

MULTIDRUG-RESISTANCE: SUSCEPTIBILITY TABLES

MDR SPECIES IDENTIFICATION

- a pathogen producing ESBL (extended-spectrum beta-lactamase)
- a pathogen producing carbapenemase
- a *Stenotrophomonas maltophilia*
- a MRSA (methicillin-resistant *Staphylococcus aureus*)
- a VRE (vancomycin-resistant Enterococcus)
- a pathogen **resistant to 3 or more antimicrobial categories**
(these antimicrobial categories vary from pathogen to pathogen, so please check the MDR-tables below)

MDR-TABLE 1: STAPHYLOCOCCUS AUREUS

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Anti-staphylococcal β -lactams (Oxacillin) or cephamycins (Cefoxitin) (*)	☐	☐	☐
(*) Oxacillin or cefoxitin represents all other β -lactams (and cephamycins) with the exception of anti-MRSA cephalosporins			
Anti-MRSA cephalosporins (Ceftaroline)	☐	☐	☐
Aminoglycosides (Gentamicin)	☐	☐	☐
Ansamycins (Rifampin/Rifampicin)	☐	☐	☐
Fluoroquinolones (Ciprofloxacin/Moxifloxacin)	☐	☐	☐
Folate pathway inhibitors (Trimethoprim-sulphamethoxazole)	☐	☐	☐
Glycopeptides (Vancomycin/Teicoplanin/Telavancin)	☐	☐	☐
Lincosamides (Clindamycin)	☐	☐	☐
Fucidanes (Fusidic acid)	☐	☐	☐
Glycylcyclines (Tigecycline)	☐	☐	☐
Lipopeptides (Daptomycin)	☐	☐	☐
Macrolides (Erythromycin)	☐	☐	☐
Oxazolidinones (Linezolid)	☐	☐	☐
Phenicol (Chloramphenicol)	☐	☐	☐
Phosphonic acids (Fosfomycin)	☐	☐	☐
Streptogramins (Quinupristin-dalfopristin)	☐	☐	☐
Tetracyclines (Tetracycline/Doxycycline/Minocycline)	☐	☐	☐

MDR-TABLE 2: **ENTEROCOCCUS**

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (except streptomycin) (Gentamicin – high level)	☐	☐	☐
Glycopeptides (Vancomycin/Teicoplanin)	☐	☐	☐
Penicillins (Ampicillin)	☐	☐	☐
Oxazolidinones (Linezolid)	☐	☐	☐
Streptomycin – high level	☐	☐	☐
Carbapenems (Imipenem/Meropenem/Doripenem)	☐	☐	☐
Fluoroquinolones (Ciprofloxacin/Levofloxacin/Moxifloxacin)	☐	☐	☐
Glycylcyclines (Tigecycline)	☐	☐	☐
Lipopeptides (Daptomycin)	☐	☐	☐
Streptogramins (Quinupristin-dalfopristin)	☐	☐	☐
Tetracyclines (Doxycycline / Minocycline)	☐	☐	☐

MDR-TABLE 3: ENTEROBACTERIACEAE

MDR-TABLE 3.1 **CITROBACTER SPP./ ENTEROBACTER SPP./HAFNIA ALVEI**

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (Gentamicin/Tobramycin/Amikacin/Netilmicin)	☐	☐	☐
Antipseudomonal penicillins + β -lactamase inh. (Piperacillin-tazobactam/Ticarcillin-clavulanic acid)	☐	☐	☐
Carbapenems (Ertapenem/Imipenem/Meropenem/Doripenem)	☐	☐	☐
3 rd & 4 th gen. cephalosp. (Cefotaxime/Ceftriaxone/Ceftazidime/Cefepime)	☐	☐	☐
Fluoroquinolones (Ciprofloxacin)	☐	☐	☐
1 st & 2 nd gen. cephalosporins (Cefuroxime)	☐	☐	☐
Folate pathway inhibitors (Trimethoprim-sulphamethoxazole)	☐	☐	☐
Glycylcyclines (Tigecycline)	☐	☐	☐
Monobactams (Aztreonam)	☐	☐	☐
Phenicol (Chloramphenicol)	☐	☐	☐
Phosphonic acids (Fosfomycin)	☐	☐	☐
Polymyxins (Colistin)	☐	☐	☐
Tetracyclines (Tetracycline/Doxycycline/Minocycline)	☐	☐	☐
ESBL (extended-spectrum β -lactamase) production	☐ Yes	☐ No	
Carbapenemase production	☐ Yes	☐ No	

MDR-TABLE 3.2 E. COLI (& OTHER/UNIDENTIFIED ENTEROBACTERIACEAE SPP.)

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (Gentamicin/Tobramycin/Amikacin/Netilmicin)	☐	☐	☐
Antipseudomonal penicillins + β -lactamase inh. (Piperacillin-tazobactam/Ticarcillin-clavulanic acid)	☐	☐	☐
Carbapenems (Ertapenem/Imipenem/Meropenem/Doripenem)	☐	☐	☐
3 rd & 4 th gen. cephalosp. (Cefotaxime/Ceftriaxone/Ceftazidime/Cefepime)	☐	☐	☐
Fluoroquinolones (Ciprofloxacin)	☐	☐	☐
Anti-MRSA cephalosporins (Ceftaroline)	☐	☐	☐
1 st & 2 nd gen. cephalosporins (Cefazolin/Cefuroxime)	☐	☐	☐
Cephameycins (Cefoxitin/Cefotetan)	☐	☐	☐
Folate pathway inhibitors (Trimethoprim-sulphamethoxazole)	☐	☐	☐
Glycylcyclines (Tigecycline)	☐	☐	☐
Monobactams (Aztreonam)	☐	☐	☐
Penicillins (Ampicillin)	☐	☐	☐
Penicillins + β -lactamase inh. (Amoxicillin-clavulanic acid/Ampicillin-sulbactam)	☐	☐	☐
Phenicol (Chloramphenicol)	☐	☐	☐
Phosphonic acids (Fosfomycin)	☐	☐	☐
Polymyxins (Colistin)	☐	☐	☐
Tetracyclines (Tetracycline/Doxycycline/Minocycline)	☐	☐	☐
ESBL (extended-spectrum β -lactamase) production	☐ Yes	☐ No	
Carbapenemase production	☐ Yes	☐ No	

MDR-TABLE 3.3 **KLEBSIELLA SPP.**

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (Gentamicin/Tobramycin/Amikacin/Netilmicin)	☐	☐	☐
Antipseudomonal penicillins + β -lactamase inh. (Piperacillin-tazobactam/Ticarcillin-clavulanic acid)	☐	☐	☐
Carbapenems (Ertapenem/Imipenem/Meropenem/Doripenem)	☐	☐	☐
3 rd & 4 th gen. cephalosp. (Cefotaxime/Ceftriaxone/Ceftazidime/Cefepime)	☐	☐	☐
Fluoroquinolones (Ciprofloxacin)	☐	☐	☐
Anti-MRSA cephalosporins (Ceftaroline)	☐	☐	☐
1 st & 2 nd gen. cephalosporins (Cefazolin/Cefuroxime)	☐	☐	☐
Cephameycins (Cefoxitin/Cefotetan)	☐	☐	☐
Folate pathway inhibitors (Trimethoprim-sulphamethoxazole)	☐	☐	☐
Glycylcyclines (Tigecycline)	☐	☐	☐
Monobactams (Aztreonam)	☐	☐	☐
Penicillins + β -lactamase inh. (Amoxicillin-clavulanic acid/Ampicillin-sulbactam)	☐	☐	☐
Phenicol (Chloramphenicol)	☐	☐	☐
Phosphonic acids (Fosfomycin)	☐	☐	☐
Polymyxins (Colistin)	☐	☐	☐
Tetracyclines (Tetracycline/Doxycycline/Minocycline)	☐	☐	☐
ESBL (extended-spectrum β -lactamase) production	☐ Yes	☐ No	
Carbapenemase production	☐ Yes	☐ No	

MDR-TABLE 3.4 **MORGANELLA SPP.**

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (Gentamicin/Tobramycin/Amikacin/Netilmicin)	☐	☐	☐
Antipseudomonal penicillins + β -lactamase inh. (Piperacillin-tazobactam/Ticarcillin-clavulanic acid)	☐	☐	☐
Carbapenems (Ertapenem/Imipenem/Meropenem/Doripenem)	☐	☐	☐
3 rd & 4 th gen. cephalosp. (Cefotaxime/Ceftriaxone/Ceftazidime/Cefepime)	☐	☐	☐
Fluoroquinolones (Ciprofloxacin)	☐	☐	☐
Cephameycins (Cefoxitin/Cefotetan)	☐	☐	☐
Folate pathway inhibitors (Trimethoprim-sulphamethoxazole)	☐	☐	☐
Monobactams (Aztreonam)	☐	☐	☐
Penicillins + β -lactamase inh. (Ampicillin-sulbactam)	☐	☐	☐
Phenicol (Chloramphenicol)	☐	☐	☐
Phosphonic acids (Fosfomycin)	☐	☐	☐
ESBL (extended-spectrum β -lactamase) production	☐ Yes	☐ No	
Carbapenemase production	☐ Yes	☐ No	

MDR-TABLE 3.5 **PROTEUS SPP.**

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (Gentamicin/Tobramycin/Amikacin/Netilmicin)	☐	☐	☐
Antipseudomonal penicillins + β -lactamase inh. (Piperacillin-tazobactam/Ticarcillin-clavulanic acid)	☐	☐	☐
Carbapenems (Ertapenem/Imipenem/Meropenem/Doripenem)	☐	☐	☐
3 rd & 4 th gen. cephalosp. (Cefotaxime/Ceftriaxone/Ceftazidime/Cefepime)	☐	☐	☐
Fluoroquinolones (Ciprofloxacin)	☐	☐	☐
Cephameycins (Cefoxitin/Cefotetan)	☐	☐	☐
Folate pathway inhibitors (Trimethoprim-sulphamethoxazole)	☐	☐	☐
Monobactams (Aztreonam)	☐	☐	☐
Penicillins + β -lactamase inh. (Amoxicillin-clavulanic acid/Ampicillin-sulbactam)	☐	☐	☐
Phenicol (Chloramphenicol)	☐	☐	☐
Phosphonic acids (Fosfomycin)	☐	☐	☐
ESBL (extended-spectrum β -lactamase) production	☐ Yes	☐ No	
Carbapenemase production	☐ Yes	☐ No	

MDR-TABLE 3.6 **PROVIDENCIA SPP.**

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (Amikacin)	☐	☐	☐
Antipseudomonal penicillins + β -lactamase inh. (Piperacillin-tazobactam/Ticarcillin-clavulanic acid)	☐	☐	☐
Carbapenems (Ertapenem/Imipenem/Meropenem/Doripenem)	☐	☐	☐
3 rd & 4 th gen. cephalosp. (Cefotaxime/Ceftriaxone/Ceftazidime/Cefepime)	☐	☐	☐
Fluoroquinolones (Ciprofloxacin)	☐	☐	☐
1 st & 2 nd gen. cephalosporins (Cefuroxime)	☐	☐	☐
Cephameycins (Cefoxitin/Cefotetan)	☐	☐	☐
Folate pathway inhibitors (Trimethoprim-sulphamethoxazole)	☐	☐	☐
Monobactams (Aztreonam)	☐	☐	☐
Phenicol (Chloramphenicol)	☐	☐	☐
Phosphonic acids (Fosfomycin)	☐	☐	☐
ESBL (extended-spectrum β -lactamase) production	☐ Yes	☐ No	
Carbapenemase production	☐ Yes	☐ No	

MDR-TABLE 3.7 **SERRATIA SPP.**

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (Gentamicin/Tobramycin/Amikacin/Netilmicin)	☐	☐	☐
Antipseudomonal penicillins + β -lactamase inh. (Piperacillin-tazobactam/Ticarcillin-clavulanic acid)	☐	☐	☐
Carbapenems (Ertapenem/Imipenem/Meropenem/Doripenem)	☐	☐	☐
3 rd & 4 th gen. cephalosp. (Cefotaxime/Ceftriaxone/Ceftazidime/Cefepime)	☐	☐	☐
Fluoroquinolones (Ciprofloxacin)	☐	☐	☐
Cephameycins (Cefoxitin/Cefotetan)	☐	☐	☐
Folate pathway inhibitors (Trimethoprim-sulphamethoxazole)	☐	☐	☐
Glycylcyclines (Tigecycline)	☐	☐	☐
Monobactams (Aztreonam)	☐	☐	☐
Phenicol (Chloramphenicol)	☐	☐	☐
Phosphonic acids (Fosfomycin)	☐	☐	☐
Tetracyclines (Tetracycline/Doxycycline/Minocycline)	☐	☐	☐
ESBL (extended-spectrum β -lactamase) production	☐ Yes	☐ No	
Carbapenemase production	☐ Yes	☐ No	

MDR-TABLE 4: **PSEUDOMONAS AERUGINOSA**

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (Gentamicin/Tobramycin/Amikacin/Netilmicin)	☐	☐	☐
Antipseudomonal carbapenems (Imipenem/Meropenem/Doripenem)	☐	☐	☐
Antipseudomonal cephalosporins (Ceftazidime/Cefepime)	☐	☐	☐
Antipseudomonal fluoroquinolones (Ciprofloxacin/Levofloxacin)	☐	☐	☐
Antipseudomonal penicillins + β -lactamase inh. (Piperacillin-tazobactam/Ticarcillin-clavulanic acid)	☐	☐	☐
Monobactams (Aztreonam)	☐	☐	☐
Phosphonic acids (Fosfomycin)	☐	☐	☐
Polymyxins (Colistin/Polymyxin B)	☐	☐	☐

MDR-TABLE 5: **ACINETOBACTER SPP.**

(when multiple antimicrobial agents of an antimicrobial category are shown, check the I/R box in case of intermediate or complete resistance to at least one agent in this category)

Antimicrobial category (agents)	S	I/R	ND/NA
Aminoglycosides (Gentamicin/Tobramycin/Amikacin/Netilmicin)	☐	☐	☐
Antipseudomonal carbapenems (Imipenem/Meropenem/Doripenem)	☐	☐	☐
Antipseudomonal fluoroquinolones (Ciprofloxacin/Levofloxacin)	☐	☐	☐
Antipseudomonal penicillins + β -lactamase inh. (Piperacillin-tazobactam/Ticarcillin-clavulanic acid)	☐	☐	☐
Extended-spectrum cephalosp. (Cefotaxime/Ceftriaxone/Ceftazidime/Cefepime)	☐	☐	☐
Folate pathway inh. (Trimethoprim-sulphamethoxazole)	☐	☐	☐
Penicillins + β -lactamase inh. (Ampicillin-sulbactam)	☐	☐	☐
Polymyxins (Colistin/Polymyxin B)	☐	☐	☐
Tetracyclines (Tetracycline/Doxycycline/Minocycline)	☐	☐	☐