C. canimorsus and *C. cynodegmi* are endogenous to the canine mouth (Chap. 167e). Patients infected with these species frequently have a history of dog bites or of canine exposure without scratches or bites. Asplenia, glucocorticoid therapy, and alcohol abuse are predisposing conditions that can be associated with severe sepsis with shock and disseminated intravascular coagulation. Patients typically have a petechial rash that can progress from purpuric lesions to gangrene. Meningitis, endocarditis, cellulitis, osteomyelitis, and septic arthritis also have been associated with these organisms.

TREATMENT *CAPNOCYTOPHAGA* INFECTIONS

(Table 183e-2) Because of increasing β-lactamase production, a penicillin derivative plus a β-lactamase inhibitor—such as ampicillin/sulbactam (1.5–3.0 g of ampicillin every 6 h)—is currently recommended for empirical treatment of infections caused by *Capnocytophaga* species. If the isolate is known to be susceptible, infections with *C. canimorsus* should be treated with penicillin (12–18 million units every 4 h). *Capnocytophaga* is also susceptible to clindamycin (600–900 mg every 6–8 h). This regimen or ampicillin/sulbactam should be given prophylactically to asplenic patients who have sustained dog-bite injuries.

***Elizabethkingia/Chryseobacterium* Species** *Elizabethkingia meningoseptica* (formerly *Chryseobacterium meningosepticum*) is an important cause of nosocomial infections, including outbreaks due to contaminated fluids (e.g., disinfectants and aerosolized antibiotics) and sporadic infections due to indwelling devices, feeding tubes, and other fluid-associated apparatuses. Nosocomial *E. meningoseptica* infection usually involves neonates or patients with underlying immunosuppression (e.g., related to malignancy or diabetes). *E. meningoseptica* has been reported to cause meningitis (primarily in neonates), pneumonia, sepsis, endocarditis, bacteremia, and soft tissue infections. Most published reports have originated from Taiwan. *Chryseobacterium indologenes* has caused bacteremia, sepsis, and pneumonia, typically in immunocompromised patients with indwelling devices.

TREATMENT *ELIZABETHKINGIA/CHRYSEOBACTERIUM* INFECTIONS

(Table 183e-2) These organisms are often susceptible to fluoroquinolones and trimethoprim-sulfamethoxazole. They may be susceptible to β-lactam/β-lactamase inhibitor combinations such as piperacillin/tazobactam but can possess extended-spectrum β-lactamases and metallo-β-lactamases. Susceptibility testing should be performed.

Pasteurella multocida *P. multocida* is a bipolar-staining, gram-negative coccobacillus that colonizes the respiratory and gastrointestinal tracts of domestic animals; oropharyngeal colonization rates are 70–90% in cats and 50–65% in dogs. *P. multocida* can be transmitted to humans through bites or scratches, via the respiratory tract from contact with contaminated dust or infectious droplets, or via deposition of the organism on injured skin or mucosal surfaces during licking. Most human infections affect skin and soft tissue; almost two-thirds of these infections are caused by cats. Patients at the extremes of age or with serious underlying disorders (e.g., cirrhosis, diabetes) are at increased risk for systemic manifestations, including meningitis, peritonitis, osteomyelitis and septic arthritis, endocarditis, and septic shock, but cases have also occurred in healthy individuals of all ages. If inhaled, *P. multocida* can cause acute respiratory tract infection, particularly in patients with underlying sinus and pulmonary disease.

TREATMENT *PASTEURELLA MULTOCIDA* INFECTIONS

P. multocida is susceptible to penicillin, ampicillin, ampicillin/sulbactam, second- and third-generation cephalosporins, tetracyclines, and fluoroquinolones. β-lactamase-producing strains have been reported.

MISCELLANEOUS ORGANISMS

Rhizobium (formerly *Agrobacterium) radiobacter* has usually been associated with infection in the presence of medical devices, including intravascular catheter–related infections, prosthetic-joint and prosthetic-valve infections, and peritonitis caused by dialysis catheters. Cases of endophthalmitis after cataract surgery also have been described. Most *R. radiobacter* infections occur in immunocompromised hosts, especially individuals with malignancy or HIV infection. Strains are usually susceptible to fluoroquinolones, third- and fourth-generation cephalosporins, and carbapenems (Table 183e-2).

Shewanella putrefaciens and *S. algae* are ubiquitous organisms found primarily in seawater. Devitalized tissues can become colonized with *Shewanella* and serve as a nidus for systemic infection. *Shewanella* species cause skin and soft tissue infections, chronic ulcers of the lower extremities, ear infections, biliary tract infections, pneumonia, necrotizing fasciitis, bacteremia, and sepsis. A fulminant course is associated with cirrhosis, diabetes mellitus, malignancy, or other severe underlying conditions. Organisms are often susceptible to fluoroquinolones, third- and fourth-generation cephalosporins, β-lactam/β-lactamase inhibitors, carbapenems, and aminoglycosides (Table 183e-2).

Chromobacterium violaceum has been responsible for life-threatening infections with severe sepsis and metastatic abscesses, particularly in children with defective neutrophil function (e.g., those with chronic granulomatous disease). *Ochrobactrum anthropi* causes infections related to central venous catheters in compromised hosts; other invasive infections have been described. Other organisms implicated in human infections include *Weeksella* species; various CDC groups, such as Ve-1 and Ve-2; *Flavimonas* species; *Sphingobacterium* species; and *Oligella urethralis*. The reader is advised to consult subspecialty texts and references for further guidance on these organisms.