

## Preface



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Guest Editor

*Men at some time are masters of their fates:  
The fault, dear Brutus, is not in our stars,  
But in ourselves, that we are underlings.*

*Shakespeare, Julius Caesar, Act I, Scene 2*

*We have met the enemy and he is us.  
Walt Kelly*

Since antiquity, the problem of infection has been inextricably linked with surgical therapy. Egyptian papyri describe infectious complications of traumatic wounds and use of drainage for abscesses. Galen taught that “laudable pus” was essential for the healing of wounds, thereby setting back surgical therapy for nearly two millennia, even though some surgeons, such as Ambrose Paré, questioned the wisdom of this theory. In the middle of the nineteenth century, Semmelweis and Lister developed simple measures to decrease postpartum and postoperative infections, finally putting to rest the notion that infection was somehow a beneficial aspect of surgical therapy.<sup>1</sup>

Today, the surgical practitioner confronts the problem of infection every day. Even with the twentieth-century miracle of antimicrobial chemotherapy, surgeons need to drain abscesses, débride infected wounds, and otherwise attend to patients presenting with various acute infectious problems. In addition to treating established infections, however, the surgeon often encounters infection as the undesirable consequence of a surgical intervention. It was estimated that more than 290,000 surgical site infections developed in hospitalized surgical patients in 2002, leading directly to 8205 deaths. These surgical site infections represented only about 20% of the more than 1,700,000 health care-associated infections estimated to have occurred that year, many if not most of which arose in surgical patients. These nosocomial infections, including hospital-acquired pneumonia, urinary tract infections, and catheter-related bloodstream infections, led to nearly 100,000 deaths.<sup>2</sup>

What, then, is a surgical infection, the subject of this issue? Is it an infection for which a surgical procedure is indicated, such as a large soft tissue abscess? Is it an infection that develops after an operation, such as a surgical site infection? Should

a remote infection, such as pneumonia following an operation, also be considered a surgical infection? Is a surgical infection all of these and more? One could probably identify some form of surgical intervention as appropriate for virtually any type of infectious disease. The patient who has endocarditis may need a cardiac valve replacement, the patient who has a joint infection may need open drainage and débridement, and the patient who has meningitis may need a cerebrospinal fluid shunt because of noncommunicating hydrocephalus. Rather than attempting to rigidly define surgical infections, it is probably easier to operationally describe them as infections that the surgical practitioner encounters frequently during the course of his or her practice.

Even with that restriction, a full discussion of all topics related to surgical infections would consume multiple volumes, rather than this single issue of *Surgical Clinics of North America*. The subject matter for this issue has therefore focused on those areas believed to be most relevant to the practicing general surgeon on a day-to-day basis. However, many of these topics will be of interest to specialty surgeons and other medical practitioners also.

The individual articles of this issue are grouped into three general areas. The first four articles concern complex interactions of pathogens, host, and therapeutic modalities relevant to surgical infections. Motaz and Cheadle provide an overview of the microorganisms responsible for most surgical infections, Lowry describes the host response to infection, Patel and Malangoni summarize antimicrobial chemotherapy, and Byrnes and Beilman discuss other therapeutic modalities for the treatment of patients who have surgical infections.

The next series of articles focuses on specific infections of interest to surgical practitioners. Kirby and Mazuski outline measures to prevent surgical site infections, and Herscu and Wilson specifically discuss infections occurring after implantation of prosthetic materials. May elaborates on the diagnosis and management of skin and soft tissue infections. Mazuski and Solomkin describe both community-acquired and nosocomial intra-abdominal infections. There follows a series of articles focusing on other infectious complications of surgical therapy: Kieninger and Lipsett, Goede and Coopersmith, and Ksycki and Namias provide detailed information regarding postoperative pneumonia, catheter-related bloodstream infections, and urinary tract infections, respectively. The final article in this section, by Efron and Mazuski, describes *Clostridium difficile* colitis, a modern pestilence directly related to use and misuse of antibiotics.

Numerous interventions can be used to prevent and treat infections associated with surgical therapy. The ultimate section of this issue attempts to bring together some of those themes. Evans and Sawyer summarize measures to avoid development of resistant bacteria and Fry delineates systems approaches for prevention of surgical infections. Finally, Haas and Nathens describe potential future approaches for the management of surgical infections.

In the end, we, as surgeons, share responsibility for creating many of the modern-day plagues of nosocomial infections. Nevertheless, we also possess tools that can help thwart or ameliorate these infections. What is required is effective use of existing evidence-based practices for the prevention and management of surgical infections. Future investigations will lead to new approaches to control these infections, but these scientific advances will only be of value if they can be integrated into surgical practice. Ultimately, we are indeed our own worst enemies if we choose to ignore the importance of appropriately preventing and treating these infections, which can counteract even our best surgical skills. By conscientiously applying the principles outlined in this issue for managing surgical infections, we can protect our patients from the adverse

consequences of these infections, and thereby improve the overall quality of surgical care.

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## REFERENCES

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2. Klevens RM, Edwards JR, Richards CL Jr, et al. Estimating health care-associated infections and deaths in U.S. hospitals, 2002. Public Health Rep 2007;122:160–6.