



Suggestions for appropriate agents to include in routine antimicrobial susceptibility testing

These suggestions are intended to indicate minimum sets of agents to test routinely in a diagnostic laboratory in order to give an appropriate selection of antimicrobial agents and classes that will allow valid results (using expert interpretive rules) to be reported. It is appreciated that local policies may require testing additional or alternative agents. Possible additional or alternative agents are indicated by [Agent].

For each organism group, suggestions are given of agents to test in systemic infection, or uncomplicated Urinary Tract Infection. In a few instances, the agents suggested do not allow all potentially relevant expert rules to be used, and these are listed in each section. EUCAST expert interpretive rules can be assessed at:

http://www.eucast.org/fileadmin/src/media/PDFs/EUCAST_files/EUCAST_SOPs/EUCAST-Expert-rules-v2-CMI.pdf

Organisms	Systemic infections	Uncomplicated UTI
Enterobacteriaceae	Ampicillin or Amoxicillin Ceftazidime plus cefotaxime or ceftriaxone (for ESBL screening or treatment) Ciprofloxacin * Gentamicin Imipenem or meropenem Ertapenem Piperacillin-tazobactam [Cefuroxime] [Cefpodoxime] (for ESBL screening)	Ampicillin or Amoxicillin Amoxicillin-clavulanate Cefpodoxime (for ESBL screening) Ciprofloxacin or norfloxacin Cephalexin Nitrofurantoin Trimethoprim

* It is recommended that an MIC is performed for invasive Salmonella isolates



Organisms	Systemic infections	Uncomplicated UTI
Acinetobacter	Ciprofloxacin Gentamicin Imipenem or meropenem Colistin * Amikacin ** [Piperacillin-tazobactam]	Treat as systemic as likely not uncomplicated
* MIC testing is required to establish colistin susceptibility		
** EUCAST rule 12.7 "If intermediate or resistant to tobramycin and susceptible to gentamicin and amikacin, report amikacin as intermediate for Enterobacteriaceae or resistant for Pseudomonas and Acinetobacter" (evidence grade C) cannot be applied without additional testing of tobramycin.		
Organisms	Systemic infections	Uncomplicated UTI
Pseudomonas spp	Amikacin Ceftazidime Ciprofloxacin Gentamicin Imipenem or meropenem Piperacillin-tazobactam Colistin * [Tobramycin]** [Amikacin]**	Treat as systemic as likely not uncomplicated
* MIC testing is required to establish colistin susceptibility		
** May be appropriate according to local use		



Organisms	Systemic infections	Uncomplicated UTI
Staphylococci	Oxacillin or cefoxitin Erythromycin Fusidic acid or rifampicin Gentamicin Tetracycline Vancomycin * Mupirocin [Linezolid]** [Daptomycin]** [Penicillin]** [Teicoplanin]**	<i>S. saprophyticus</i> Ciprofloxacin or norfloxacin Gentamicin Oxacillin or cefoxitin Vancomycin * Nitrofurantoin Trimethoprim Treat as other species as systemic as likely not.
* MIC testing is required to establish vancomycin susceptibility		
** Recommended for testing in severe infection		
Organisms	Systemic infections	
<i>S. pneumoniae</i>	Penicillin (oxacillin screen) Erythromycin Tetracycline Levofloxacin or moxifloxacin [Vancomycin]	



Organisms	Systemic infections	Uncomplicated UTI
Enterococcus spp	Ampicillin or amoxicillin Gentamicin (high level screen) Vancomycin Linezolid Teicoplanin [additional not alternative to vancomycin]	Ampicillin or amoxicillin Vancomycin Nitrofurantoin Trimethoprim Ciprofloxacin or norfloxacin Teicoplanin [additional not alternative to vancomycin]
Organisms	Systemic infections	Uncomplicated UTI
Beta-haemolytic streptococci	Erythromycin Penicillin Tetracycline	(Group B) Penicillin Nitrofurantoin Trimethoprim
Organisms	Systemic infections	
<i>M. catarrhalis</i>	Ampicillin or amoxicillin * Co-amoxiclav Erythromycin Tetracycline Ciprofloxacin [nalidixic acid to detect any quinolone resistance] [Chloramphenicol] [Cefotaxime]	
<p>* Resistance to ampicillin by production of β-lactamase (BRO-1/2 β-lactamase) may be misidentified by disk diffusion technique and, because production is slow, may give weak results with <i>in-vitro</i> tests. Since >90% of <i>M. catarrhalis</i> strains produce β-lactamase, testing of penicillinase production is discouraged and isolates reported resistant to ampicillin and amoxicillin</p>		



Organisms	Systemic infections	
<i>N. gonorrhoeae</i>	Penicillin Ceftriaxone Cefixime Tetracycline Spectinomycin Ciprofloxacin [nalidixic acid to detect any quinolone resistance] Beta-lactamase [Cefuroxime as indicator of cephalosporin resistance]	
Organisms	Systemic infections	
<i>H. influenzae</i>	Ampicillin or amoxicillin Co-amoxiclav Cefuroxime Trimethoprim Tetracycline Ciprofloxacin [nalidixic acid to detect any quinolone resistance] Beta-lactamase [Chloramphenicol] [Cefotaxime]	