TABLE 174-1 SUGGESTED REGIMENS FOR THE MANAGEMENT OF INFECTIONS CAUSED BY *ENTEROCOCCUS FAECALIS*

Clinical Syndrome	Suggested Therapeutic Options[a]
Endovascular infections (including endocarditis)	• Ampicillin[b] (12 g/d IV in divided doses q4h or by continuous infusion) *or* penicillin (18–30 million units/d IV in divided doses q4h or by continuous infusion) ***plus*** an aminoglycoside[c] • Ampicillin[b] (12 g/d IV in divided doses q4h) *plus* ceftriaxone (2 g IV q12h) • Vancomycin[d] (15 mg/kg IV per dose) *plus* an aminoglycoside[c] • High-dose daptomycin[e] ± another active agent[f] • Ampicillin[b] *plus* imipenem
Nonendovascular bacteremia[g]	• Ampicillin (12 g/d IV in divided doses q4h) *or* penicillin (18 million units/d IV in divided doses q4h) ± an aminoglycoside[c] or ceftriaxone • Vancomycin[d] (15 mg/kg IV per dose) • High-dose daptomycin[e] ± another active agent[f] • Linezolid (600 mg IV/PO q12h)
Meningitis	• Ampicillin (20–24 g/d IV in divided doses q4h) *or* penicillin (24 million units/d IV in divided doses q4h) ***plus*** an aminoglycoside[c,h] or ceftriaxone • Vancomycin (500–750 mg IV q6h)[d] ***plus*** an aminoglycoside[c] *or* rifampin • Linezolid • High-dose daptomycin[e] (*plus* intrathecal daptomycin) ± another active agent[f]
Urinary tract infections (uncomplicated)	• Fosfomycin (3 g PO, one dose)[i] • Ampicillin (500 mg IV or PO q6h) • Nitrofurantoin (100 mg PO q6h)

[a]Authors' preferences are underlined for each category; many of these regimens are off-label. [b]In rare cases, β-lactamase-producing isolates may be found. Because these isolates are not detected by conventional minimal inhibitory concentration determination, additional tests (e.g., the nitrocefin disk) are recommended for isolates from endocarditis. The use of ampicillin/sulbactam (12–24 g/d) is suggested in these cases. [c]Only if the organism does not exhibit high-level resistance (HLR) to aminoglycosides. HLR is assessed by the clinical microbiology laboratory only for gentamicin or streptomycin, because gentamicin (1–1.5 mg/kg IV q8h) and streptomycin (15 mg/kg per day IV/IM, in two divided doses) are the only two recommended aminoglycosides. The test used to detect HLR is the growth of enterococci on agar containing gentamicin (500 μg/mL) or streptomycin (2000 μg/mL). If HLR is documented, the aminoglycoside will not act synergistically with the other agent in the combination. HLR to gentamicin implies lack of synergism with tobramycin and with amikacin. [d]Vancomycin is recommended only as an alternative to β-lactam agents in cases of allergy, toxicity, and inability to desensitize. Cerebrospinal fluid (CSF) concentrations should be determined in meningitis. Vancomycin-resistant strains of *E. faecalis* have been reported. [e]Consider doses of 8–10 mg/kg per day if used in combination and 10–12 mg/kg per day if used alone. Close monitoring of creatine phosphokinase levels is recommended throughout therapy because of possible rhabdomyolysis. [f]Potentially active agents may include an aminoglycoside (if HLR is not detected), ampicillin, ceftaroline, tigecycline, or a fluoroquinolone (which, if the isolate is susceptible, may be favored in meningitis). [g]In selected cases of catheter-associated bacteremia, removal of the catheter and a short course of therapy (~5–7 days) may be sufficient. A single positive blood culture that is likely to be associated with a catheter in a patient who is otherwise doing well may not require therapy after removal of the catheter. Patients at high risk for endovascular infections or with severe disease may benefit from synergistic combination therapy. [h]The addition of intrathecal or intraventricular therapy with gentamicin (2–10 mg/d if the organism does not exhibit HLR) or vancomycin (10–20 mg/d when the isolate is susceptible) has been suggested by some authorities. The addition of systemic rifampin (a good CSF-penetrating agent) may be considered. The combination of ampicillin and ceftriaxone may have clinical benefit (by analogy with endocarditis), but no cases treated with this combination have been reported. [i]Approved by the Food and Drug Administration only for uncomplicated urinary tract infections caused by vancomycin-susceptible *E. faecalis*.

TABLE 174-2 SUGGESTED REGIMENS FOR THE MANAGEMENT OF INFECTIONS CAUSED BY VANCOMYCIN- AND AMPICILLIN-RESISTANT *ENTEROCOCCUS FAECIUM*

Clinical Syndrome	Suggested Therapeutic Options[a]
Endovascular infections (including endocarditis)	• High-dose daptomycin[b] ***plus*** another agent[c] ± an aminoglycoside[d] • Q/D[e] (22.5 mg/kg per day in divided doses q8h) ± another active agent[f] • Linezolid[e] (600 mg IV q12h) • High-dose ampicillin (if MIC is ≤64 μg/mL) ± an aminoglycoside[d]
Nonendovascular bacteremia[g]	• High-dose daptomycin[b] ± another agent[c] ± an aminoglycoside[d] • Q/D (22.5 mg/kg per day in divided doses q8h) ± another active agent[f] • Linezolid (600 mg IV q12h)
Meningitis	• Linezolid (600 mg IV q12h) ± another CSF-penetrating active agent[h] • Q/D (22.5 mg/kg per day in divided doses q8h *plus* intraventricular Q/D)[i] ± another active agent[h] • High-dose daptomycin[b] (*plus* intraventricular daptomycin) ± another CSF-penetrating active agent[h,j]
Urinary tract infections	• Fosfomycin (3 g PO, one dose)[k] • Nitrofurantoin (100 mg PO q6h) • Ampicillin or amoxicillin (2 g IV/PO q4–6h)[l]

[a]Authors' preferences are underlined for each category; many of these regimens are off-label. [b]Consider doses of 8–10 mg/kg per day if used in combination and 10–12 mg/kg per day if used alone (off-label). Close monitoring of creatine phosphokinase levels is recommended throughout therapy because of possible rhabdomyolysis. [c]Potentially active agents may include ampicillin or ceftaroline (even if the infecting strain is resistant in vitro) or tigecycline. In vitro synergism of daptomycin with some β-lactam agents is observed against some isolates that subsequently become nonsusceptible to daptomycin during therapy. Consider combination therapy if the daptomycin minimal inhibitory concentration (MIC) is ≥3 μg/mL. [d]Only if the organism does not exhibit high-level resistance to aminoglycosides (see Table 174–1, footnote c). [e]Quinupristin-dalfopristin (Q/D) and linezolid are listed in the American Heart Association's recommendations for the treatment of endocarditis caused by vancomycin- and ampicillin-resistant *E. faecium*. [f]Agents that may be useful in combination with Q/D (if the isolate is susceptible to each agent) include doxycycline with rifampin (one reported case) and fluoroquinolones (one reported case). [g]In selected cases of catheter-associated bacteremia, removal of the catheter and a short course of therapy (~5–7 days) may be sufficient. A single positive blood culture that is likely to be associated with a catheter in a patient who is otherwise doing well may not require therapy after removal of the catheter. [h]Fluoroquinolone antibiotics (e.g., moxifloxacin) and rifampin (if the isolate is susceptible to each agent) reach therapeutic levels in the cerebrospinal fluid (CSF). [i]Intrathecal Q/D (1–5 mg/d) has been used in combination with Q/D systemic therapy in meningitis. If Q/D is chosen, simultaneous use of both systemic and intrathecal therapy is suggested. [j]Intrathecal gentamicin (2–10 mg/d) if high-level resistance is not detected. Intraventricular daptomycin has been used in two cases of meningitis. [k]Approved by the Food and Drug Administration only for uncomplicated urinary tract infections caused by vancomycin-susceptible *E. faecalis*. [l]Concentrations of amoxicillin and ampicillin in urine far exceed those in serum and may be potentially effective even against isolates with high MICs. Doses up to 12 g/d are suggested for isolates with MICs of ≥64 μg/mL.