Preventing Healthcare-Associated Infections: A Guide to Establishing an Effective Infection Prevention Program

Peggy Prinz Luebbert, MS, MT (ASCP), CIC, CHSP
Libby F. Chinnes, RN, BSN, CIC

This training resource offers practical references to help infection prevention professionals understand the fundamentals, train staff members, and build a successful infection prevention program. Featuring the latest OSHA and CDC guidelines, this book provides an added focus on preventing healthcare-associated infections (HAI).

Preventing Healthcare-Associated Infections: A Guide to Establishing an Effective Infection Prevention Program provides hands-on guidance on establishing an effective infection prevention program, preventing the spread of HAIs, and developing education and training for staff. This resource includes a wide range of tools such as customizable checklists, policies, and procedures.

Readers will:
• Receive proven guidance on preventing HAIs
• Learn about the latest infection prevention guidelines from OSHA and the CDC
• Gain an understanding of how to effectively train staff on infection prevention
• Learn how to build a successful infection prevention program
• Benefit from a wide range of customizable checklists, policies, and procedures
PREVENTING HEALTHCARE-ASSOCIATED INFECTIONS

A Guide to Establishing an Effective Infection Prevention Program
## Contents

### ABOUT THE AUTHORS

### CHAPTER 1: AN OVERVIEW

- Roles and Responsibilities................................................................. 1
- Key Professional and Personal Traits ..................................................... 5
- Conclusion.............................................................................................. 8
- Endnotes.................................................................................................. 8

### CHAPTER 2: IMPLEMENTING AND ORGANIZING YOUR INFECTION PREVENTION AND CONTROL PROGRAM

- Infrastructure ........................................................................................ 9
- Staffing ................................................................................................... 10
- Resources ............................................................................................... 13
- Risk Assessment ..................................................................................... 13
- Goals and Functions of the Program ....................................................... 14
- Surveillance ............................................................................................. 15
- Conclusion.............................................................................................. 19
- Endnotes.................................................................................................. 19

### CHAPTER 3: THE INFECTION PREVENTION AND CONTROL PLAN

- Why Is a Plan Necessary? ...................................................................... 21
- What's Included in the Plan? ................................................................. 21
- Does it Work?......................................................................................... 22

### CHAPTER 4: POLICIES AND PROCEDURES .................................. 33

### CHAPTER 5: EMPLOYEE HEALTH AND EDUCATION .......... 63

- Employee Health.................................................................................. 63
- Elements of an Employee Health Service ............................................... 64
- Other Employee Health Issues ............................................................... 69
- Employee Education .............................................................................. 70
- Specialized Training............................................................................... 77
- Conclusion.............................................................................................. 80
- Endnotes.................................................................................................. 80
CHAPTER 6: SURVEILLANCE ................................................................. 81
  What is Surveillance? ................................................................. 81
  Assessing Risks in Your Facility .............................................. 82
  Steps of Surveillance ................................................................ 86
  Conclusion .............................................................................. 91
  Endnotes ................................................................................ 92

CHAPTER 7: MONITORING, REPORTING, AND PERFORMANCE IMPROVEMENT .... 93
  Monitoring and Measuring ....................................................... 93
  Performance Improvement ...................................................... 97
  Reporting ............................................................................... 99
  Data Display .......................................................................... 99
  Conclusion ............................................................................ 100
  Endnotes ............................................................................... 100

CHAPTER 8: PUBLIC REPORTING ......................................................... 101
  Progress ................................................................................ 106

CHAPTER 9: THE FOUR MAJOR SITES OF INFECTION ......................... 109
  Urinary Tract Infections ......................................................... 109
  Pneumonia ............................................................................ 114
  Bloodstream Infections .......................................................... 117
  Surgical Site Infections ............................................................ 120
  Conclusion ............................................................................ 124
  Endnotes ............................................................................... 124

CHAPTER 10: ANTIMICROBIAL-RESISTANT ORGANISMS ..................... 129
  MRSA ................................................................................... 130
  VRE ..................................................................................... 132
  VISA/VRSA .......................................................................... 133
  ESBL Enterobacteriaceae .......................................................... 134
  Other MDROs ........................................................................ 136
  Practical tips ........................................................................... 140
  Conclusion ............................................................................ 140
  Endnotes ............................................................................... 141

CHAPTER 11: CLEANING, DISINFECTION, AND STERILIZATION .......... 143
  Common Terminology ............................................................. 143
  Spaulding Classification System .............................................. 144
  Sterilization and Monitoring .................................................... 151
  Tips on Cleaning and Disinfecting .......................................... 155
  Endnotes ............................................................................... 157

CHAPTER 12: OUTBREAK MANAGEMENT ............................................. 159

CHAPTER 13: EMERGENCY PREPAREDNESS ..................................... 165
  Emergency Operation Plans for an Infectious Disaster .............. 165
  Centers for Disease Control and Prevention Bioterrorism Agents and Illnesses ....................... 170
About the Authors

Peggy Prinz Luebbert, MS, CSL(ASCP), CIC, CHSP

Peggy Prinz Luebbert, MS, CSL(ASCP), CIC, CHSP, has worked in the fields of infection prevention and healthcare safety for more than 30 years in a variety of facilities, including large and small acute-care hospitals, long-term care, long-term acute care, and ambulatory surgical centers. She is certified in infection prevention and healthcare safety. She has also presented and published on the local and national level. She is currently owner of two companies: Healthcare Interventions, Inc., and Ladybug Health Productions, LLC. Since starting these endeavors, she has assisted multiple organizations in improving their risk reduction strategies in infection prevention, safety, risk management, and emergency preparedness.

Libby F. Chinnes, RN, BSN, CIC

Libby F. Chinnes, RN, BSN, CIC, infection control consultant, owns an independent infection control consulting practice, IC Solutions, LLC, in Mt. Pleasant, South Carolina. She has more than 25 years of experience in infection prevention and control and has been certified in the field since 1983. She provides consultation to infection control programs in assessment, problem solving, and training in acute care, long-term care, ambulatory care, home care, and long-term acute care facilities. Chinnes lectures extensively throughout the country on infection prevention and control topics.
CHAPTER 1
An Overview

You are the infection preventionist (IP), also known as the infection prevention and control professional. It seems that once you leave your office for the nursing units or ancillary departments, everyone expects you to have all the answers about how to decrease healthcare-associated infections (HAI). If you work in a small hospital or other facility such as long-term care or an ambulatory surgery center, you may even have other official duties such as employee health, staff development, or safety. The question becomes: Where do I find all those answers?

First, take a deep breath and realize that you do not have to have all the answers. You have plenty of resources available, including this book, training sessions, and other colleagues. Don’t hesitate to reach out to them for answers. Second, remember that infection prevention and control is a specialty with much information to learn and, like any specialty, it will take time to become familiar with much of the literature and guidelines available.

ROLES AND RESPONSIBILITIES
First, let’s discuss your role as IP for your facility. A helpful reference is “APIC/CHICA-Canada Infection Prevention, Control, and Epidemiology: Professional and Practice Standards,” available at www.apic.org (Friedman, et al., 2008, p. 385–389). The IP, whether just beginning or a seasoned professional, strives for competency in his or her role through education, certification, and incorporation of these standards into practice. The IP should periodically compare him- or herself and his or her program to these standards and use them as a guide.
Coordination of infection prevention and control program

The IP’s role is to manage and coordinate infection prevention and control for the entire facility, or specific assigned areas, if working in a multi-person department under an infection prevention manager. The IP must ensure that proper infection prevention and control practices are followed in every department, including ancillary departments such as dietary, environmental services, pharmacy, and maintenance.

Development and maintenance of infection prevention and control policies and procedures

To this end, the facility must have infection prevention and control policies for every department as well as overall policies such as a bloodborne pathogens plan (exposure control plan) and a tuberculosis plan per the Occupational Safety and Health Administration (OSHA). The IP does not have to write all of these policies, but should collaborate with department supervisors and advise on best infection prevention and control practice based on the most current guidelines, standards, and regulations. These policies and procedures should be on a schedule for review/revision in addition to those times when, for example, regulations change. Some of these policies and procedures are listed in Figure 1.1, and others may be added as needed or as new services arise.
## FIGURE 1.1  ■ SAMPLE TABLE OF CONTENTS FOR INFECTION PREVENTION MANUAL

### Section 1: General policies
1. Responsibilities, authority, and membership of the infection prevention and control committee (or applicable committee such as quality improvement if there is no infection prevention and control committee)
2. Responsibilities of the infection preventionist
3. Responsibilities of the hospital epidemiologist
4. Methods of surveillance
5. Definitions of healthcare-associated infections
6. Facility risk assessment
7. Facility infection control plan
8. Hand hygiene
9. Outbreak investigations
10. Standard precautions
11. Isolation techniques and requirements
12. Multidrug-resistant organism policy
13. Bloodborne pathogens exposure control plan
14. Tuberculosis control plan
15. Handling of sentinel events
16. Infectious wastes management
17. Influenza plan
18. Bioterrorism plan
19. Management of the influx or risk of influx of infectious patients (surge capacity)
20. Animals: service and therapy
21. Construction and renovation
22. Cleaning, storage, and distribution of patient care equipment
23. Refrigerator policy
24. Reporting of communicable diseases
25. Urinary tract infections prevention program
26. Ventilator-associated pneumonia prevention program
27. Bloodstream infections: catheter-associated prevention program

### Section 2: Employees
1. Communicable disease exposures
2. Employee health policies

### Section 3: Departmental policies
1. Biomedical engineering
2. Dietary/vending machines
3. Endoscopy
4. Engineering and facilities management
5. Environmental services
6. Hemodialysis
7. Imaging
8. Laboratory
9. Laundry
10. Materials management
11. Nursing
12. Pharmacy (multidosing and safe injection practices)
13. Physical therapy/occupational therapy/speech therapy
14. Respiratory therapy
15. Volunteers
16. OR
17. Decontamination, sterilization, and sterile processing
Chapter 1

**Surveillance and use of epidemiological principles**

Other roles of the IP are to perform surveillance of HAIs per each facility’s unique surveillance plan and inclusive of any mandatory surveillance as regulated by CMS or individual states. Surveillance is based on the population served, services offered, and previous surveillance data as well as high-risk, high-volume, and problem-prone events. For example, in a 250-bed hospital, a surveillance plan might entail:

- Coronary artery bypass surgery (high-volume procedure and mandated by certain states).
- Lumbar laminectomies (problem-prone, as noted in past surveillance).
- Central line–associated bloodstream infections in ICUs and outside of multidrug–resistant organisms (individual rates of methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant *Enterococcus*, and extended-spectrum beta-lactamases and KPC). These are problem-prone and mandated by certain states and The Joint Commission’s National Patient Safety Goals. Also, *Clostridium difficile*, which is high-risk and problem-prone.
- Ventilator pneumonia in the surgical ICU.
- Influenza vaccine compliance of the staff.
- Compliance with hand hygiene and standard precautions by staff members, physicians, and all others (high-risk, problem-prone, and noted in The Joint Commission’s National Patient Safety Goals).

The IP should use epidemiological principles such as trending by time, person, and place, and risk stratification to critically analyze surveillance data gathered, identify risk factors, and make recommendations for improvement based on those analyses. The IP must then give the data to those who need to know, such as patient care personnel, appropriate committees (e.g., infection control and critical care), and leadership in order to improve patient care. Surveillance is continued to determine whether the recommendations for improvement made a difference in patient care.

**Education and training**

One role that every IP is involved in is education and serving as a resource for providers, staff members, patients, and families on the most current scientific information in the infection prevention and control literature. By assessing the needs of his or her staff members, the IP uses the principles of adult learning to guide training in various ways and separate fact from fiction.

**Consulting**

In the same light, IPs are the facility’s internal consultants or experts on the most current guidelines, regulations, and standards on infection prevention and control. The field of infection prevention and control is constantly changing, and the IP is a valuable member of the healthcare team as an educator.
and facility consultant. The IP brings knowledge of basic infection prevention and control to all settings in the continuum of care, including acute, long-term, long-term acute, home care, and ambulatory care.

**Employee health**
IPs collaborate with the employee health department on strategies to decrease the risk of infectious disease spread to patients from employees and to employees from patients. Strategies may include ensuring that proper immunizations are received, developing recommendations for healthcare worker restrictions for those with infectious conditions, and handling healthcare worker exposures to infectious diseases. In smaller facilities, the IP may also hold the role of the employee health professional and be accountable for fulfilling both job descriptions.

**Performance improvement**
IPs function as integral parts of performance improvement (PI) initiatives. In fact, it is often said that IPs were the first to practice PI before it was an established function. IPs may lead or be a member of a multidisciplinary performance improvement team.

**Research**
IPs also conduct, participate in, and evaluate research such as in surveillance findings, informal epidemiological studies, and outbreaks. Much of the infection prevention and control research has been conducted in acute care settings. Although basic practices apply to all settings of care, more research is needed in alternative settings.

**Program management, evaluation, and fiscal responsibility**
To participate in all of these roles, IPs must also manage the infection prevention and control program, which should be evaluated at least annually and more often as needed. Evaluation of the program includes determining whether goals and objectives were met and what needs to happen if they were unmet, while keeping financial responsibilities in mind.

**Disaster preparedness**
With the advent of bioterrorism, synthetic disasters, and the threat of pandemics such as influenza, a fairly new role for the IP is also participation in the facility disaster preparedness program. IPs will be involved in all phases of a disaster including preparedness, impact, response, and recovery.

**KEY PROFESSIONAL AND PERSONAL TRAITS**
The IP is an experienced healthcare professional with a background in health sciences who strives to acquire and maintain competency in the dynamic field of infection prevention and control. The job is one
in which learning never ceases. In fact, the IP appears to be a jack-of-all-trades, with knowledge in at least 16 content areas, which include:

- Epidemiology and outbreak management
- Infectious diseases
- Microbiology
- Patient care practices
- Asepsis
- Disinfection/sterilization
- Employee health
- Facility planning/construction
- Emergency preparedness
- Education principles
- Communication
- Evaluation of products
- Information technology
- Program administration
- Legislative issues
- Research

Don’t be frightened by the long list of topics, as we all bring strengths to the table. You may have knowledge, education, and skills in infectious diseases yet need to learn much more about employee health and disinfection and sterilization. Whatever our weaknesses, we can gain the knowledge we need to succeed.

In addition to completing a basic course on infection prevention and control within the first six months of entering the field, the IP is encouraged to continually read, attend training courses, and develop knowledge and skills in the areas listed earlier. One manner in which to demonstrate professional competency is to become certified and maintain certification through the Certification Board of Infection Control and Epidemiology. Many facilities advertise for experienced IPs who are certified in infection prevention and control.

Other personal traits of an IP that organizations look for when hiring are people skills, the ability to critically think through complex clinical scenarios, and a go-getting attitude. Solutions for infection prevention problems are often developed collaboratively with a team of multidisciplinary departments. For example, to deal with increased ventilator-associated pneumonia rates in the ICU, the IP may form a team composed of him- or herself, respiratory therapy staff members, critical care nursing staff members, and the medical director of the critical care unit. In another example, dealing with increased infection
rates for *Clostridium difficile* house-wide, the team may consist of the IP, clinical frontline nursing staff members, environmental services, and pharmacy. The IP must be able to work well with others whether on a daily basis on the nursing units and individual ancillary departments, at monthly/quarterly infection prevention and control committee meetings or performance improvement committees, or periodically to address issues with the chief operating officer (COO) or CEO. The IP must be able to influence diverse groups of people toward infection prevention and control. He or she is an index position to influence the quality of care provided to patients.

The IP may work as the sole practitioner in the infection prevention and control department, as the staff member under an experienced manager, or as the infection prevention manager in charge of other IPs. However, one person should be designated as responsible for the program. A hospital epidemiologist or infectious disease physician with infection control training may be available part-time or on a consultative basis to assist and guide the IP. Even though The Joint Commission no longer requires a specific infection control committee, some states do require one, and some organizations find that this is a crucial part of their program in that it gives administrative and political support to their efforts.

Infection prevention is a critical function applicable to all departments and activities within the organization. It is really the responsibility of everyone who works within the organization. The IP at a small facility may even wear several hats in addition to this role, such as employee health coordinator, risk manager, or staff educator. Typically, the IP reports to the chief nursing officer, quality improvement director, or COO. Critical information from the infection prevention and control department must be taken all the way to the board of the hospital, for example, as well as shared with all departments and staff members.

There are many challenges and complexities for infection control. Emerging infectious diseases as well as the possibility of travel carrying these diseases to our individual doorsteps brings a sense of urgency and requires us to stay informed about current communicable diseases and world events. Working with all types and levels of staff members, and especially dealing with compliance with best patient care practices, is paramount. Networking, joining the Association for Professionals in Infection Control and Epidemiology, and staying abreast of current infection prevention literature will assist the creative IP in problem solving and helps prevent having to reinvent the wheel. In order to obtain an increase in salary, a promotion, additional staff members, or resources for the department, the IP must constantly demonstrate value not only in terms of clinical needs and patient satisfaction, but also cost. A program’s effectiveness may be influenced greatly by the commitment of administration to infection prevention and control. In smaller facilities or nursing homes, for example, the IP may only be allowed a few hours per week to perform infection prevention activities. The IP must be granted the time and resources necessary to accomplish the program’s goals.

IPs are mentors and leaders for best practice for patient safety. They are ethically oriented and professionally accountable in promoting patient and employee safety. Most IPs will tell you that serving as the patient’s advocate is the role about which they are most passionate. There is no greater calling.
Chapter 1

CONCLUSION

The IP performs a vital role for a healthcare facility and coordinates the infection prevention and control efforts of the entire organization. Through surveillance, development of sound policies and procedures (evidence-based and consistent with current regulations and standards), education, and performance improvement activities, the IP is able to influence safe care for patients and protection of employees. Although the role is complex, technical, ever-changing, and requires knowledge in many areas, the IP performs fulfilling work and serves as a champion for patient advocacy.

ENDNOTES

This training resource offers practical references to help infection prevention professionals understand the fundamentals, train staff members, and build a successful infection prevention program. Featuring the latest OSHA and CDC guidelines, this book provides an added focus on preventing healthcare-associated infections (HAI).

Preventing Healthcare-Associated Infections: A Guide to Establishing an Effective Infection Prevention Program provides hands-on guidance on establishing an effective infection prevention program, preventing the spread of HAIs, and developing education and training for staff. This resource includes a wide range of tools such as customizable checklists, policies, and procedures.

Readers will:

• Receive proven guidance on preventing HAIs
• Learn about the latest infection prevention guidelines from OSHA and the CDC
• Gain an understanding of how to effectively train staff on infection prevention
• Learn how to build a successful infection prevention program
• Benefit from a wide range of customizable checklists, policies, and procedures