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Center

Infection Prevention Program

I. Description

Describes the roles and responsibilities of the UNC Medical Center (UNCMC) Infection Prevention Program

II. Rationale

Healthcare-associated infections (HAIs) result in considerable morbidity and mortality as well as increased healthcare costs. An effective Infection Prevention program with expertise in infection prevention, epidemiology, microbiology, and quality improvement is necessary to reduce the risk of HAIs and improve healthcare outcomes

- **Department Vision**

- A healthcare system and work environment free of preventable infections and disease transmission

- **Department Mission**

- To promote a safe and healthy environment through the prevention of healthcare-associated infections in patients and the transmission of infectious diseases among patients, personnel, and visitors, and to contribute to infection prevention research to guide evidence-based practices

- **Department Values**

- The promotion of excellence in patient care, education, and research
- Evidence-based practice.
- Personal competence, creativity, and dedication to continuous professional development.

- Teamwork, collegiality, and equity both within our department and in our health care community.
 - The ability to respond in a flexible manner to a dynamic healthcare environment and continuous improvement in the services we offer.
- **Department Goals**
 - The primary goal of Infection Prevention is to identify, reduce, and eliminate the risk of acquiring and transmitting infections among patients, health care personnel (HCP), and visitors. In addition, our goal is to accomplish this in an efficient, equitable, and cost-effective manner. Each year specific goals are set to improve patient outcomes as determined by the Infection Prevention Risk Assessment and Infection Prevention Plan.
- **Coverage**
 - UNCMC provides a comprehensive infection prevention program to provide a healthy and safe environment for patients, visitors, trainees/students, and all HCP.

III. Policy

A. Patient Demographics

UNCMC provides primary and specialized care to people from all 100 North Carolina counties, across the country, and around the world. Some of the specialized services within UNC Health (UNCH) include a comprehensive transplant program - both solid organ and adult and pediatric bone marrow transplant; trauma care, including burn treatment; cardiology; obstetrics; pediatrics; neurosciences; hemophilia and other blood diseases; cystic fibrosis; geriatrics, transgender health; and oncology. Proximity and affiliation to the University of North Carolina at Chapel Hill also creates opportunity for exposure to emerging diseases based on travel of students and employees of the University and emerging pathogens studied in Biosafety Level 3 labs on the research campus. UNCMC provides outpatient services at both campus-based facilities and community-based practices

B. Strategies

1. Develop, update, and implement evidence-based infection prevention policies and protocols to ensure the safety of our staff, patients, and visitors
2. Monitor and disseminate infection-related data
3. Promote continuous quality improvement by leveraging multidisciplinary workgroups to develop, implement, and share strategies to prevent HAIs
4. Provide education to empower the HCP workforce and patients to prevent HAIs and protect themselves from communicable disease
5. Conduct routine infection prevention compliance rounding
6. Conduct communicable disease exposure and outbreak investigations
7. Provide consultation to external departments regarding infection risk assessment,

prevention, and control strategies

C. Infection Prevention Department

The Infection Prevention department consists of 22 highly qualified individuals to implement the program. Certification in infection control is required for the Director and Associate Directors, and is encouraged for all Infection Preventionist staff.

1. Ten full-time nurses serve as Infection Preventionists (IPs). IP responsibilities include education, consultation, surveillance, implementation science, patient safety, and quality improvement. IPs are educated in infection surveillance, prevention, and control functions.
2. One full-time Business Intelligence Analyst with specialized training in surveillance and data analysis. Analyst responsibilities include analyzing, disseminating, and fulfilling requests for surveillance and infection-related process measure data.
3. One full-time Project Coordinator who is responsible for administrative duties, database management, and technical assistance in report and policy preparation.
4. One full-time Medical Technologist performs microbiological sampling of the hospital environment, assists in outbreak investigations as needed, and conducts research activities.
5. Two full-time Quality Improvement Senior Leaders provide oversight and organization of infection prevention efforts throughout the hospitals.
6. One full-time Compliance Specialist performs compliance audits of evidence-based infection prevention practices, provides education to ensure compliance, and provides support to Plant Engineering to ensure compliance with IP polices in construction and renovation projects.
7. One full-time Highly Communicable Disease (HCD) Preparedness and Response coordinator is responsible for coordinating and sustaining activities as they relate to HCD preparedness and response.
8. Two Public Health Epidemiologists (PHE) with specialized training in surveillance, data analysis, and reporting for both hospital and community infections. This person serves as the liaison for the health care system and the public health departments.
9. The leadership staff includes two Associate Directors who manage and participate in the day-to-day functions of the department and supervise the staff, and a Director and Medical Director who participate in prevention activities and oversee the Infection Prevention staff.

D. Program Responsibilities

1. **Monitor and disseminate infection-related data**
 - a. Maintain a surveillance system for evaluating, reporting, and maintaining records of ***healthcare-associated infections and related process measure data among patients.***

- i. Collect, analyze (i.e., trends and compare to benchmarks), and interpret infection data in order to identify areas for performance improvement and measure success of interventions.
 - ii. Collect, analyze, and interpret evidence-based process measures for preventing infections in order to identify areas for performance improvement and measure success of interventions.
 - iii. Disseminate these data, interpretations and recommendations, to the Hospital Infection Control Committee, service directors, nurse managers, and Performance Improvement who periodically reports this information to the Board of Directors. Additional details are below in the section "Hospital Infections Surveillance System".
- b. Maintain a surveillance system for **communicable disease exposures** among patients and healthcare personnel.
 - i. Report information about patient/HCP infections, as appropriate, to designated staff within the hospitals and to public health agencies for purposes of communicable disease control. Infection Prevention interacts with the local health department regarding infectious disease contacts that may need immediate community follow-up (e.g., tuberculosis, pertussis) and assists the health department with confirming cases that may have received care in the hospitals or clinics. Reportable diseases are those identified by the North Carolina Public Health Department and are listed in the Infection Prevention policy: [Reporting of Communicable Diseases](#).
 - ii. Collaborate with Occupational Health Service to evaluate employee infectious disease exposure and ensure appropriate management. Evaluation of HCP-related infections is monitored for clusters of infections as well as for compliance with the [Infection Prevention and Screening Program: Occupational Health Service](#) policy. Guidelines for this activity are included in Attachment 2 – Notification of Communicable Disease Exposure.
 - iii. Provide information to referring health care facilities of a healthcare-associated infection/communicable disease exposure that is not known at the time of referral or transfer.
 - iv. Use surveillance data to guide development of **annual infection prevention risk assessment** and inform annual infection prevention strategies and goals.

2. Develop, update, and implement evidence-based infection prevention policies and protocols to ensure the safety of our staff, patients, and visitors

- a. Regularly review existing **infection prevention policies** and develop new infection prevention policies as needed based on professional guidelines, applicable laws

and regulations, and available evidence. The policies address prevention of transmission of infection and environmental issues.

- i. Policies are reviewed and approved within a three year period with the exception of the Bloodborne Pathogens Exposure Control Plan, Tuberculosis Control Plan, and the Infection Prevention Plan which are reviewed annually.
- ii. Policies are updated more frequently if indicated by need, new guidelines, or regulations.
- iii. The Infection Prevention Plan and all infection prevention policies can be found on the UNCMC intranet through PolicyStat. This site is used to provide current policy information for all HCP at all times.

3. Provide education to empower the HCP workforce and patients to prevent HAI and protect themselves from communicable disease

- a. Develop and provide **orientation** to all new HCP as to the importance of infection control and their responsibility in the prevention of infection.
- b. Develop and provide **ongoing educational programs** for current HCP to ensure competent infection prevention practices.
 - i. Education is provided through a variety of methods to address the learning needs of the adult learner. These methods include "train the trainer" sessions, scheduled in-services, videos, posters, self-instructional materials, websites, computer-based self-tutorials, and newsletters.
 - ii. Educational programs are based upon practice or knowledge deficits identified through infection prevention rounds, supervisor requests, and everyday activities of the infection prevention staff. Learning objectives are designed to address the identified knowledge deficits and are based upon current guidelines, regulations, infection prevention policies, and other important issues (e.g., antibiotic-resistant organisms).
 - iii. Ongoing educational programs include but are not limited to: an Infection Control Liaison Programs, High Level Disinfection and Sterilization Training, and Unit/Program Specific Education

4. Promote continuous quality improvement by leveraging multidisciplinary workgroups to develop, implement, and share strategies to prevent HAI

- a. The Department, through its quality improvement leaders and in collaboration with other quality groups, oversees hospital-wide committees to work toward infection-related goals (e.g., reductions in catheter-associated urinary tract infections, central-line associated blood stream infections, surgical site infections, and *C. difficile* infections; improved hand hygiene).

- b. All department staff also co-lead or participate in unit and service line quality improvement initiatives.

5. **Conduct routine infection prevention compliance monitoring**

- a. Conduct **surveys/rounds** of inpatient units, procedural areas, ancillary support areas, and clinics to assess compliance with infection prevention policies and processes, and identify areas for improvement.
- b. Perform **microbiological surveillance** of the hospital environment as a measure of quality assurance.
 - i. Periodic cultures of duodenoscopes as well as water samples from dental carts and blood bank cryobaths
 - ii. Perform weekly biological monitoring of sterilizers in use at UNC outpatient clinics
 - iii. Assist in conducting outbreak investigations by performing environmental cultures, surveillance cultures, and PFGE
- c. Perform **environmental surveillance** of UNCMC renovation and construction projects.
 - i. Review renovation and construction design plans to ensure infection prevention considerations are included in design considerations.
 - ii. Review renovation and construction project plans to ensure that an infection control risk assessment is completed.
 - iii. Conduct routine rounding of active construction sites to ensure compliance with necessary prevention strategies based on the infection control risk assessment and identify areas of opportunity.

6. **Investigation, response to, and preparedness for infectious disease outbreaks and exposures**

- a. Provide **preparedness guidance** for an influx or anticipated influx of patients as a result of a bioterrorism event or infectious disease public health crisis.
- b. Investigate all potential **healthcare-associated infection outbreaks**.
 - i. Investigations are conducted using epidemiological methods and identification of infecting organism including genetic fingerprinting techniques.
 - ii. Infection Prevention personnel have direct access to administrative, medical, and nursing personnel with authority to direct changes in policy and procedure if necessary to achieve immediate control of the outbreak. Outbreak management involves unit leaders and/or directors to achieve maximum effectiveness.

- iii. Basic strategies to control outbreaks are instituted (e.g., isolation techniques, patient cohort, personnel, and environmental sampling) and amended as indicated by the investigation and ongoing surveillance.
- c. Conduct **special studies** associated with the prevention of healthcare-associated pneumonia with Legionella or environmental fungus.
 - i. An investigation will proceed if a laboratory confirmed case of healthcare-associated Legionnaires disease is identified (please refer to Attachment 5 – Prevention for Infection Surveillance and Interventions for Cases of Legionella Based on CDC Pneumonia Prevention Guideline). Prevention strategies for Legionellosis and other waterborne pathogens are addressed in the Infection Prevention policy: [Plant Engineering and Maintenance](#).
 - ii. For aspergillosis and other environmental fungal infections each case will be assessed and an investigation conducted if there is a suspicion of environmental exposure within the hospital.

7. Provide consultation to external departments regarding infection risk assessment, prevention, and control strategies

- a. Provide evidence-based guidance to Shared Services Center - Supply Chain on infection prevention concerns with new or current **products**.
- b. Identify and participate in **infection related sentinel event investigations** or relevant root cause analyses in collaboration with the Patient Safety Officer and Risk Management.
 - i. A healthcare-associated infection sentinel event is defined as an unanticipated death or a major permanent loss of limb or function where the predominant cause was a healthcare-associated infection.
 - ii. Infection Prevention follows the Accreditation policy: [Sentinel Events](#) and a department specific protocol for each investigation. This protocol is provided in Attachment 3 – Healthcare-Associated Infection Sentinel Events. Each investigation will be conducted to identify a root cause and analysis from which an action plan will be formulated for performance improvement.
- c. Provide consultation and support for **clinical research activities**. When infection data are used for any purpose other than internal performance improvement, the following requirements must be met by the principal investigator:
 - i. All research must comply with UNCMC guidelines on HIPAA and University guidelines on human subject research.
 - ii. Anyone using Infection Prevention (IP) data must have approval of the departmental Director, Medical Director, or Associate Directors, and

- IRB approval when warranted, and prior to receiving the dataset.
- iii. IP must review and approve an outline of the proposed research that includes: goals, hypothesis, predictors, and outcomes.
 - iv. All abstracts using IP data must be reviewed and approved by IP staff prior to submission. All papers using IP data must be reviewed prior to submission. All conclusions must be supported by the research data.
 - v. Appropriate credit should be given to any IP member who participates in the research.
 - vi. All research must be conducted with the highest scientific and ethical standards. Unless these standards are met, approval will not be given for dissemination of the data by any means (e.g., electronic, abstract, poster, peer-reviewed publication).

E. Hospital Infections Surveillance System

UNCMC surveillance is a comprehensive program that includes all inpatient and outpatient services as well as Continuing Care conducted on a continual basis for all specific types of infections per NHSN. Device-associated infection rates are calculated for ventilator-associated pneumonia, central line-associated primary bloodstream infection, and catheter-associated urinary tract infections. Procedure-related infection rates are calculated for surgery types as specified by the CDC NHSN criteria. The data are collected and statistical analysis is completed to determine rates of healthcare-associated infection, identify trends, benchmark with NHSN, and identify practice improvements that may contribute to infection prevention. The protocol is as follows:

1. Investigation is initiated for any patient who has a positive microbiology culture suggestive of a healthcare-associated infection or through retrospective surveillance reports. Infection Prevention staff are also notified about patients with suspected healthcare-associated infections by health care staff. Criteria for infections and mechanisms are described in the Infection Prevention policy: [Infection Prevention Guidelines for Continuing Care](#).
2. On the basis of medical record review a decision is made as to whether infection is present using NHSN criteria for healthcare-associated infections. The use of clinician veto and adjudication is not allowed.
3. If a definite infection is present per the NHSN surveillance criteria, pertinent information is documented using a standard case report form and the infection is classified as healthcare-associated.
4. Information collected on the data collection form in the electronic surveillance system is reviewed by the Associate Director to determine that the necessary information has been obtained to support the classification of a healthcare-associated infection. Complicated and questionable infections are submitted to CDC NHSN for their determination of whether criteria are satisfied.
5. Additional clinical or laboratory data will be obtained when necessary.

6. Infection data are reviewed daily to identify problems that may need intervention prior to the monthly analysis.
7. Data are analyzed and reported to the Hospital Infection Control Committee (HICC) and to the chairs of all clinical departments and service lines. Endemic rates of infections are monitored for all inpatient units and selected devices and procedures. Data are analyzed to identify effectiveness of prevention strategies and to detect the occurrence of any epidemic events. Surveillance for methicillin-resistant *S. aureus* (MRSA), vancomycin-resistant enterococcus (VRE), *C. difficile*, and other multidrug-resistant organisms (MDRO) of clinical relevance is evaluated as a percent of healthcare-associated infections caused by these organisms that were antibiotic resistant strains. An interpretation of the findings to include an assessment of cross-transmission, cluster of infections and relationship to confidence intervals is done and reported to the Hospital Infection Control Committee members. The IPs send a report of the monthly infections summary to include infection rates, type of infection, and organisms to the nurse managers and medical directors for each patient care unit. An explanation of the summary and recommendations for improvement is provided when indicated.
8. An investigation will be initiated whenever there is a potential healthcare-associated infection problem, such as when the incidence of infections is excessively high, a cluster of infections is detected, or a sentinel event is suspected. Definitive criteria do not exist which identify problems that require evaluation; however, the decision to investigate a potential problem will be made by the HICC or its designee (i.e., Director or Medical Director of Infection Prevention). Statistical guidelines (e.g., 95% confidence intervals, statistical significance when comparing endemic and epidemic rates) will be used to establish general thresholds for concern. Additionally, certain infections are so sufficiently important that the occurrence (e.g., group A streptococcus) of one or more healthcare-associated infections almost invariably suggest an infection problem and this may similarly call for an assessment. While each epidemiological study is different, the general approach that is used at UNCMC is described in several references (e.g., Wenzel, Bennett and Brachman). As part of the investigation, some carefully selected culture specimens may be obtained from persons or the inanimate environment. This will be done only in accordance with applicable law or regulation. The medical technologist in Infection Prevention will assist with the collections and interpretation of the laboratory data.
9. Surveillance activities for employee-related infections are conducted by the Occupational Health Service. These activities include evaluation of clusters of infections and follow-up for infectious disease exposure related events. A quarterly report of employee exposures, prophylaxis provided, and occurrence of disease is provided to the Hospital Infection Control Committee.

F. Infection Prevention Department Staff Meetings

These meetings are held weekly.

1. Review ongoing surveillance activities, discuss infection problems/issues, and report on committee updates.

2. Assess identified problems, assign responsible persons to evaluate problem, recommend corrective action and conduct outcome follow-up.
3. Disseminate minutes to Infection Prevention staff for review.

G. Hospital Infection Control Committee Meetings

These meetings are held monthly except for November.

The Hospital Infection Control Committee is responsible for the surveillance of healthcare associated infections and the promotion of a program designed to minimize, control, and prevent infection hazards in the health care setting. The Committee, after consultation with the applicable Department Chair, or his/her designee, and Hospital Administration, is authorized to institute any control and prevention measures or studies deemed appropriate to respond to any danger to patients, healthcare personnel, or visitors. Membership consists of at least five (5) representatives of the Medical Staff, the Hospital Epidemiologists, and one (1) representative each from the Department of Nursing, the Department of Pharmacy, Microbiology Lab, Antimicrobial Stewardship Program, Risk/Legal/Accreditation, Occupational Health Clinic, Environmental Services, Central Processing Department, and UNC Hospitals' Administration. The responsibilities of the Committee are as follows:

1. To oversee infection control and prevention in all settings of UNCMC including: inpatient areas, ambulatory areas, procedure rooms, operating rooms, delivery rooms, recovery rooms, and special care units.
2. To oversee and support activities directly related to infection prevention practices: cleaning, disinfection, and sterilization; hand hygiene; transmission-based precautions; antimicrobial stewardship; prevention of device-associated infections; and other situations as requested by the Medical Staff Executive Committee.
3. At least annually, to evaluate, revise as necessary, and approve the type and scope of surveillance activities by reviewing the following: data trend analysis generated by surveillance activities during the past year; effectiveness of prevention and control intervention strategies in reducing the healthcare-associated infection risks; services instituted; and procedures, priorities, or problems identified in the past year.
4. To approve the plan to be used in the annual evaluation of the program for infection surveillance, prevention, and control.

H. Communication



IV. Related Policies

[Accreditation Policy: Sentinel Events](#)

[Infection Prevention Policy: Infection Prevention Guidelines for Continuing Care](#)

[Infection Prevention Policy: Plant Engineering and Maintenance](#)

[Infection Prevention Policy: Reporting of Communicable Diseases](#)

[Occupational Health Services Policy: Infection Control and Screening Program: Occupational Health Service](#)

Attachments

[1: Responsibility and Scope of Service](#)

[2: Notification of Communicable Disease Exposure](#)

[3: Healthcare-Associated Infection Sentinel Events](#)

[4: Management of Communicable Disease Exposures at UNCMC - Contact of Exposed Persons Who are Not Inpatients of UNCMC](#)

[5: Prevention and Control of Healthcare-Associated Legionnaires Disease: Procedures for Infection Surveillance and Interventions for Cases of Legionella Based on CDC Pneumonia Prevention Guideline](#)

Approval Signatures

Step Description	Approver	Date
Policy Stat Administrator	Kimberly Novak-Jones: Nurse Educator	12/2022

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