Stenotrophomonas maltophilia (LTR79338)

Edit Approved By: Lee, Mao-Cheng (08/09/2023) **Revision: 3.00**

Organism	**Stenotrophomonas maltophilia**
Clinical	This organism is found in a variety of environmental sources and is widely recognized as phytopathogens. Due to their ability to survive in aqueous environments, these organisms have become particularly problematic as opportunistic nosocomial pathogens in hospitals and health care settings. It is often a colonizer of the respiratory tract in patients who have received broad spectrum antibiotics (especially carbapenems), have received mechanical ventilation, are neutropenic and those with cystic fibrosis. Infections may occur in these individuals. Immunosuppression may be a factor contributing to infection with this organism. Infections caused by *S. maltophilia* include bacteremia, meningitis, endocarditis, peritonitis, biliary sepsis, pneumonia, acute exacerbation of COPD and ophthalmic (endophthalmitis, keratits, scleritis, dacryocystitis), genitourinary tract, and skin/soft tissue infections
Usual susceptibility pattern	This organism produces two chromosomal inducible beta lactamases (i.e. Amp C cephalosporinase and metallo-β-lactamase), in addition to having other mechanisms of resistance such as permeability mutations, efflux pumps, aminoglycoside-inactivating enzymes and quinolone-resistance gene determinants (i.e. Qnr). It exhibits multiple resistance to beta-lactam agents (penicillins, cephalosporins and carbapenems), aminoglycosides, macrolides and quinolones (levofloxacin may have some efficacy as a synergistic agent in setting of biofilms). Although usually susceptible to TMP-SMX, (drug of choice often in combination with another agent), resistance is increasing. It is predictably susceptible to colistin. This organism may be susceptible to doxycycline and minocycline, but not tetracycline. Other useful agents which have demonstrated in vitro and in vivo activity against *S. maltophilia* include: tigecycline and rifampin. Both minocycline and tigecycline have low minimal inhibitory concentrations among *S. maltophilia* isolates and each has been shown in small retrospective studies to have similar clinical outcomes compared with TMP SMX. For tigecycline, low serum drug levels and higher mortality observed for cases of pneumonia has made this agent fall out of favor clinically. TMP-SMX combination therapy with ciprofloxacin/levofloxacin, ceftazidime or tobramycin may have higher bactericidal activity. Addition of rifampin has also been recommended. Doxycycline and aerosolized colistin may be another option for ventilator associated pneumonia.

Stenotrophomonas maltophilia, Continued

Susceptibility method

VITEK2 and Etest method using Mueller-Hinton agar incubated in ambient air at 35°C for 20-24 hours (48 hours if slow grower). Recommend Etest method for mucoid strains.

Note: For Etest use 0.5 McFarland suspension in saline.
For mucoid strains use 1.0 McFarland.

Susceptibility reporting

	CSF/ Brain	Blood / Sterile Body Site / Other	Comments
Ceftazidime	*	*	*Physician request only after consultation with microbiologist E Test Method **See Special Considerations**
Doxycycline		✓	E Test Method If reporting in patients < 8 y **See Special Considerations**
Minocycline		✓	E Test Method Do not report in patients < 8 y
TMP-SMX	✓	✓	**See Special Considerations**

Note

For isolates from other sources after consultation with microbiologist, if these organisms are thought to represent colonization or contamination, susceptibility testing is not indicated.
Add comment:
"This organism often represents colonization or contamination, especially in patients who have received broad spectrum antibiotic therapy. Clinical correlation required." &A129

On isolates where susceptibility results are reported add comment:
"In serious infections, combination therapy should be considered". &A101

Stenotrophomonas maltophilia, Continued

Special considerations

Ceftazidime:	Due to limited antibiotic choices, additional susceptibility testing may sometimes be performed for drugs that have marginal and suboptimal activity. This includes ceftazidime. Reporting of this antibiotic should only be done at the physician request after approval with the microbiologist. Add comment: "Ceftazidime is not the first line agent for this organism. Susceptibility result reported at physician request". **(free text)**
Doxycycline:	If reporting in patients <8 y add the following comment: "Doxycycline can now be prescribed for children <8y for short-course (<21d) therapy; OTHER tetracyclines are still contraindicated for this age group." **(free text)**
TMP-SMX:	*S. maltophilia* is usually susceptible to this antibiotic. Refer to APL for E-test confirmation if SXT is I/R on VITEK

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 **Stenotrophomonas maltophilia.**