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Keith S. Kaye and Sorabh Dhar

Prevention of Central-Line Associated Bloodstream Infections: 2021 Update  841
Laura M. Selby, Mark E. Rupp, and Kelly A. Cawcutt

Despite a large volume of research in prevention, central line–associated bloodstream infections and catheter-related bloodstream infections continue to cause significant morbidity, mortality, and increased health care costs. Strategies in prevention, including decision about catheter placement, insertion bundles, adherence to standard of care guidelines, and technologic innovations, shown to decrease rates of catheter-related bloodstream infections and central line-associated bloodstream infections are described in this update. The coronavirus disease 2019 pandemic has resulted in increased health care–acquired infections, including central line-associated bloodstream infections.

Urinary Tract Infections: 2021 Update  857
Carol E. Chenoweth

Catheter-associated urinary tract infection (CAUTI) remains one of the most prevalent, but preventable, health care–associated infections and predominantly occurs in patients with indwelling urinary catheters. Duration of urinary catheterization is the most important modifiable risk factor for development of CAUTI. Alternatives to indwelling catheters should be considered in appropriate patients. If indwelling catheterization is necessary, proper aseptic practices for catheter insertion and maintenance and use of a closed catheter collection system are essential for preventing CAUTI. The use of intervention bundles and collaboratives helps in the effective implementation of CAUTI prevention measures.

Ventilator-Associated Events: Epidemiology, Risk Factors, and Prevention  871
Jeremy Weinberger, Noelle Cocoros, and Michael Klompas

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 in 2013 to increase the objectivity and reproducibility of surveillance and to encourage quality improvement programs to focus on preventing a broader array of complications. Ventilator-associated events are associated with a doubling of the risk of dying. Prospective studies have found that minimizing sedation, increasing spontaneous awakening and breathing trials, and conservative fluid management can decrease event rates and the duration of ventilation. Multi-faceted interventions to enhance these practices can decrease ventilator-associated event rates.
Surgical Site Infections

Jessica Seidelman and Deverick J. Anderson

Surgical site infections (SSIs) are among the most common and most costly health care–associated infections, leading to adverse patient outcomes 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 preventive 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.

Methicillin-Resistant Staphylococcus aureus: An Update on Prevention and Control in Acute Care Settings

Andie S. Lee, Benedikt D. Huttner, Gaud Catho, and Stephan Harbarth

Methicillin-resistant Staphylococcus aureus (MRSA) is a leading cause of health-care–associated infections. Controversies regarding the effectiveness of various control strategies have contributed to varying approaches to MRSA control. However, new evidence from large-scale studies has emerged, particularly concerning screening and decolonization. Importantly, implementation and outcomes of control measures in practice are not only influenced by scientific evidence, but also economic, administrative, and political factors, as demonstrated by decreasing MRSA rates in a number of countries after concerted and coordinated efforts at a national level. Flexibility to adapt measures based on local epidemiology and resources is essential for successful MRSA control.

Vancomycin-Resistant Enterococci: Epidemiology, Infection Prevention, and Control

Seema Joshi, Anita Shallal, and Marcus Zervos

Vancomycin-resistant enterococcus (VRE) is a pathogen of growing concern due to increasing development of antibiotic resistance, increasing length of hospitalizations and excess mortality. The utility of some infection control practices are debatable, as newer developments in infection prevention strategies continued to be discovered. This article summarizes the significance of VRE and VRE transmission, along with highlighting key changes in infection control practices within the past 5 years.

Multidrug-Resistant Gram-Negative Bacteria: Infection Prevention and Control Update

John P. Mills and Dror Marchaim

Multidrug-resistant Gram-negative bacteria (MDR-GNB) pose one of the greatest challenges to health care today because of their propensity for human-to-human transmission and lack of therapeutic options. Containing the spread of MDR-GNB is challenging, and the application of multifaceted infection control bundles during an evolving outbreak makes it difficult to measure the relative impact of each measure. This article will review the utility of various infection control measures in containing the spread of various MDR-GNB and will provide the supporting evidence for these interventions.
**Prevention of Infection due to *Clostridium* (*Clostridioides*) *difficile***

Amar Krishna and Teena Chopra

*Clostridium* (*Clostridioides*) *difficile* infection (CDI) causes significant morbidity and mortality in the United States every year. Prevention of CDI is difficult because of spore durability and requires implementation of multipronged strategies. Two categories of prevention strategies are infection control and prevention and risk factor reduction. Hand hygiene, contact precautions, patient isolation, and environmental decontamination are cornerstones of infection control and prevention. Risk factor reduction should focus on antibiotic stewardship to reduce unnecessary antibiotic use. If CDI incidence remains higher than the institution’s goal despite these measures, then special measures should be considered.

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

Neeraja Swaminathan, 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. This article discusses 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). Resources available to clinicians who work in the prevention and investigation of nosocomial transmission of *M. tuberculosis* also are discussed.

**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 (IC) and invasive aspergillosis (IA). Included are descriptions of nosocomial infections caused by *Candida auris*, an emerging pathogen, and IC- and IA-associated with coronavirus disease 2019. The characteristics and availability of newer nonculture-based tests for identification of nosocomial fungal pathogens are discussed. Recently published recommendations and guidelines for the control and prevention of these nosocomial fungal infections are summarized.

**Health Care–Acquired Viral Respiratory Diseases**

Joshua G. Petrie and Thomas R. Talbot

Health care–acquired viral respiratory infections are common and cause increased patient morbidity and mortality. Although the threat of viral respiratory infection has been underscored by the coronavirus disease 2019 (COVID-19) pandemic, respiratory viruses have a significant impact in health care settings even under normal circumstances. Studies report decreased nosocomial transmission when aggressive infection control measures are implemented, with more success noted when using a multi-component approach. Influenza vaccination of health care personnel
furthers decrease rates of transmission; thus, mandatory vaccination is becoming more common. This article discusses the epidemiology, transmission, and control of health care–associated respiratory viral infections.

Pandemic Preparedness

Casey E. Godshall and David B. Banach

Pandemic preparedness is a key function of any health care facility. Activities pertaining to pandemic preparedness should be developed and maintained within a broader emergency management plan. The use of a Hospital Incident Command System can centralize coordination of the response and facilitate internal and external communication. This review addresses several components of pandemic preparedness, including incident management, health care personnel safety, strategies to support ongoing clinical activities, and organizational communication during a pandemic. Preparations addressing potential ethical challenges and the psychological impact associated with pandemic response are also reviewed.