lactam antibiotics (ceftriaxone, cefotaxime, penicillin, meropenem) should be read at 48 hours before reporting susceptibility results. Resistant results can be reported at 24 hours.

Susceptibility reporting

	CSF/ Brain/ Blood	Blood/ Endo vascular catheter	Sterile Body Site	Other	Comments
Cefotaxime	*	*	*	2*	*Report if patient <1 month instead of ceftriaxone 2nd line if pen I/R
Ceftriaxone	✓	✓	✓	2	Do not report if patient ≤1 month 2nd line if pen I/R
Ciprofloxacin			✓	✓	Do not report on patients < 18 y
Clindamycin			✓	✓	
Meropenem		2	2		2nd line if pen I/R
Penicillin	✓	✓	✓	✓	
Doxycycline				✓	If patient <8 y see **Special Considerations**
Vancomycin	✓	✓	✓	✓	**See Special Considerations**

Special considerations

Doxycycline:	If patient <8 y add comment: "Doxycycline can now be prescribed for children <8y for short-course (<21d) therapy: OTHER tetracyclines are still contraindicated for this age group."
Vancomycin:	These organisms are generally susceptible to vancomyin (exception: *Microbacterium* spp and *Leifsonia aquatica*). Consult microbiologist if not susceptible. If not susceptible, the identification of the organism and its susceptibility should be confirmed by repeat testing. Consider sending confirmed isolates to reference laboratory.

Interpretation

For Etest, report actual MIC result. For interpretation (S, I, or R) report according to the nearest higher doubling dilution **(Appendix 1)**.

Use **CLSI** interpretive document for **Corynebacterium species and Related Coryneform Genera.**

Add comment:
"Susceptibility testing for this organism was performed by a non-reference method and/or required modifications to the standard test conditions. Results are probable but not definite." &2130 &2338