Commonwealth of Massachusetts
Department of Public Health
Division of Health Care Quality

INFECTION PREVENTION AND CONTROL

Regulations, Interpretive Guidelines and Procedures

Purpose:

The Department is providing hospitals with the Regulations, Interpretive Guidelines and Procedures upon which the Department is basing its review of hospital infection prevention and control programs.

The Centers for Medicare and Medicaid Services (CMS) Conditions of Participation for Hospitals are incorporated by reference into the Hospital Licensure Regulations under 105 CMR 130.200. The survey will specifically include the Condition for Infection Control 42 CFR 482.42 and associated interpretive guidelines and survey procedures. The Department is also incorporating evidence-based best practices[1] into the interpretive guidelines. These best practices are important elements to be incorporated into an infection prevention and control program. The survey will primarily focus on a subset of the best practices (see Appendices A through H).

Background:

The Betsy Lehman Center, in collaboration with the Department of Public Health and facilitated by the John Snow Research and Training Institute, convened a panel of experts and key stakeholders in 2006 to formulate evidence-based recommendations for a statewide infection prevention and control program. The Expert Panel built consensus around best practices, educational initiatives and reporting of selected healthcare associated infection (HAI) outcome measures. The Panel also convened an Expert Pediatric Group to determine the best practices to reflect the needs of neonates, infants and/or children. The recommendations in this document are applicable to both the adult and pediatric populations except in those instances that are specifically designated as "***Pediatric.***"

The sources used for these updated guidelines included three pivotal CDC standards: *Guideline for Isolation Precautions* (2007), *Guideline for the Prevention of Intravascular Catheter-related Infections* (2002), and *Guideline for the Prevention of Surgical Site Infection* (1999). In addition, the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force *Guideline for Hand Hygiene in Healthcare Settings* (2002), HICPAC *Management of Multidrug-Resistant Organisms in Healthcare Settings* (2006), American Thoracic Society *Guidelines for the Management of Adults with Hospital-acquired, Ventilator-associated, and Healthcare-associated Pneumonia* (2005), and IDSA/SHEA *Prevention of Catheter-associated Urinary Tract Infections in Acute Care Hospitals* (in press 2008) were used.

[1] **Prevention and Control of Healthcare-Associated Infections in Massachusetts** Part 1: Final Recommendations of the Expert Panel, January 31, 2008. Recommendations of the Expert Panel can be found at: http://www.mass.gov/Eeohhs2/docs/dph/patient_safety/haipcp_final_report_pt1.pdf

Regulations, Guidelines and Procedures:

Code of Massachusetts Regulations (CMR)

State Regulations

Please refer to Hospital Licensure Regulations under 105 CMR 130.000 and specifically:

105 CMR 130.110: ***Right to Visit and Inspect***

The Department or its agents may visit a hospital subject to licensure under M.G.L. c. 111, § 51, and any satellite unit of the hospital, whether or not the hospital or satellite unit has been granted deemed status, at any time without prior notice and inspect it, its staff, activities, and records to determine the hospital's compliance with state law and 105 CMR 130.000.

105 CMR 130.200: *Incorporation of Medicare Conditions of Participation in Hospitals*

Each hospital shall meet all of the requirements of the Medicare Conditions of Participation for Hospitals, 42 C.F.R. 482.11 through 482.62 (hereinafter Conditions of Participation), and as they may be amended from time to time, except the requirement for institutional plan and budget specified in 42 C.F.R. 482.12(d), for utilization review specified in 42 C.F.R. 482.30, the requirement for compliance with the Life Safety Code specified in 42 C.F.R. 482.41(b), and any requirement that conflicts with the supplementary standards in 105 CMR 130.000 Subparts C and D.

105 CMR 130.325 (A) – (I): *Requirement that Employees be Vaccinated Against Influenza*

105 CMR 130.601-130.669: *Maternal and Newborn Services*

105 CMR 130.1001-130.1009: *Sharps Injury Prevention*

105 CMR 130.1700-130.1701: *Healthcare-Associated Infection Data Collection, Submission, and Reporting*

Code of Federal Regulations (CFR)

Federal Regulation

A-0747

42 CFR §482.42 Condition of Participation: Infection Control

The hospital must provide a sanitary environment to avoid sources and transmission of infections and communicable diseases. There must be an active program for the prevention, control, and investigation of infections and communicable diseases.

Interpretive Guidelines §482.42

This regulation requires the hospital to develop, implement, and maintain an active, hospital-wide program for the prevention, control, and investigation of infections[2] and communicable diseases[3]. The hospital must provide and maintain a sanitary environment to avoid sources and transmission of infections and communicable diseases.

All areas of the hospital must be clean and sanitary. This includes all hospital units, campuses and off-site locations.

The infection prevention and control program must include appropriate monitoring of housekeeping, maintenance (including repair, renovation and construction activities), and other activities to ensure that the hospital maintains a sanitary environment. Examples of areas to monitor would include: food storage, preparation, serving and dish rooms, refrigerators, ice machines, air handlers, autoclave rooms, venting systems, inpatient rooms, treatment areas, labs, waste handling, surgical areas, supply storage, equipment cleaning, etc.

The hospital's program for prevention, control and investigation of infections and communicable diseases should be conducted in accordance with nationally recognized infection control practices or guidelines, as well as applicable regulations of other federal or state agencies. Examples of organizations that promulgate nationally recognized infection and communicable disease control guidelines, and/or recommendations include:

- the Centers for Disease Control and Prevention (CDC): http://www.cdc.gov
- the Association for Professionals in Infection Control and Epidemiology (APIC): http://www.apic.org
- the Society for Healthcare Epidemiology of America (SHEA): http://www.shea-online.org, and
- the Association of periOperative Registered Nurses (AORN): http://www.aorn.org

The U.S. Occupational Health and Safety Administration (OSHA) also issues federal regulations applicable to infection control practices http://www.osha.gov.

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[2] **Infectious disease:** The National Institute of Allergy and Infectious Diseases defines an infectious disease as a change from a state of health to a state in which part or all of a host's body cannot function normally because of the presence of an infectious agent or its product. An infectious agent is defined by the NIAID as a living or quasi-living organism or particle that causes an infectious disease, and includes bacteria, viruses, fungi, protozoa, helminthes, and prions.

[3] **Communicable disease:** NIAID defines a communicable disease as a disease associated with an agent that can be transmitted from one host to another.

In order to prevent, control and investigate infections and communicable diseases, the hospital's program must include an active surveillance component that covers both hospital patients and personnel working in the hospital. Surveillance includes infection detection, data collection and analysis, monitoring, and evaluation of preventive interventions.

The hospital must conduct surveillance on a hospital-wide basis in order to identify infectious risks or communicable disease problems at any particular location. This does not imply "total hospital surveillance," but it does mean that hospitals must have reliable sampling or other mechanisms in place to permit identifying and monitoring infections and communicable diseases occurring throughout the hospital's various locations or departments.

- The hospital must document its surveillance activities, including the measures selected for monitoring, and collection and analysis methods.

- Surveillance activities should be conducted in accordance with recognized infection control surveillance practices, such as, for example, those utilized by the CDC's National Healthcare Safety Net (NHSN) http://www.cdc.gov/nhsn/.

The hospital must develop and implement appropriate infection control interventions to address issues identified through its detection activities, and then monitor the effectiveness of interventions through further data collection and analysis.

The hospital's infection prevention and control program must be integrated into its hospital-wide Quality Assurance and Performance Improvement (QAPI) program. (See 42 CFR 482.42(b)(1)).

SPECIAL CHALLENGES IN INFECTION CONTROL

❖ Multi-Drug Resistant Organisms (MDROs)

Hospitals are encouraged to have mechanisms in place for the early identification of patients with targeted MDROs prevalent in their hospital and community, and for the prevention of transmission of such MDROs. When ongoing transmission of targeted MDROs in the hospital is identified, the infection prevention and control program should use this event to identify potential breaches in infection control practice.

❖ Ambulatory Care

The ambulatory care setting, including emergency departments, presents unique challenges for infection control, because:

- patients remain in common areas, often for prolonged periods of time, until they can be seen by a healthcare practitioner
- examination or treatment rooms are turned around quickly with minimal cleaning; and infectious patients may not be recognized immediately
- immunocompromised patients may receive treatments in rooms among other patients who pose risks of infection

The hospital's infection prevention and control program should be designed with these ambulatory care setting challenges in mind. After assessing the likely level of risk in its various ambulatory care settings, including off-site settings, a hospital might identify particular settings, such as the emergency department, where it would be appropriate to employ measures for screening individuals with potentially contagious diseases during their initial patient encounter, and taking appropriate control measures for those individuals who may present risk for the transmission of infectious agents by the airborne or droplet

route. Guidelines promulgated by the CDC's Healthcare Infection Control Practices Advisory Committee (HICPAC) are a resource for hospitals in developing their infection control program for ambulatory care. For example, when potentially infectious individuals are identified, prevention measures should include prompt physical separation wherever possible, implementation of respiratory hygiene/cough etiquette protocols, and/or appropriate isolation precautions based on the routes of transmission of the suspected infection.

❖ Communicable Disease Outbreaks

Community-wide outbreaks of communicable diseases (such as measles, SARS, or influenza) present many of the same issues and require many of the same considerations and strategies as other hospital infectious disease threats. If a communicable disease outbreak occurs, an understanding of the epidemiology, likely modes of transmission, and clinical course of the disease is essential for responding to and managing the event. Among the infection control issues that may need to be addressed are:

- Preventing transmission among patients, healthcare personnel, and visitors;
- Identifying persons who may be infected and exposed;
- Providing treatment or prophylaxis to large numbers of people; and
- Logistics issues (staff, medical supplies, resupply, continued operations, and capacity).

Pandemics, or very widespread and clinically serious outbreaks of an infection, present additional challenges due to the widespread effect on the availability of back-up resources that would typically be available to address an outbreak confined to a smaller geographic area. Additionally, the duration of a pandemic may present special challenges for staffing, supplies, resupply, etc. Hospitals should work with local, state, and federal public health agencies to identify likely communicable disease threats and develop appropriate preparedness and response strategies.

❖ Bioterrorism

Healthcare facilities would confront a set of issues similar to naturally occurring communicable disease threats when dealing with a suspected bioterrorism event. The required response is likely to differ based on whether exposure is a result of a biological release or person-to-person transmission. A variety of sources offer guidance for the management of persons exposed to likely agents of bioterrorism, including federal agency websites (e.g., http://www.ahrq.gov/prep; http://www.usamrid.army.mil/publications/index.html; http://www.bt.cdc.gov).

Because of the many similarities between man-made and naturally occurring threats, an all-hazards approach to developing emergency response plans is preferred, and hospitals are encouraged to work with their state and local emergency response agencies to develop their plans.
The hospital must be in compliance with the Occupational Health and Safety Administration's Bloodborne Pathogens regulation at 29 CFR 1910.1030.

NOTE: Appendices A through H, which provide a subset of the expert panel's best practices, and Appendix I, which summarizes public reporting requirements for HAIs, are part of the review of A-0747. While the survey will primarily focus on this subset of the best practices, hospitals should consider all best practices in the "Final Recommendations of the Expert Panel" as part of an effective infection prevention and control program.

Survey Procedures §482.42

- Determine whether there are hospital-wide policies and procedures for preventing, identifying, reporting, investigating, and controlling infections and communicable diseases of patients and

hospital personnel, including contract workers and volunteers. Determine whether the infection control program can identify all hospital locations and that the policies and procedures take the various hospital locations into account.

- Determine whether the policies and procedures are implemented correctly in an active infection control program.

- Determine whether the program is hospital-wide and program specific in gathering and assessing infection and communicable disease data. Review the parameters of the active surveillance program to determine whether it is consistent with infection control standards of practice and suitable to the scope and complexity of the hospital's services.

- Throughout the hospital, observe the sanitary condition of the environment of care, noting the cleanliness of patient rooms, floors, horizontal surfaces, patient equipment, air inlets, mechanical rooms, food service activities, treatment and procedure areas, surgical areas, central supply, storage areas, etc.

- Determine whether the hospital's infection prevention and control program is integrated into its hospital-wide QAPI program.

Federal Regulation

A-0748

42 CFR §482.42(a) Standard: Organization and Policies

A person or persons must be designated as infection control officer or officers to develop and implement policies governing control of infections and communicable diseases.

Interpretive Guidelines §482.42(a)

Hospital infection control officers are often referred to as "hospital epidemiologists (HEs)" or "infection control professionals (ICPs)." [4]

The hospital must designate in writing an individual or group of individuals as its infection control officer or officers. In designating infection control officers hospitals should assure that the individuals so designated are qualified through education, training, experience, or certification (such as that offered by the Certification Board of Infection Control and Epidemiology Inc. (CBIC), or by the specialty boards in adult or pediatric infectious diseases offered for physicians by the American Board of Internal Medicine (for internists) and the American Board of Pediatrics (for pediatricians)).

Infection control officers should maintain their qualifications through ongoing education and training, which can be demonstrated by participation in infection control courses, or in local and national meetings organized by recognized professional societies, such as APIC and SHEA.
CMS does not specify either the number of infection control officers to be designated or the number of infection control officer hours that must be devoted to the infection prevention and control programs. However, resources must be adequate to accomplish the tasks required for the infection control program. A prudent hospital would consider patient census, characteristics of the patient population, and

[4] CDC has defined "infection control professional" as "a person whose primary training is in either nursing, medical technology, microbiology, or epidemiology and who has acquired specialized training in infection control."

complexity of the healthcare services it offers in determining the size and scope of the resources it commits to infection control. The CDC's HICPAC as well as professional infection control organizations such as the APIC and the SHEA publish studies and recommendations on resource allocation that hospitals may find useful.[5] The infection control officer(s) must develop and implement policies governing the control of infections and communicable diseases. Infection control policies should address the roles and responsibilities for infection control within the hospital; how the various hospital committees and departments interface with the infection control program; and how to prevent infectious/communicable diseases; and how to report infectious/communicable diseases to the infection control program.

NOTE: Appendices A through H, which provide a subset of the expert panel's best practices, and Appendix I, which summarizes public reporting requirements for HAIs, are part of the review of A-0748. While the survey will primarily focus on this subset of the best practices, hospitals should consider all best practices in the "Final Recommendations of the Expert Panel" as part of an effective infection prevention and control program.

Survey Procedures §482.42(a)

- Determine whether an infection control officer(s) is designated and has the responsibility for the infection prevention and control program.

- Review the personnel file of the infection control officer(s) to determine whether he/she is qualified through ongoing education, training, experience, or certification to oversee the infection control program.

- Determine whether the infection control officer(s) have developed and implemented hospital infection control policies.

Federal Regulation

A-0749

42 CFR §482.42(a)(1) - The infection control officer or officers must develop a system for identifying, reporting, investigating, and controlling infections and communicable diseases of patients and personnel.

Interpretive Guidelines §482.42(a)(1)

The infection control officer or officers must develop, implement and evaluate measures governing the identification, investigation, reporting, prevention and control of infections and communicable diseases within the hospital, including both healthcare–associated infections and community-acquired infections. Infection control policies should be specific to each department, service, and location, including off-site locations, and be evaluated and revised when indicated.

The successful development, implementation and evaluation of a hospital-wide infection prevention and control program requires frequent collaboration with persons administratively and clinically responsible for inpatient and outpatient departments and services, as well as, non-patient-care support staff, such as maintenance and housekeeping staff. Implicit in the infection control officer(s)' responsibility for

[5] Refer to Appendix B for staffing recommendations.

measures to identify, investigate, report, prevent and control infections and communicable diseases are the following activities:

- Maintenance of a sanitary hospital environment;
- Development and implementation of infection control measures related to hospital personnel; hospital staff, for infection control purposes, includes all hospital staff, contract workers (e.g., agency nurses, housekeeping staff, etc), and volunteers;
- Mitigation of risks associated with patient infections present upon admission:
- Mitigation of risks contributing to healthcare-associated infections:
- Active surveillance;
- Monitoring compliance with all policies, procedures, protocols and other infection control program requirements;
- Program evaluation and revision of the program, when indicated;
- Coordination as required by law with federal, state, and local emergency preparedness and health authorities to address communicable disease threats, bioterrorism, and outbreaks;
- Complying with the reportable disease requirements of the local health authority;

For example, a hospital with a comprehensive hospital-wide infection control program should have and implement policies and procedures, based as much as possible on national guidelines, that address the following:

- Maintenance of a sanitary physical environment:
    - Ventilation and water quality control issues, including measures taken to maintain a safe environment during internal or external construction/renovation;
    - Maintaining safe air handling systems in areas of special ventilation, such as operating rooms, intensive care units, and airborne infection isolation rooms;
    - Techniques for food sanitation;
    - Techniques for cleaning and disinfecting environmental surfaces, carpeting and furniture;
    - Techniques for textiles reprocessing, storage and distribution;
    - Techniques for disposal of regulated and non-regulated waste; and
    - Techniques for pest control.
- Hospital staff-related measures:
    - Measures and authority for evaluating hospital staff immunization status for designated infectious diseases, as recommended by the CDC and its Advisory Committee on Immunization Practices (ACIP);
    - Policies articulating the authority and circumstances under which the hospital screens hospital staff for infections likely to cause significant infectious disease or other risk to

the exposed individual, and for reportable diseases, as required under local, state, or federal public health authority;

- Policies articulating when infected hospital staff are restricted from providing direct patient care and/or are required to remain away from the healthcare facility entirely;

- New employee and regular update training in preventing and controlling healthcare-associated infections and methods to prevent exposure to and transmission of infections and communicable diseases;

- Measures to evaluate staff and volunteers exposed to patients with infections and communicable disease;

- Mitigation of risks associated with patient infections present upon admission:
  - Measures for the early identification of patients who require isolation in accordance with CDC guidelines;

  - Appropriate use of personal protective equipment including gowns, gloves, masks and eye protection devices;

  - Use and techniques for "isolation" precautions as recommended by the CDC.

- Mitigation of risks contributing to healthcare-associated infections:

  - Surgery-related infection risk mitigation measures:
    - Implementing appropriate prophylaxis to prevent surgical site infection (SSI), such as a protocol to assure that antibiotic prophylaxis to prevent surgical site infection for appropriate procedures is administered at the appropriate time, done with an appropriate antibiotic, and discontinued appropriately after surgery;

    - Addressing aseptic technique practices used in surgery and invasive procedures performed outside the operating room, including sterilization of instruments;

  - Other hospital healthcare-associated infection risk mitigation measures:
    - Promotion of handwashing hygiene among staff and employees, including utilization of alcohol-based hand sanitizers;

    - Measures specific to prevention of infections caused by organisms that are antibiotic-resistant;

    - Measures specific to prevention of device-associated bloodstream infection (BSI), such as a protocol for reducing infections of central venous catheters specifying aseptic precautions for line insertions, care of inserted lines, and prompt removal when a line is no longer needed;

    - Measures specific to prevention of other device-associated infections, e.g., those associated with ventilators, tube feeding, indwelling urinary catheters, etc;

    - Isolation procedures and requirements for highly immuno-suppressed patients who require a protective environment.

    - Care techniques for tracheostomy care, respiratory therapy, burns and other situations that reduce a patient's resistance to infection;

- Requiring disinfectants, antiseptics, and germicides to be used in accordance with the manufacturers' instructions;

- Appropriate use of facility and medical equipment, including negative and positive pressure isolation room equipment, portable air filtration equipment, treatment booths and enclosed beds, UV lights, and other equipment used to control the spread of infectious agents;

- Adherence to nationally recognized infection prevention and control precautions, such as current CDC guidelines and recommendations, for infections/communicable diseases identified as present in the hospital; and

- Educating patients, visitors, caregivers, and staff, as appropriate, about infections and communicable diseases and methods to reduce transmission in the hospital and in the community;

- Active surveillance:
    - Methods for obtaining and reviewing data on infections/communicable diseases selected for monitoring;
    - Methods for monitoring and evaluating practices of asepsis;
    - Authority and indications for obtaining microbiological cultures from patients and the environment as indicated.
- Provisions to monitor compliance with all policies, procedures, protocols and other infection control program requirements;
- Provision for program evaluation and revision of the program, when indicated;
- Policies and procedures developed in coordination with federal, state, and local emergency preparedness and health authorities to address communicable disease threats, bioterrorism, and outbreaks; and
- Procedures for meeting the reporting requirements of the local health authority.

NOTE: Appendices A through H, which provide a subset of the expert panel's best practices, and Appendix I, which summarizes public reporting requirements for HAIs, are part of the review of A-0749. While the survey will primarily focus on this subset of the best practices, hospitals should consider all best practices in the "Final Recommendations of the Expert Panel" as part of an effective infection prevention and control program.

Survey Procedures §482.42(a)(1)

Determine whether the hospital has an active, hospital-wide infection control program reflecting the infection control officer responsibilities specified in the interpretive guidelines. Specifically, surveyors should determine whether the hospital:

- Maintains a sanitary environment;
- Develops and implements infection control measures related to hospital personnel;
- Mitigates risks associated with patient infections present upon admission;

- Mitigates risks contributing to healthcare-associated infections (for example, observe whether staff exhibit good handwashing hygiene);
- Conducts active surveillance;
- Monitors compliance with all infection control program requirements;
- Evaluates the infection control program regularly and revises it, when indicated;
- Coordinates as required by law with federal, state, and local emergency preparedness and health authorities to address communicable disease threats, bioterrorism, and outbreaks; and
- Complies with the reportable disease requirements of the local health authority.

Federal Regulation

A-0750

42 CFR §482.42(a)(2) – The infection control officer or officers must maintain a log of incidents related to infections and communicable diseases.

Interpretive Guidelines §482.42(a)(2)

The infection control officer(s) must maintain a **log of incidents related to infections and communicable diseases**, including healthcare-associated infections (HAI) and infections identified through employee health services. The log identifies incidents of infection and communicable disease throughout the hospital and documents infections and communicable diseases in patients and staff (patient care staff and non-patient care staff, including employees, contract staff and volunteers). Since hospitals may be required by law or contract to protect health care information related to its employees as confidential, the hospital may take appropriate steps, such as using codes instead of names in the log, with a separate document that enables linking codes and names, to address incidents associated with communicable disease occurrence among the staff.

"Incidents related to infections and communicable diseases" would include events falling into any of the following categories. Hospitals are not required to organize their logs according to these categories, but they are encouraged to capture all of the types of incidents described below. Multiple entries for an incident that falls into several categories is not required, e.g., a patient recorded as a reportable case of tuberculosis need not be listed again as a patient requiring airborne infection isolation.

- Healthcare-associated infections identified by the hospital, including surgical site infections (SSI) following either inpatient or outpatient procedures;
- Patients or staff with identified communicable diseases that local, state, or federal health agencies require be reported;
- Patients or staff identified by laboratory culture as colonized or infected with multi drug-resistant organisms (MDROs), as defined by the organization's Infection Prevention and Control Program;
- Patients who meet CDC criteria for requiring isolation precautions (other than "Standard Precautions" or a protective environment) during their hospitalization;

- Patients or staff with signs and symptoms that have been requested be reported or recorded by local, State, or Federal health agencies; and

- Staff or patients who are known or suspected to be infected with epidemiologically-significant pathogens that are identified by the hospital or local, State, or Federal health agencies.

The log may be a paper log or in electronic format, but regardless of the format, the information must at all times be safe/secure from unauthorized access, up-to-date, and accessible and readily retrievable by authorized personnel.

NOTE: Appendices A through H, which provide a subset of the expert panel's best practices, and Appendix I, which summarizes public reporting requirements for HAIs, are part of the review of A-0750. While the survey will primarily focus on this subset of the best practices, hospitals should consider all best practices in the "Final Recommendations of the Expert Panel" as part of an effective infection prevention and control program.

Survey Procedures §482.42(a)(2)

- Determine whether the infection control officer(s) maintains a log of incidents related to infections and communicable diseases, including those identified through employee health services.

- Determine whether the log captures the types of incidents discussed above. Failure to track incidents in one or more of the above categories is not, in itself, evidence of a deficiency, but may be cited to support a documented failure in infection control practices if the failure to log incidents was pertinent to the documented failure.

- Determine whether the log is current and can be readily accessed and information readily retrieved by the hospital's infection control officer(s) and other appropriate staff, as required by local, state, or federal agencies consistent with existing local, state, and federal laws regarding the confidentiality of and access to privileged medical information.

Federal Regulation

A-0756

42 CFR §482.42(b) Standard: Responsibilities of Chief Executive Officer, Medical Staff, and Director of Nursing Services

The chief executive officer, the medical staff, and the director of nursing must –

(1) Ensure that the hospital-wide quality assurance program and training programs address problems identified by the infection control officer or officers; and

(2) Be responsible for the implementation of successful corrective action plans in affected problem areas.

Interpretive Guidelines §482.42(b)

The chief executive officer (CEO), the medical staff and the director of nursing (DON) must ensure that the hospital-wide Quality Assessment and Performance Improvement (QAPI) program and staff in-service training programs address problems identified through the infection prevention and control program.

To reflect the importance of infection control the regulations specifically require that the hospital's QAPI and training programs must be involved in addressing problems identified by the infection control program, and hold the CEO, medical staff and DON jointly responsible for linking the infection control program with the QAPI and training programs. Requirements for the hospital's QAPI program are found at 42 CFR 482.21.

These hospital leaders are also held explicitly responsible for implementing successful corrective action plans. In order to accomplish this, hospital leaders must monitor adherence to corrective action plans, as well as assess the effectiveness of actions taken, with implementation of revised corrective actions as needed.

Education on the principles and practices for preventing transmission of infectious agents within the hospital should be provided to anyone who has an opportunity for contact with patients or medical equipment, e.g., nursing and medical staff; therapists and technicians, such as those involved in respiratory, physical, and occupational therapy and radiology and cardiology services; phlebotomists; housekeeping and maintenance staff; volunteers; and all students and trainees in healthcare professions.

NOTE: Appendices A through H, which provide a subset of the expert panel's best practices, and Appendix I, which summarizes public reporting requirements for HAIs, are part of the review of A-0756. While the survey will primarily focus on this subset of the best practices, hospitals should consider all best practices in the "Final Recommendations of the Expert Panel" as part of an effective infection prevention and control program.

Survey Procedures §482.42(b)

- Determine whether the hospital's QAPI program and staff in-service training programs address problems identified by the infection control officer(s).

- Determine whether infection control problems identified are reported to the Medical Staff, Chief Executive Officer, and Director of Nursing. Verify that hospital leadership takes steps to assure that corrective actions are implemented and successful.

APPENDICES A – I

The expert panel's best practice recommendations are consistent with nationally recognized infection prevention and control guidelines.

APPENDIX A

❖ Administrative Responsibilities

Administrative

1. Incorporate preventing transmission of infectious agents into the objectives of the organization's patient safety and occupational health and safety programs.

2. Make preventing transmission of infectious agents a priority for the healthcare organization. Provide administrative support, including fiscal and human resources for maintaining infection control programs.

3. Assure that individuals with training in infection control are employed by or are available by contract to all healthcare facilities so that the infection control program is managed by one or more qualified individuals.

4. Determine the specific infection control full-time equivalents (FTEs) according to the scope of the infection control program, the complexity of the healthcare facility or system, the characteristics of the patient population, the unique or urgent needs of the facility and community, and proposed staffing levels based on survey results and recommendations from professional organizations.

5. Develop and implement processes to ensure oversight of infection control activities appropriate to the healthcare setting and assign responsibility for oversight of infection control activities to an individual or group within the healthcare organization that is knowledgeable about infection control.

6. Include prevention of healthcare-associated infections (HAI) as one determinant of bedside nurse staffing levels and composition, especially in high-risk units.

7. Delegate authority to infection control personnel or their designees (e.g., patient care unit charge nurses) for making infection control decisions concerning patient placement and assignment of Transmission-Based Precautions.

8. Involve infection control personnel in decisions on facility construction and design, determination of AIIR and Protective Environment capacity needs and environmental assessments.

9. Provide ventilation systems required for a sufficient number of AIIRs (as determined by a risk assessment) and Protective Environments in healthcare facilities that provide care to patients for whom such rooms are indicated, according to published recommendations.

10. Involve infection control personnel in the selection and post-implementation evaluation of medical equipment and supplies and changes in practice that could affect the risk of HAI.

11. Ensure availability of human and fiscal resources to provide clinical microbiology laboratory support, including a sufficient number of medical technologists trained in microbiology, appropriate to the healthcare setting, for monitoring transmission of microorganisms, planning and conducting epidemiologic investigations, and detecting emerging pathogens. Identify resources for performing surveillance cultures, rapid diagnostic testing for viral and other selected pathogens, preparation of antimicrobial susceptibility summary reports, trend analysis, and

molecular typing of clustered isolates (performed either on-site or in a reference laboratory) and use these resources according to facility-specific epidemiologic needs, in consultation with clinical microbiologists.

12. Provide human and fiscal resources to meet occupational health needs related to infection control (e.g., healthcare personnel immunization, post-exposure evaluation and care, evaluation and management of healthcare personnel with communicable infections.

13. In all areas where healthcare is delivered, provide supplies and equipment necessary for the consistent observance of Standard Precautions, including hand hygiene products and personal protective equipment (e.g., gloves, gowns, face and eye protection).

14. Develop and implement policies and procedures to ensure that reusable patient care equipment is cleaned and reprocessed appropriately before use on another patient.

15. Develop and implement systems for early detection and management (e.g., use of appropriate infection control measures, including standard and isolation precautions, PPE) of potentially infectious persons at initial points of patient encounter in outpatient settings (e.g., triage areas, emergency departments, outpatient clinics, physician offices) and at the time of admission to hospitals and long-term care facilities (LTCF).

16. Develop and implement policies and procedures to limit patient visitation by persons with signs or symptoms of a communicable infection. Screen visitors to high-risk patient care areas (e.g., oncology units, hematopoietic stem call transplant [HSCT] units, intensive care units, other severely immunocompromised patients) for possible infection.

17. Identify performance indicators of the effectiveness of organization-specific measures to prevent transmission of infectious agents (Standard and Transmission-Based Precautions), establish processes to monitor adherence to those performance measures and provide feedback to staff members.

Education and Training

18. Provide job- or task-specific education and training on preventing transmission of infectious agents associated with healthcare during orientation to the healthcare facility; update information periodically during ongoing education programs. Target all healthcare personnel for education and training, including but not limited to medical, nursing, clinical technicians, laboratory staff; property service (housekeeping), laundry, maintenance and dietary workers; students, contract staff and volunteers. Document competency initially and repeatedly, as appropriate, for the specific staff positions. Develop a system to ensure that healthcare personnel employed by outside agencies meet these education and training requirements through programs offered by the agencies or by participation in the healthcare facility's program designed for full-time personnel.

19. Include in education and training programs, information concerning use of vaccines as an adjunctive infection control measure.

20. Enhance education and training by applying principles of adult learning, using reading level and language appropriate material for the target audience, using online educational tools available to the institution, and having persons with content expertise available to answer questions.

21. Provide instructional materials (and the necessary supplies) for patients and visitors on recommended hand hygiene and Respiratory Hygiene/Cough Etiquette practices and the application of Transmission-Based Precautions.

22. Hospitals should provide patients and their families and visitors with easy-to-understand information on what they can do to help prevent infection during and after the hospital stay. This education on infection prevention should encourage patients and their families/visitors to take an active role, including reminding health care providers to clean their hands.

Surveillance

23. Monitor the incidence of targeted organisms and HAIs that are epidemiologically important, have substantial impact on outcomes, and for which effective preventive interventions are available; targeted organisms or HAIs may be deemed important at the national, local, and/or institutional level. Use information collected through surveillance of high-risk populations, organisms, procedures, and devices to detect transmission of infectious agents and to prioritize interventional strategies appropriate to the individual healthcare facility.

24. Apply the following epidemiologic principles of infection surveillance:
    - Use standardized definitions of infection
    - Use laboratory-based data (when available)
    - Collect epidemiologically-important variables (e.g., patient locations and/or clinical service in hospitals and other large multi-unit facilities, population-specific risk factors [e.g., low birth-weight neonates], underlying conditions that predispose to serious adverse outcomes)
    - Analyze data to identify trends that may indicate increased rates of transmission
    - Feedback information on trends in the incidence and prevalence of HAIs, probable risk factors, and prevention strategies and their impact to the appropriate healthcare providers, organization administrators, and as required by local and state health authorities.

25. Develop and implement strategies to reduce risks for transmission and evaluate effectiveness.

26. When transmission of epidemiologically-important organisms continues despite implementation and documented adherence to infection prevention and control strategies, obtain consultation from persons with knowledge and expertise relevant to the ongoing infection control problem to review the situation and recommend additional measures for control.

Source:

Siegel,A., J. D., Rhinehart E., et al. (2007). 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Health Care Settings. *Am J Infect Control*, 35 (10 Suppl 2), S65-164**.**

APPENDIX B

❖ Staffing

1. Infection control responsibilities have expanded beyond the traditional acute inpatient setting to incorporate services to complex medical systems, including outpatient services and post-acute care; employee exposure and infection prevention; surge capacity and pandemic planning; bioterrorism preparedness; quality improvement projects; consultation on facility renovation and design; post discharge surveillance; and added accountability for mandatory reporting of HAIs. Increasing acuity of the patient population, emerging pathogens, escalating prevalence of MDROs, and the continuous introduction of new medical devices and therapies with infection potential all contribute to the need for expanded Infection Control Professional (ICP) staffing.

2. To achieve the goal of reducing HAIs and protecting patients, staff, and visitors from infection transmission, an effective infection prevention and control program requires adequate staffing. Current literature and expert opinion suggest that 1.0 to 1.5 ICP FTEs per 100 occupied beds may be required. Staffing levels in the higher end of this range may be warranted in hospitals with more complex case mix and clinical services. The availability of state-of-the-art information technology and allied personnel, such as surveillance technicians and data analysts, may extend the capacity of ICPs to accomplish infection control tasks.

3. An optimal hospital infection control program would be overseen by, or have under contract, consultation services by a certified infection control professional (ICP) and/or healthcare epidemiologist.

4. An optimal hospital infection control program would have a team of support staff, with sufficient personnel dedicated to the program to accomplish the core and associated functions of the infection control program. Necessary support personnel include secretarial staff and IT support, and may also include surveillance technicians (denominator data collectors) and data managers.

Source:

Siegel, J. D., Rhinehart E., et al. (2007). 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Health Care Settings. *Am J Infect Control*, 35 (10 Suppl 2), S65-164**.**

APPENDIX C

❖ Hand Hygiene

Hand Hygiene

1. Indications for handwashing and hand antisepsis:

   A. When hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids, wash hands with either a non-antimicrobial soap and water or an antimicrobial soap and water.

   B. If hands are not visibly soiled, an alcohol-based hand rub is preferred for routinely decontaminating hands in all other clinical situations described in items below because it significantly reduces the number of microorganisms on the skin and is easy to use.

   Alternatively, wash hands with an antimicrobial soap and water in all clinical situations described in items below (C-K).

   C. Decontaminate hands before having direct contact with patients.

   D. Decontaminate hands before donning sterile gloves when inserting a central intravascular catheter.

   E. Decontaminate hands before inserting indwelling urinary catheters, peripheral vascular catheters, or other invasive devices that do not require a surgical procedure. It is unknown whether more intensive hand hygiene is required for prolonged non- surgical procedures and therefore current CDC hand hygiene guidelines should be followed in the interim.

   F. Decontaminate hands after contact with a patient's intact skin (e.g., when taking a pulse or blood pressure, and lifting a patient).

   G. Decontaminate hands after contact with body fluids or excretions, mucous membranes, non-intact skin, and wound dressings if hands are not visibly soiled.

   H. Decontaminate hands if moving from a contaminated-body site to a clean-body site during patient care.

   I. Decontaminate hands after contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient.

   J. Decontaminate hands after removing gloves.

   K. Before eating and after using a restroom, wash hands with a non-antimicrobial soap and water or with an antimicrobial soap and water.

Hand-Hygiene Technique

2. When decontaminating hands with an alcohol-based hand rub, apply product to palm of one hand and rub hands together, covering all surfaces of hands and fingers, until hands are dry. Follow the manufacturer's recommendations regarding the volume of product to use.

3. When washing hands with soap and water, wet hands first with water, apply an amount of product recommended by the manufacturer to hands, and rub hands together vigorously for at

least 15 seconds, covering all surfaces of the hands and fingers. Rinse hands with water and dry thoroughly with a disposable towel. Use towel to turn off the faucet.

Avoid using hot water, because repeated exposure to hot water may increase the risk of dermatitis.

4. Multiple-use cloth towels of the hanging or roll type are not recommended for use in health-care settings.

5. Standard hand hygiene practices apply to neonatal ICUs; surgical scrubs are not routinely required.

6. Do not add soap to a partially empty soap dispenser. This practice of "topping off" dispensers can lead to bacterial contamination of soap.

Skin Care

7. Provide HCWs with hand lotions or creams to minimize the occurrence of irritant contact dermatitis associated with hand antisepsis or handwashing.

Other Aspects of Hand Hygiene

8. Do not wear artificial fingernails or extenders when having direct contact with patients at high risk (e.g., those in intensive-care units or operating rooms).

   Do not wear artificial nails in environments that require sterile conditions (e.g., pharmacies or sterile processing departments).

9. Keep natural nail tips less than 1/4-inch long.

10. Wear gloves when contact with blood or other potentially infectious materials, mucous membranes, and non-intact skin could occur.

11. Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient, and do not wash gloves between uses with different patients.

12. Change gloves during patient care if moving from a contaminated body site to a clean body site.

Healthcare worker educational and motivational programs

13. As part of an overall program to improve hand hygiene practices of HCWs, educate personnel regarding the types of patient-care activities that can result in hand contamination and the advantages and disadvantages of various methods used to clean their hands.

14. Monitor HCWs' adherence with recommended hand hygiene practices with an accepted monitoring approach and provide personnel with information regarding their performance.

    Additionally, when outbreaks of infection occur or unusual pathogens are detected, assess the adequacy of healthcare worker hand hygiene and compliance with fingernail recommendations.

Administrative Measures

15. Make improved hand hygiene adherence an institutional priority and provide appropriate administrative support and financial resources.

16. Implement a multidisciplinary program designed to improve adherence of health personnel to recommended hand-hygiene practices.

17. As part of a multidisciplinary program to improve hand hygiene adherence, provide HCWs with a readily accessible alcohol-based hand-rub product.

18. To improve hand-hygiene adherence among personnel who work in areas in which high workloads and high intensity of patient care are anticipated, make an alcohol-based hand rub available at the entrance to the patient's room or at the bedside, in other convenient locations, or in individual pocket-sized containers to be carried by HCWs.

19. Store supplies of alcohol-based hand rubs in cabinets or areas approved for flammable materials.

Performance Indicators

20. Monitoring for adherence to hand hygiene should be done using an accepted approach and that same approach should be used consistently within a single institution. Some approved approaches include performance indicator A or B listed below.

    A. Periodically monitor and record adherence as the number of hand-hygiene episodes performed by personnel/number of hand-hygiene opportunities, by ward or by service. Provide feedback to personnel regarding their performance.

    B. Monitor the volume of alcohol-based hand rub (or detergent used for handwashing or hand antisepsis) used per 1,000 patient-days.

Source:

Healthcare Infection Control Practices Advisory Committee. (2002). *HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Guideline for hand hygiene in health-care settings.* (MMWR Recomm Rep 2002 Oct 25). 51 (RR-16):1-48.

APPENDIX D

❖ Precautions in Hospitals

Standard Precautions:

Hand Hygiene

1. When hands are visibly dirty, contaminated with proteinaceous material, or visibly soiled with blood or body fluids, wash hands with either a nonantimicrobial soap and water or an antimicrobial soap and water.

2. If hands are not visibly soiled, or after removing visible material with nonantimicrobial soap and water, decontaminate hands in the clinical situations described in 2 (A-G). The preferred method of hand decontamination is with an alcohol-based hand rub. Alternatively, hands may be washed with an antimicrobial soap and water. Frequent use of alcohol-based hand rub immediately following handwashing with nonantimicrobial soap may increase the frequency of dermatitis.

   Perform hand hygiene:

   A. Before having direct contact with patients.

   B. After contact with blood, body fluids or excretions, mucous membranes, nonintact skin, or wound dressings.

   C. After contact with a patient's intact skin (e.g., when taking a pulse or blood pressure or lifting a patient).

   D. If hands will be moving from a contaminated-body site to a clean-body site during patient care.

   E. After contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient.

   F. Before donning gloves and after removing gloves.

   G. Before performing any invasive procedures.

3. Artificial Fingernails

   A. Do not wear artificial fingernails or extenders if duties include direct contact with patients (e.g., those in ICUs or operating rooms).

   B. Do not wear artificial nails in food service areas or environments that require sterile conditions (e.g. pharmacies or sterile processing departments)

Respiratory Hygiene/Cough Etiquette

4. Educate healthcare personnel on the importance of source control measures to contain respiratory secretions to prevent droplet and fomite transmission of respiratory pathogens, especially during seasonal outbreaks of viral respiratory tract infections (e.g., influenza, RSV, adenovirus, parainfluenza virus) in communities.

5. Implement the following measures to contain respiratory secretions in patients and accompanying individuals who have signs and symptoms of a respiratory infection, beginning at the point of initial encounter in a healthcare setting (e.g., triage, reception and waiting areas in emergency departments, outpatient clinics and physician offices).

   A. Post signs at entrances and in strategic places (e.g., elevators, cafeterias) within ambulatory and inpatient settings with instructions to patients and other persons with symptoms of a respiratory infection to cover their mouths/noses when coughing or sneezing, use and dispose of tissues, and perform hand hygiene after hands have been in contact with respiratory secretions.

   B. Provide tissues and no-touch receptacles (e.g., foot-pedal operated lid or open, plastic-lined waste basket) for disposal of tissues.

   C. During periods of increased prevalence of respiratory infections in the community (e.g., as indicated by increased school absenteeism, increased number of patients seeking care for a respiratory infection), offer masks to coughing patients and other symptomatic persons (e.g., persons who accompany ill patients) upon entry into the facility or medical office and encourage them to maintain special separation, ideally a distance of at least 3 feet, from others in common waiting areas.

      Some facilities may find it logistically easier to institute this recommendation year-round as a standard of practice.

Patient Placement

6. Determine patient placement based on the following principles:
   - Route(s) of transmission of the known or suspected infectious agent
   - Risk factors for transmission in the infected patient
   - Risk factors for adverse outcomes resulting from an HAI in other patients in the area or room being considered for patient placement
   - Availability of single-patient rooms
   - Patient options for room-sharing (e.g. cohorting patients with the same infection)

Patient-Care Equipment and Instruments/Devices

7. Establish policies and procedures for containing, transporting, and handling patient-care equipment and instruments/devices that may be contaminated with blood or body fluids.

8. Remove organic material from critical and semi-critical instrument/devices, using recommended cleaning agents before high level disinfection and sterilization to enable effective disinfection and sterilization processes.

9. Wear PPE (e.g., gloves, gown), according to the level of anticipated contamination, when handling patient-care equipment and instruments/devices that is visibly soiled or may have been in contact with blood or body fluids.

Care of the Environment

10. Establish policies and procedures for routine and targeted cleaning of environmental surfaces as indicated by the level of patient contact and degree of soiling.

11. In facilities that provide health care to pediatric patients or have waiting areas with child play toys (e.g., obstetric/gynecology offices and clinics), establish policies and procedures for cleaning and disinfecting toys at regular intervals.

    Use the following principles in developing this policy and procedures:

    - Select play toys that can be easily cleaned and disinfected
    - Do not permit use of stuffed furry toys if they will be shared
    - Clean and disinfect large stationary toys (e.g., climbing equipment) at least weekly and whenever visibly soiled
    - If toys are likely to be mouthed, rinse with water after disinfection; alternatively wash in a dishwasher
    - When a toy requires cleaning and disinfection, do so immediately or store in a designated labeled container separate from toys that are clean and ready for use.

Safe Injection Practices

The following recommendations apply to the use of needles, cannulas that replace needles, and, where applicable intravenous delivery systems.

12. Use aseptic technique to avoid contamination of sterile injection equipment.

13. Do not administer medications from a syringe to multiple patients, even if the needle or cannula on the syringe is changed. Needles, cannulae and syringes are sterile, single-use items; they should not be reused for another patient nor to access a medication or solution that might be used for a subsequent patient.

14. Use fluid infusion and administration sets (i.e., intravenous bags, tubing and connectors) for one patient only and dispose appropriately after use. Consider a syringe or needle/cannula contaminated once it has been used to enter or connect to a patient's intravenous infusion bag or administration set.

15. Use single-dose vials for parenteral medications whenever possible.

16. Do not administer medications from single-dose vials or ampules to multiple patients or combine leftover contents for later use.

17. If multi-dose vials must be used, both the needle or cannula and syringe used to access the multidose vial must be sterile.

18. Do not keep multidose vials in the immediate patient treatment area and store in accordance with the manufacturer's recommendations; discard if sterility is compromised or questionable.

Worker Safety

19. Adhere to federal and state requirements for protection of healthcare personnel from exposure to bloodborne pathogens. For federal regulations refer to OSHA regulations for bloodborne pathogens 29 CFR 1910.1030 and for state requirements refer to the Massachusetts Department of Public Health Hospital Licensure Regulations 105 CMR 130.000.

Source:

Siegel, J. D., Rhinehart, E., et al. (2007). 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Health Care Settings. *Am J Infect Control* 35(10 Suppl 2): S65-164.

Contact Precautions:

A. General Principles

1. In addition to Standard Precautions, use Transmission-Based Precautions for patients with documented or suspected infection or colonization with highly transmissible or epidemiologically-important pathogens for which additional precautions are needed to prevent transmission, *refer to Appendix A of 2007 HICPAC Isolation Precaution Guidelines pages 93-116.*

2. Extend duration of Transmission-Based Precautions, (e.g., Droplet, Contact) for immunosuppressed patients with viral infections due to prolonged shedding of viral agents that may be transmitted to others.

3. Use Contact Precautions as recommended in Appendix A of 2007 HICPAC Isolation Precaution Guidelines pages 93-116, for patients with known or suspected infections or evidence of syndromes that represent an increased risk for contact transmission. For specific recommendations for use of Contact Precautions for colonization or infection with MDROs, go to the MDRO guideline (Management of Multidrug-Resistant Organisms in Healthcare Settings Guideline).

Source:

Siegel, J. D., Rhinehart, E., et al. (2007). 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Health Care Settings. *Am J Infect Control* 35(10 Suppl 2): S65-164.

Environmental Measures for the Prevention and Management of Multi-drug Resistant Organisms (MDROs)

Tier 1*: General Recommendations for Routine Prevention and Control of MDROs in Health Care Settings*

1. Clean and disinfect surfaces and equipment that may be contaminated with pathogens, including those that are in close proximity to the patient (e.g., bed rails, over-bed tables) and frequently touched surfaces in the patient care environment (e.g., door knobs, surfaces in and surrounding toilets in patients' rooms) on a more frequent schedule compared to that for minimal touch surfaces (e.g., horizontal surfaces in waiting rooms).

2. Focus on cleaning and disinfecting frequently touched surfaces (e.g., bedrails, bedside commodes, bathroom fixtures in the patient's room, doorknobs) and equipment in the immediate vicinity of the patient.

Tier 2*: Recommendations for Intensified MDRO Control Efforts*

Institute one or more of the interventions described below when:

- Incidence or prevalence of MDROs are not decreasing despite the use of routine control measures

- The first case or outbreak of an epidemiologically important MDRO is identified within the healthcare facility or unit

- Continue to monitor the incidence of the target MDRO infection and colonization; if the rates do not decrease, implement additional interventions as needed to reduce MDRO transmission

1. Intensify and reinforce training of environmental staff who work in areas targeted for intensified MDRO control. Some facilities may choose to assign dedicated staff to targeted patient care areas to enhance consistency of proper environmental cleaning and disinfection services.

2. Monitor cleaning performance to ensure consistent cleaning and disinfection of surfaces in close proximity to the patient and those likely to be touched by the patient and HCWs (e.g., bedrails, carts, bedside commodes, doorknobs, faucet handles).

3. Obtain environmental cultures (e.g., surfaces, shared equipment) only when epidemiologically implicated in transmission.

4. Vacate units, when possible, for environmental assessment and intensive cleaning when previous efforts to control environmental transmission have failed.

Source:

Siegel, J.D., Rhinehart E., Jackson, M., Chiarello, L. (2006). *Healthcare Infection Control Practices Advisory Committee. Management of multidrug-resistant organisms in healthcare settings*. Atlanta (GA): Centers for Disease Control and Prevention. Retrieved from: http://www.cdc.gov/ncidod/dhqp/pdf/ar/mdroGuideline2006.pdf

APPENDIX E

❖ *Ventilator Associated Pneumonia (V.A.P.)*

General Prophylaxis

1. Effective infection control measures: staff education, compliance with alcohol-based hand disinfection, and isolation to reduce cross-infection with multi-drug resistant pathogens should be used routinely.

2. Surveillance of ICU infections and preparation of timely data for infection control and to guide appropriate antimicrobial therapy in patients with suspected VAP or other nosocomial infections are recommended.

Intubation and Mechanical Ventilation

3. Intubation and reintubation should be avoided, if possible, as it increases the risk of VAP.

4. Noninvasive ventilation should be used whenever possible in selected patients with respiratory failure.

   Pediatric: *Noninvasive ventilation should be* ***considered*** *whenever possible in pediatric patients with respiratory failure.*

5. Oral and subglottic secretions are important contributors to the development of VAP, and hospitals should develop policies and procedures for the management of these secretions. These policies and procedures should include scheduled oral care and intermittent (i.e., at regular intervals and when repositioning the patient or tube) or continuous suctioning of subglottic secretions.

   Pediatric: *Oral and subglottic secretions are important contributors to the development of VAP, and hospitals should develop policies and procedures for the management of these secretions. These policies and procedures should include scheduled oral care and intermittent suctioning in pediatric patients (i.e., at regular intervals and when repositioning the patient or tube).*

6. Contaminated condensate should be carefully emptied from ventilator circuits and condensate should be prevented from entering either the endotracheal tube or inline medication nebulizers.

7. Reduced duration of intubation and mechanical ventilation may prevent VAP and can be achieved by protocols to improve the use of sedation and to accelerate weaning.

Aspiration, Body Position, and Enteral Feeding

8. Patients should be kept in the semirecumbent position (30–45°) rather than supine to prevent aspiration, especially when receiving enteral feeding. The degree of elevation should be measured (using validated instruments or bed markings) and documented every 8 hours. Before lowering the patient's head less than to 30° (e.g., when transporting or repositioning), secretions should be suctioned above and below the cuff to prevent microaspiration.

Pediatric: *Data in pediatrics is very limited. However, intubated infants and children should have their head elevated 30–45°. Ideal positioning of intubated neonates is 15-30° head elevation and cribs with adequate positioning features to achieve this should be used. The degree of elevation should be measured (using validated instruments or bed markings) and documented every 8 hours. Before lowering the patient's head (e.g., when transporting or repositioning), secretions should be suctioned above and below the cuff (if used) to prevent microaspiration.*

9. Enteral nutrition is preferred over parenteral nutrition to reduce the risk of complications related to central intravenous catheters and to prevent reflux villous atrophy of the intestinal mucosa that may increase the risk of bacterial translocation

   Pediatric: *Enteral nutrition, either gastric or post-pyloric, is preferred over parenteral nutrition to reduce the risk of healthcare associated infections and to prevent reflux villous atrophy of the intestinal mucosa that may increase the risk of bacterial translocation*

10. Use daily interruption or lightening of sedation to avoid constant heavy sedation and try to avoid paralytic agents, both of which can depress cough and thereby increase the risk of HAP (Hospital-Acquired Pneumonia).

    Pediatric: *Use daily interruption of paralytic drugs and lightening of heavy sedation to avoid prolonged suppression of muscle tone and diaphragm function, which contribute to the retention of pulmonary secretions. The patient's capacity for unassisted breathing should be evaluated daily. Extubation readiness testing and the use of sedation protocols may be beneficial in critically ill pediatric patients but must be balanced against the risk of premature and self-extubation.*

Modulation of Colonization: Oral Antiseptics and Antibiotics

11. There is consistent evidence that the use of oral care with antiseptic agents (but not oral antibiotics) can decrease the incidence of ventilator-associated pneumonia, although not the overall ICU length of stay or overall mortality. However, the optimal concentration and formulation of antiseptic agents to use for oral care remains unresolved, as does the optimal timing of oral care. Health care facilities should incorporate the regular use of an oral antiseptic agent into the routine care of patients receiving mechanical ventilation.

Transfusion

12. Transfusion of red blood cell and other allogeneic blood products should follow a restricted transfusion trigger policy; leukocyte-depleted red blood cell transfusions can help to reduce HAP in selected patient populations.

Source:

American Thoracic Society. (2005). Guidelines for the management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. *Am J Resp Crit Care Med*, 171, 388-416.

APPENDIX F

❖ *Surgical Site Infection (S.S.I.)*

RECOMMENDATIONS FOR PREVENTION OF SURGICAL SITE INFECTIONS

Preparation of the Patient

1. Whenever possible, identify and treat all infections remote to the surgical site before elective operation and postpone elective operations on patients with remote site infections until the infection has resolved.

2. Do not remove hair preoperatively unless the hair at or around the incision site will interfere with the operation.

3. If hair is removed, remove immediately before the operation, preferably with electric clippers. Patients should be instructed not to shave the incision site within 48 hours prior to surgery.

4. For adult cardiac surgery patients, ensure that blood glucose levels measured at 6 a.m. on postoperative days one and two are maintained below 200 mg/dL.

5. Thoroughly wash and clean at and around the incision site to remove gross contamination before performing antiseptic skin preparation.

6. Use an appropriate antiseptic agent for skin preparation.

7. Apply preoperative antiseptic skin preparation using manufacturer's product guidelines. The prepared area must be large enough to extend the incision or create new incisions or drain sites, if necessary.

Hands for Surgical Team Members

8. Nail polish, if used, should not be chipped. Available data indicate that nail polish that has been obviously chipped or worn for more than four days harbors greater numbers of bacteria**.**

Management of Infected or Colonized Surgical Personnel

9. Develop and implement well-defined policies concerning patient care responsibilities when personnel have potentially transmissible infectious conditions. These policies should govern (a) personnel responsibility in using the health service and reporting illness, (b) work restrictions, and (c) clearance to resume work after an illness that required work restriction. The policies also should identify persons who have the authority to remove personnel from duty.

Antimicrobial Prophylaxis

10. Administer prophylactic antimicrobial agents only when indicated, and select in accordance with published recommendations as delineated in national guidelines.

11. Administer by the intravenous route the initial dose of prophylactic antimicrobial agent, timed such that an effective concentration of the drug is established in serum and tissues when the incision is made. Maintain therapeutic levels of the agent in serum and tissues throughout the

operation and until, at most, a few hours after the incision is closed in the operating room. Prophylactic antibiotic should be received within one hour prior to surgical incision (vancomycin within 2 hours). Subsequent intraoperative doses of antibiotics should be administered as needed based on the pharmacokinetic profiles of the prophylactic agents being used. The duration of antibiotic prophylaxis should be in accordance with national guidelines**.**

Surgical Attire and Drapes

12. Wear a cap or hood to fully cover hair on the head and face when entering the operating room.

13. Do not wear shoe covers for the prevention of SSI (however, shoe covers are required by OSHA regulations when "gross contamination can reasonably be anticipated")

14. Wear sterile gloves if a scrubbed surgical team member. Put on gloves after putting on a sterile gown. Wearing two pairs of gloves (double-gloving) has been shown to reduce hand contact with patients' blood and body fluids when compared to wearing only a single pair.

15. Use surgical gowns and drapes that are effective barriers when wet (i.e., materials that resist liquid penetration).

16. Change scrub suits that are visibly soiled, contaminated and/or penetrated by blood or other potentially infectious materials. (per OSHA regulations, if a garment(s) is penetrated by blood or other potentially infectious materials, the garment(s) shall be removed immediately or as soon as feasible)

Asepsis and Surgical Technique

17. Adhere to standard principles of operating room asepsis as well as to relevant practice guidelines (i.e. recommendations for preventing central line associated bloodstream infections, USP 797)[6] when placing intravascular devices (e.g., central venous catheters), spinal or epidural anesthesia catheters, or when dispensing and administering intravenous drugs.

18. Assemble sterile equipment and solutions immediately prior to use.

19. a. Handle tissue gently, maintain effective hemostasis, minimize devitalized tissue and foreign bodies (i.e., sutures, charred tissues, necrotic debris) and eradicate dead space at the surgical site.

    b. Animal and clinical data suggest that maintenance of intraoperative normothermia will reduce surgical site infections for selected procedures in adults.

Postoperative Incision Care

20. Protect with a sterile dressing for 24 to 48 hours postoperatively an incision that has been closed primarily.

21. Perform hand hygiene before and after dressing changes and any contact with the surgical site.

22. When an incision dressing must be changed, use sterile technique.

[6] The United States Pharmacopeial Convention, Inc. Web site available at http://www.usp.org.

23. Educate the patient and family regarding proper incision care, symptoms of SSI, and the need to report such symptoms.

Source:

Mangram, A.J., Horan, T.C., Pearson, M.L., Silver, L.C., Jarvis, W.R. (1999). Guideline for prevention of surgical site infection, 1999. Hospital Infection Control Practices Advisory Committee. *Infect Control Hosp Epidemiol*. Apr; 20(4):250-78.

APPENDIX G

❖ *Bloodstream Infection (B.S.I.)*

RECOMMENDATIONS FOR PLACEMENT OF INTRAVASCULAR CATHETERS IN ADULTS AND CHILDREN

Healthcare Worker Education and Training

1. Educate health-care workers regarding the indications for intravascular catheter use, proper procedures for the insertion and maintenance of intravascular catheters, and appropriate infection control measures to prevent intravascular catheter-related infections.

2. Formally assess knowledge of and adherence to guidelines periodically for all persons who insert and manage intravascular catheters.

   Pediatric: *Develop, update and disseminate institutional policies and procedures regarding the safe use of intravascular catheters that address all relevant patient populations and clinical settings.*

3. Ensure adequate staffing levels of consistent and appropriately-educated health care workers in ICUs to minimize the incidence of Catheter-Associated Bloodstream Infections (CABSIs).

Surveillance

4. Monitor the catheter sites visually or by palpation through the intact dressing on a regular basis, depending on the clinical situation of individual patients. If patients have tenderness at the insertion site, fever without obvious source, or other manifestations suggesting local or BSI, the dressing should be removed to allow thorough examination of the site**.**

   Pediatric: *In addition to the above: In pediatrics, the frequency of catheter site monitoring should be consistent with institutional policies, but at a minimum of every nursing shift.*

5. Encourage patients to report to their health-care provider any changes in their catheter site or any new discomfort.

6. Record the operator, date, and time of catheter insertion and removal, and dressing changes on a standardized form.

7. Do not routinely culture catheter tips.

Hand hygiene

8. Observe proper hand-hygiene procedures either by washing hands with conventional antiseptic-containing soap and water or with waterless alcohol-based gels or foams. Observe hand hygiene before and after palpating catheter insertion sites, as well as before and after inserting, replacing, accessing, repairing, or dressing an intravascular catheter. Palpation of the insertion site should not be performed after the application of antiseptic, unless aseptic technique is maintained.

9. Use of gloves does not obviate the need for hand hygiene.

Aseptic technique during catheter insertion and care

10. Maintain aseptic technique for the insertion and care of intravascular catheters.

11. Wearing clean gloves rather than sterile gloves is acceptable for the insertion of peripheral intravascular catheters if the access site is not touched after the application of skin antiseptics. Wear sterile gloves for the insertion of arterial and central catheters.

12. Wear clean exam gloves when removing vascular access dressings. Wear sterile gloves when manipulating the insertion site of any arterial or central venous vascular access device and for applying sterile dressings to any arterial or central venous vascular access device insertion site.

Catheter insertion

13. Do not routinely use arterial or venous cutdown procedures as a method to insert catheters.

Catheter site care

14. Do not apply organic solvents (e.g., acetone and ether) to the skin before insertion of catheters or during dressing changes.

Selection and replacement of intravascular catheters

15. Select the catheter, insertion technique, and insertion site with the lowest risk for complications (infectious and noninfectious) for the anticipated type and duration of IV therapy.

16. Promptly remove any intravascular catheter that is no longer essential.

17. Do not routinely replace central venous or arterial catheters solely for the purposes of reducing the incidence of infection.

18. Replace peripheral venous catheters at least every 72–96 hours in adults to prevent phlebitis. Leave peripheral venous catheters in place in children until IV therapy is completed, unless complications (e.g., phlebitis and infiltration) occur.

    When adherence to aseptic technique cannot be ensured (i.e., when catheters are inserted during a medical emergency), replace all catheters as soon as possible and after no longer than 48 hours.

    Pediatric: *When adherence to aseptic technique cannot be ensured (i.e., when catheters are inserted during a medical emergency), consider replacing all catheters as soon as possible within 48 hours. Given the difficulties of vascular access in infants and toddlers, this may not be possible in all cases.*

19. Do not use guidewire techniques to replace catheters in patients suspected of having catheter-related infection.

Replacement of Administration Sets, Needleless Systems, and Parenteral Fluids

20. Replace administration sets, including secondary sets and add-on devices, no more frequently than at 72-hour intervals, unless catheter-related infection is suspected or documented.

21. Replace tubing used to administer lipid-based medication formulations such as propofol every 6 to 12 hours or according to manufacturer's recommendations.

Needleless Intravascular Devices

22. Ensure that all components of the system are compatible to minimize leaks and breaks in the system.

23. Complete the infusion of lipid-containing solutions (e.g., 3-in-1 solutions) within 24 hours of hanging the solution.

24. Complete the infusion of lipid emulsions alone within 12 hours of hanging the emulsion. If volume considerations require more time, the infusion should be completed within 24 hours.

25. Complete infusions of blood or other blood products within 4 hours of hanging the blood.

IV Injection Ports

26. Clean injection ports with 70% alcohol or an iodophor before accessing the system.

27. Cap all stopcocks when not in use. Replace with new sterile caps after each use.

In Line Filters

28. Do not use filters routinely for infection-control purposes.

IV-therapy personnel

29. Designate trained personnel who demonstrate competency for the insertion and maintenance of intravascular catheters.

PERIPHERAL VENOUS CATHETERS, INCLUDING MIDLINE CATHETERS IN ADULTS AND CHILDREN

Selection of Peripheral-Catheter Insertion Site

30. In adults, use an upper- instead of a lower-extremity site for catheter insertion. Replace a catheter inserted in a lower-extremity site to an upper extremity site as soon as possible.

31. Evaluate the catheter insertion site daily, by palpation through the dressing to discern tenderness and by inspection if a transparent dressing is in use. Gauze and opaque dressings should not be removed if the patient has no clinical signs of infection. If the patient has local tenderness or other signs of possible CABSI, an opaque dressing should be removed and the site inspected visually.

    Pediatric: *In pediatrics, evaluate the catheter insertion site per institutional policies, with a minimum frequency of every nursing shift.*

32. Remove peripheral venous catheters if the patient develops signs of phlebitis (e.g., warmth, tenderness, erythema, and palpable venous cord), infection, or a malfunctioning catheter.

33. In adults, replace short, peripheral venous catheters at least 72–96 hours to reduce the risk for phlebitis. If sites for venous access are limited and no evidence of phlebitis or infection is present, peripheral venous catheters can be left in place for longer periods, although the patient and the insertion sites should be closely monitored.

34. Do not routinely replace midline catheters to reduce the risk for infection.

35. In pediatric patients, assess each day whether there is a continued clinical indication for the peripheral venous catheter; remove promptly when no longer needed. Peripheral venous catheters can be left in place until IV therapy is completed, unless a complication (e.g., phlebitis and infiltration) occurs.

Catheter and Catheter-Site Care

36. Do not routinely apply prophylactic topical antimicrobial or antiseptic ointment or cream to the insertion site of peripheral venous catheters.

CENTRAL VENOUS CATHETERS, INCLUDING PICCS, HEMODIALYSIS, AND PULMONARY ARTERY CATHETERS, IN ADULTS AND CHILDREN

37. Use a CVC with the minimum number of ports or lumens essential for the management of the patient.

38. a. Institutions should institute a comprehensive strategy that include the following components: hand hygiene, educating persons who insert and maintain catheters, use of maximal sterile barrier precautions, and a 2% chlorhexidine preparation for skin antisepsis during CVC insertion (if appropriate for age), avoidance of femoral site in adults, and daily assessment of the need for the catheter.

    b. Institutions that want to further reduce central line infections should consider other new technologies such as antimicrobial impregnated catheters, and antiseptic dressings.

39. Designate personnel who have been trained and exhibit competency in the insertion of catheters to supervise trainees who perform catheter insertion.

40. Use a fistula or graft instead of a CVC for permanent access for dialysis.

41. Do not use hemodialysis catheters for blood drawing or applications other than hemodialysis except during dialysis or under emergency circumstances.

42. Use povidone-iodine antiseptic ointment at the hemodialysis catheter exit site after catheter insertion and at the end of each dialysis session only if this ointment does not interact with the material of the hemodialysis catheter per manufacturer's recommendation.

Selection of catheter insertion site

43. Weigh the risk and benefits of placing a device at a recommended site to reduce infectious complications against the risk for mechanical complications (e.g., pneumothorax, subclavian artery puncture, subclavian vein laceration, subclavian vein stenosis, hemothorax, thrombosis, air embolism, and catheter misplacement).

44. Use a subclavian site (rather than a jugular or a femoral site) in adult patients to minimize infection risk for nontunneled CVC placement. In adult patients the use of the femoral site for CVCs should be avoided except when emergency circumstances or lack of vascular access precludes the use of other sites. When a femoral catheter is placed emergently, it should be electively replaced as quickly as possible.

    Pediatric: *In pediatrics, the subclavian, internal jugular, femoral and antecubital sites are acceptable for nontunneled CVC placement. The saphenous vein can be used in non-ambulatory patients and PICC lines can be placed in the temporal and posterior auricular veins in infants.*

Maximal Sterile Barrier Precautions During Catheter Insertion

45. Use aseptic technique including the use of a cap, mask, sterile gown, sterile gloves, and a large sterile sheet, for the insertion of CVCs (including PICCs) or guidewire exchange.

46. Use a sterile sleeve to protect pulmonary artery catheters during insertion.

Replacement of Catheter

47. Do not routinely replace CVCs, PICCs, hemodialysis catheters, or pulmonary artery catheters to prevent catheter-related infections.

48. Do not remove CVCs or PICCs on the basis of fever alone. Use clinical judgment regarding the appropriateness of removing the catheter if infection is evidenced elsewhere or if a noninfectious cause of fever is suspected.

49. Do not use guidewire exchanges routinely for nontunneled catheters to prevent infection.

50. Use a guidewire exchange to replace a malfunctioning nontunneled catheter if no evidence of infection is present.

51. Use a new set of sterile gloves before handling the new catheter when guidewire exchanges are performed.

Catheter and Catheter-Site Care

52. Designate one port exclusively for parenteral nutrition if a multilumen catheter is used to administer parenteral nutrition.

53. Replace the catheter-site dressing when it becomes damp, loosened, or soiled or when inspection of the site is necessary.

54. Replace dressings used on short-term CVC sites every 48 hours for gauze dressings and at least every 7 days for transparent dressings, except in those pediatric patients in which the risk for dislodging the catheter outweighs the benefit of changing the dressing.

55. Replace dressings used on tunneled or implanted CVC sites no more than once per week, until the insertion site has healed.

56. Use a sterile sleeve for all pulmonary artery catheters.

ADDITIONAL RECOMMENDATIONS FOR PERIPHERAL ARTERIAL CATHETERS AND PRESSURE MONITORING DEVICES FOR ADULTS AND CHILDREN

Maximal Sterile Barrier Precautions During Catheter Insertion

57. Use aseptic technique including the use of a cap, mask, sterile gown, sterile gloves, and an appropriately sized sterile drape, for the insertion of peripheral arterial catheters.

Selection of Pressure Monitoring System

58. Use disposable, rather than reusable, transducer assemblies when possible.

Replacement of Catheter and Pressure Monitoring System

59. Do not routinely replace peripheral arterial catheters to prevent catheter-related infections.

60. Replace disposable or reusable transducers at 96-hour intervals. Replace other components of the system (including the tubing, continuous-flush device, and flush solution) at the time the transducer is replaced.

Care of Pressure Monitoring Systems

61. Keep all components of the pressure monitoring system (including calibration devices and flush solution) sterile.

62. Minimize the number of manipulations of and entries into the pressure monitoring system. Use a closed-flush system (i.e., continuous flush), rather than an open system (i.e., one that requires a syringe and stopcock), to maintain the patency of the pressure monitoring catheters.

63. When the pressure monitoring system is accessed through a diaphragm rather than a stopcock, wipe the diaphragm with an appropriate antiseptic before accessing the system.

64. Do not administer dextrose containing solutions or parenteral nutrition fluids through the pressure monitoring circuit.

Sterilization or Disinfection of Pressure Monitoring Systems

65. Use disposable transducers.

66. Sterilize reusable transducers according to the manufacturers' instructions if the use of disposable transducers is not feasible.

Umbilical Catheters

67. Remove and do not replace umbilical artery or umbilical vein catheters if any signs of CABSI, vascular insufficiency, or thrombosis are present.

68. Replace umbilical venous catheters only if the catheter malfunctions.

69. Do not use topical antibiotic ointment or creams on umbilical catheter insertion sites because of the potential to promote fungal infections and antimicrobial resistance.

70. Add low doses of heparin (0.25–1.0 F/ml) to the fluid infused through umbilical arterial catheters.

71. Remove umbilical catheters as soon as possible when no longer needed or when any sign of vascular insufficiency to the lower extremities is observed. Optimally, umbilical artery catheters should not be left in place >5 days.

72. Umbilical venous catheters should be removed as soon as possible when no longer needed but can be used up to 14 days if managed aseptically.

Source:

O'Grady, N. P., Alexander, M., et al. (2002). Guidelines for the prevention of intravascular catheter-related infections. Centers for Disease Control and Prevention. *MMWR Recomm Rep* 51 (RR-10), 1-29.

APPENDIX H

❖ *Catheter-Associated Urinary Tract Infections (C.A.U.T.I.)*

Recommended for all acute care hospitals

1. Provide and implement written guidelines for catheter use, insertion, and maintenance.
    - Develop and implement facility criteria for acceptable indications for indwelling urinary catheter use.
    - Indications for indwelling urethral catheter use are limited, and include:
        - Peri-operative use for selected surgical procedures
        - Urine output monitoring in critically ill patients
        - Management of acute urinary retention and urinary obstruction
        - To assist in pressure ulcer healing for incontinent residents
        - As an exception, at patient request to improve comfort
2. Ensure that supplies necessary for aseptic technique catheter insertion are available.
3. Implement a system for documenting in the patient record: indications for catheter insertion, date and time of catheter insertion, individual who inserted catheter, and date and time of catheter removal.
    - Include documentation in nursing flow sheet, nursing notes or physician orders. Documentation should be accessible in the patient record and recorded in a standard format for data collection and quality improvement purposes.
    - Electronic documentation that is searchable is preferred, if available.
4. Ensure that there are sufficient trained personnel and technology resources to support surveillance for catheter use and outcomes.

Perform surveillance for CAUTI [7]

5. Use standardized criteria for defining a CAUTI to identify patients who have a CAUTI (numerator data).
6. Collect catheter days (denominator data) on all patients in the patient groups or units being monitored.
7. Calculate CAUTI rates for target populations.
8. Use surveillance methods for case finding that are appropriate for the institution and documented to be valid.

[7] *CAUTI Surveillance data is not required. However, if a program is calculating rates for CAUTI infections, NHSN criteria should be used.*

Education and Training

9. Educate HCW about catheter related UTI's, including alternatives to indwelling catheters, procedures for catheter insertion, management and removal.

Catheter Insertion: Measures to Prevent Infection

10. Insert urinary catheters only when necessary for patient care, and leave in place only as long as indications remain.

11. Consider other methods of management including condom catheters or in and out catheterization, where appropriate.

12. Practice hand hygiene (based on CDC or World Health Organization Guidelines) immediately before insertion of the catheter and before and after any manipulation of the catheter site or apparatus.

13. Insert catheters following aseptic technique and using sterile equipment.

14. Use gloves, drape and sponges, a sterile or antiseptic solution for cleaning the urethral meatus, and a single-use packet of sterile, lubricant jelly for insertion.

Ensure Appropriate Management of Indwelling Catheters

15. Properly secure indwelling catheters after insertion to prevent movement and urethral traction.

16. Maintain a sterile, continuously closed drainage system.

17. Disconnection of the catheter and drainage tube is prohibited unless the catheter must be irrigated.

18. For examination of fresh urine, collect a small sample by aspirating urine from the sampling port with a sterile needle and syringe after cleansing the port with disinfectant Transport urine specimens for culture promptly to the laboratory.

19. Obtain larger volumes of urine for special analyses aseptically from the drainage bag.

20. Maintain unobstructed urine flow.

21. Empty the collecting bag regularly using a separate collecting container for each patient. Avoid touching the draining spigot to the collecting container.

22. Keep the collecting bag below the level of the bladder at all times.

23. Cleaning of the meatal area with antiseptic solutions is unnecessary. Routine hygiene is appropriate.

Recommended for use in locations and/or populations within the hospital for which outcome data and/or risk assessment suggest lack of effective control despite implementation of basic practices.

24. Implement an organization-wide program to identify and remove catheters that are no longer necessary using one or more methods documented to be effective.

- Develop and implement institutional policy requiring continual, usually daily, review of the necessity of continued catheterization.
- Electronic or other types of reminders may be useful.
    - Implement automatic stop orders requiring renewal of order for continuation of the indwelling catheter.
    - Use standardized reminders placed into patient charts or part of the electronic patient record.
- Implement daily ward rounds by nursing and physician staff to review all patients with urinary catheters and ascertain continuing necessity.

Approaches That Should Not Be Considered a Routine Part of CAUTI Prevention

25. Do not routinely use silver coated or other antibacterial catheters.
26. Do not screen for asymptomatic bacteruria in catheterized patients.
27. Do not treat asymptomatic bacteruria in catheterized patients except prior to invasive urologic procedures.
28. Avoid catheter irrigation.
    - Do not perform continuous irrigation of the bladder with antimicrobials as a routine infection prevention measure.
    - If obstruction is anticipated; closed continuous irrigation may be used to prevent obstruction.
    - To relieve obstruction due to clots, mucus, or other causes, an intermittent method of irrigation may be used.
29. Do not use systemic antibiotics routinely as prophylaxis.
30. Do not change catheters routinely.

Source:

Draft guideline documents, IDSA/SHEA HAI Task Force members

APPENDIX I

❖ *Updated Summary Chart of HAI-Related Measures 2009*

(Effective for data collection starting July 1, 2009)

Outcome Measures	Reporting Level	
	Public[1]	Internal[2]
✓ CVC-BSI in ICUs (CDC criteria 1, 2 and 3)	♦	
✓ CVC-BSI outside of ICUs (CDC criteria 1, 2 and 3)		♦
✓ SSI resulting from hip arthroplasty	♦	
✓ SSI resulting from knee arthroplasty	♦	
✓ SSI resulting from hysterectomy (vaginal and abdominal)	♦	
✓ SSI resulting from coronary artery bypass graft	♦	
✓ Ventilator-Associated Pneumonia (VAP)		♦
Point prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA)	♦	
Clostridium difficile-associated disease (CDAD)		♦
Process Measure		
Influenza vaccination of healthcare of workers	♦	

Key:

✓ = Measure found in National Healthcare Safety Network (NHSN)

VC-BSI – central-venous catheter-associated bloodstream infection

ICU – intensive care unit

SSI – surgical site infection

[1] Public – data submitted to the Department of Public Health

[2] Internal – data for hospital use only