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Prevention of Vascular Catheter-Related Bloodstream Infections  
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Catheter-related bloodstream infections (CRBSI) are responsible for significant morbidity, mortality, and excess health care costs. It is increasingly evident that many CRBSI can be prevented with current knowledge and techniques. Preventive measures can be broadly grouped into clinical practice–based interventions and technologic innovations. Clinical practice–based interventions require changes in human behavior and can be subdivided into interventions before and at the time of insertion and post-insertion. Despite recent successes with prevention of CRBSI, pertinent questions regarding pathogenesis and prevention remain unanswered and work on improved surveillance, devices less prone to infection, and more effective prevention techniques are needed.

Urinary Tract Infections  
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Catheter-associated urinary tract infection (CAUTI) remains one of the most prevalent, yet preventable, health care–associated infections and predominantly occurs in patients with indwelling urinary catheters. Targeted strategies for prevention of CAUTI include limiting urinary catheter use; physician reminder systems, nurse-initiated discontinuation protocols, and automatic stop orders have successfully decreased catheter duration. Alternatives to indwelling catheters should be considered in appropriate patients. If indwelling catheterization is necessary, proper aseptic practices for catheter insertion and maintenance and closed catheter collection system is essential for preventing CAUTI. The use of “bladder bundles” and collaboratives aids in the effective implementation of CAUTI prevention measures.

Ventilator-Associated Events and Their Prevention  
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The Centers for Disease Control and Prevention shifted the focus of safety surveillance in mechanically ventilated patients from ventilator-associated pneumonia to ventilator-associated events (VAEs) in 2013. The shift was designed to increase the objectivity and reproducibility of surveillance and to encourage quality-improvement programs to tackle a broader array of complications in mechanically ventilated patients. Prospective intervention studies have found that minimizing sedation, increasing the use of spontaneous awakening and breathing trials, and conservative fluid management can lower VAE rates and decrease duration of mechanical
ventilation. Additional strategies to prevent VAEs include early mobility programs, low tidal volume ventilation, and restrictive transfusion thresholds.

**Surgical Site Infections: An Update**  
Bronwen H. Garner and Deverick J. Anderson

Surgical site infections (SSIs) lead to adverse patient outcomes, including prolonged hospitalization and death. Wound contamination occurs with each incision, but proven strategies exist to decrease the risk of SSI. In particular, improved adherence to evidence-based preventative measures related to appropriate antimicrobial prophylaxis can decrease the rate of SSI. Aggressive surgical debridement and effective antimicrobial therapy are needed to optimize the treatment of SSI.

**Prevention and Control of Methicillin-Resistant *Staphylococcus aureus* in Acute Care Settings**  
Andie S. Lee, Benedikt Huttner, and Stephan Harbarth

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a leading cause of health care–associated infections worldwide. Controversies with regard to the effectiveness of various MRSA control strategies have contributed to varying approaches to the control of this pathogen in different settings. However, new evidence from large-scale studies has emerged, particularly with regards to MRSA screening and decolonization strategies, which will inform future control practices. The implementation as well as outcomes of control measures in the real world is not only influenced by scientific evidence but also depends on economic, administrative, governmental, and political influences.

**Vancomycin-Resistant Enterococci: Epidemiology, Infection Prevention, and Control**  
Katherine Reyes, Ana Cecilia Bardossy, and Marcus Zervos

Vancomycin-resistant enterococci (VRE) infections have acquired prominence as a leading cause of health care–associated infections. Understanding VRE epidemiology, transmission modes in health care settings, risk factors for colonization, and infection is essential to prevention and control of VRE infections. Infection control strategies are pivotal in management of VRE infections and should be based on patient characteristics, hospital needs, and available resources. Hand hygiene is basic to decrease acquisition of VRE. The effectiveness of surveillance and contact precautions is variable and controversial in endemic settings, but important during VRE outbreak investigations and control. Environmental cleaning, chlorhexidine bathing, and antimicrobial stewardship are vital in VRE prevention and control.

**Multidrug-Resistant Gram-Negative Bacilli: Infection Control Implications**  
Amos Adler, N. Deborah Friedman, and Dror Marchaim

Antimicrobial resistance is a common iatrogenic complication of both modern life and medical care. Certain multidrug resistant and extensively drug resistant Gram-negative organisms pose the biggest challenges to
health care today, predominantly owing to a lack of therapeutic options. Containing the spread of these organisms is challenging, and in reality, the application of multiple control measures during an evolving outbreak makes it difficult to measure the relative impact of each measure. This article reviews the usefulness of various infection control measures in containing the spread of multidrug-resistant Gram-negative bacilli.

**Prevention of Infection Due to *Clostridium difficile***

Christopher C. Cooper, Robin L.P. Jump, and Teena Chopra

*Clostridium difficile* is one of the foremost nosocomial pathogens. Preventing infection is particularly challenging. Effective prevention efforts typically require a multifaceted bundled approach. A variety of infection control procedures may be advantageous, including strict hand decontamination with soap and water, contact precautions, and using chlorine-containing decontamination agents. Additionally, risk factor reduction can help reduce the burden of disease. The risk factor modification is principally accomplished though antibiotic stewardship programs. Unfortunately, most of the current evidence for prevention is in acute care settings. This review focuses on preventative approaches to reduce the incidence of *Clostridium difficile* infection in healthcare settings.

**Preventing Transmission of *Mycobacterium tuberculosis* in Health Care Settings**

Chitra D. Punjabi, Sarah R. Perloff, and Jerry M. Zuckerman

Patients with tuberculosis (TB) pose a risk to other patients and health care workers, and outbreaks in health care settings occur when appropriate infection control measures are not used. In this article, we discuss strategies to prevent transmission of *Mycobacterium tuberculosis* within health care settings. All health care facilities should have an operational TB infection control plan that emphasizes the use of a hierarchy of controls (administrative, environmental, and personal respiratory protection). We also discuss resources available to clinicians who work in the prevention and investigation of nosocomial transmission of *M. tuberculosis*.

**Nosocomial Fungal Infections: Epidemiology, Infection Control, and Prevention**

Geehan Suleyman and George J. Alangaden

Invasive fungal infections are an important cause of morbidity and mortality in hospitalized patients and in the immunocompromised population. This article reviews the current epidemiology of nosocomial fungal infections in adult patients, with an emphasis on invasive candidiasis and aspergillosis. Recently published recommendations and guidelines for the control and prevention of these nosocomial fungal infections are summarized in this article.

**Health Care–Acquired Viral Respiratory Diseases**

Ryan K. Dare and Thomas R. Talbot

Health care–acquired viral respiratory infections are common and cause increased patient morbidity and mortality. Respiratory syncytial virus and influenza virus are frequently transmitted in the hospital setting. Studies
report decreased nosocomial transmission when aggressive infection control measures are implemented with more success using a multicomponent approach. Influenza vaccination of health care personnel has been shown to further decrease rates of transmission, thus mandatory vaccination is becoming more common. This article focuses on the epidemiology, transmission, and control of health care–associated respiratory viral infections.

Special Articles

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Tatyana A. Shamliyan and David R. Goldmann

Quick Evidence Synopsis: Effectiveness of Neuraminidase Inhibitors in Hospitalized Adults with H1N1 Influenza A 1077
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