doxycycline failed to alleviate such symptoms at 1 year. In 2003, a small outbreak of acute idiopathic eosinophilic pneumonia was reported among U.S. troops serving in southwest Asia. Although a thorough investigation failed to elucidate an infectious etiology, it is noteworthy that symptoms developed up to 11 months after arrival in the theater of combat; this time frame suggests that such cases may become clinically manifest after return to the home front.

Chronic Wound Infections and Osteomyelitis War wounds, an important cause of morbidity in all armed conflicts, are at high risk of infection due to contamination with environmental bacteria and the presence of retained foreign bodies. In recent conflicts, improved survival rates due to enhanced and expedited care of combat casualties have had the unintended consequence of increasing the potential for infectious complications, a situation exacerbated by repeated and at times prolonged exposure to health care environments and their associated pathogens. Many wounds sustained in recent wars have resulted from penetrating soft-tissue trauma and open fractures of the extremities—injuries attributable to improvised explosive devices used as antipersonnel weapons and to body armor that leaves the limbs unprotected. Cultures of samples taken at the time of injury at a combat support hospital in Iraq revealed that most contaminated wounds harbored gram-positive commensal skin bacteria; other investigators, however, have noted an early predominance of gram-negative bacteria, including multidrug-resistant (MDR) pathogens.

Approximately 3% of nearly 17,000 combat injuries sustained between 2003 and 2009 in U.S. military operations in Iraq and Afghanistan involved soft tissue infections. Although it is not clear how many of these infections became chronic or progressed to involve deeper tissue structures, a significant number were managed in tertiary care facilities, many on the home front. The bacteriology of infected combat wounds comprises predominantly gram-negative bacilli and MDR organisms. Broad-spectrum antimicrobial prophylaxis administered at the time of injury appears to be a risk factor for subsequent infection; nosocomial acquisition of health care–associated MDR pathogens likely contributes as well. Invasive fungal infections have recently emerged as a significant cause of morbidity and death in the context of combat wounds.

During the past decade of wars in Iraq and Afghanistan, MDR strains of *Acinetobacter baumannii* (Chap. 187) have emerged as important pathogens in both wound and bloodstream infections among returning veterans treated at U.S. health care facilities. The majority of isolates display in vitro susceptibility to amikacin and variable susceptibility to carbapenems but are largely resistant to other commonly used antimicrobial agents. Antimicrobial treatment should be guided by in vitro susceptibility data; patients who are critically ill, are immunocompromised, or have significant medical co-morbidities may benefit from combination therapy. Colistin (polymyxin E) has been shown to be clinically effective against *Acinetobacter* infections caused by isolates resistant to both aminoglycosides and carbapenems. Mortality rates have been low among immunocompetent hosts receiving appropriate antimicrobial treatment and undergoing debridement; however, *Acinetobacter* infections in immunocompromised individuals are associated with higher mortality risk. Strict adherence to handwashing and other infection control procedures is important to limit the nosocomial spread of MDR organisms.

Chronic osteomyelitis related to either extension of a contiguous soft tissue infection or an infected prosthesis also represents a burgeoning problem for wounded veterans of recent wars. Limited microbiologic data have shown a predominance of gram-negative etiologic agents—most often *Acinetobacter* and *Pseudomonas aeruginosa*—in the initial episodes of osteomyelitis but a shift to staphylococcal isolates in the majority of recurrent cases—a change that may perhaps be related to nosocomial acquisition. Relapses have been noted to occur 1 month to 1 year after treatment of the initial infection.

Veterans with traumatic brain injury, who have accounted for 22% of American casualties in recent wars in Iraq and Afghanistan, are at risk for infectious complications due to several factors: the presence of foreign bodies or prosthetic material related to their traumatic wounds; acquisition of a wide range of nosocomial infections during repeated interactions with the health care system; and injury-induced cognitive changes that may increase impulsivity and risk-taking behaviors. In line with the last-mentioned factor, this subgroup of veterans may be at heightened risk for substance abuse and other practices that expose them to various bloodborne and sexually transmitted infections. Moreover, they may be at risk for post-neurosurgical complications, such as pyogenic meningitis due to multidrug-resistant *Acinetobacter* species.