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Policy Area Infection Prevention
Applicability UNC Medical Center

Bone Marrow Transplant (Hematopoietic Stem Cell Transplantation) and Cellular Therapy Patients

I. Description

Describes the infection control practices reducing infection risk for bone marrow transplant (hematopoietic stem cell transplant, HSCT) and cellular therapy (BMTCT) patients.

II. Rationale

Patients who have received a HSCT are highly immunosuppressed for 2-3 weeks or longer, depending on the type of HSCT received. Immunosuppression increases their risk of healthcare-associated infections. Patients who receive a cellular therapy product are also immunocompromised. This policy pertains to patients under the direct care of the adult and pediatric BMTCT teams.

III. Policy

A. Personnel

1. Health Care Personnel (HCP) should adhere to guidelines found in Infection Prevention policy: [Infection Control and Screening Program: Occupational Health Service](#).
 - a. Staff working in the protective environment with BMTCT patients are required to receive the inactivated influenza vaccine annually.
 - b. HCP who are not permanently assigned to work within the BMTU or 5 Children's Intermediate Care Unit but may provide care or enter the room of a BMTCT recipient and have received the live attenuated flu vaccine (FluMist Intranasal) should follow Bone Marrow Transplant and Cellular Therapy

policy: [Flu Vaccine Addendum for BMTCTP Recipients](#).

2. HCP should adhere to all personnel guidelines in the Infection Prevention policy: [Infection Prevention Guidelines for Adult and Pediatric Inpatient Care](#).
3. Hand hygiene will be performed in accordance with the Infection Prevention policy: [Hand Hygiene and Use of Antiseptics for Skin Preparation](#).
4. HCP should adhere to Infection Prevention policies: [Isolation Precautions](#), [Exposure Control Plan for Bloodborne Pathogens](#), and [Tuberculosis Control Plan](#).

B. Patients

1. Aseptic management of vascular access devices is critical to prevent infections. All IV catheters, tubing, pressure monitoring equipment and fluids will be managed and changed according to Infection Prevention policy: [The Prevention of Intravascular Catheter-Related Infections](#) and Nursing policy: [Central Venous Access Device \(CVAD\) Care and Maintenance](#).
2. Staff should follow Nursing policy: [Blood Cultures](#).
3. Inpatients placed on an Immunosuppressed Diet should have a diet consistent with the UNC Immunosuppressed Diet guidelines in Nursing policy: [Neutropenia](#). Outpatient diets should be per the appropriate BMTCT diet guidelines.
4. Each patient and their caregivers will be educated about personal hygiene and hand hygiene by nursing, licensed independent providers, and care coordinators.
5. All HSCT candidates and their caregivers should be educated regarding the importance of maintaining good oral and dental hygiene for at least the first year after HSCT to reduce the risk for oral and dental infections
6. Patients colonized or infected with multidrug resistant organisms will be placed on contact precautions per Infection Prevention policy: [Isolation Precautions](#).

C. Visitors

1. Families of patients may visit at the discretion of the medical and nursing staff in accordance with the Patient Care policy: [Hospital Visitation](#).
2. Visitors are expected to perform hand hygiene when entering and exiting the protective environment or a patient room, before and after patient contact, before entering common areas (e.g. nutrition rooms and lounges), and when hands are visibly soiled.
3. Visitors with signs or symptoms suggestive of communicable infection (e.g., fever, upper respiratory infection, or flu-like symptoms, diarrhea, vomiting) or recent known exposure to communicable infections (e.g., chickenpox, mumps, measles, pertussis)

should be excluded from direct contact with HSCT or cellular therapy recipients or candidates undergoing conditioning therapy. Ideally, staff should actively screen visitors daily.

4. Children under 2 years of age are not permitted to visit adult BMTCT patients in the patient care areas. They may be in the Family Lounge, but may not enter the BMTU. BMTU patients are prohibited from visiting the Family Lounge and other public hospital venues.
5. Children under 2 years of age are not permitted to visit pediatric BMTCT patients in the patient care areas. Pediatric BMTCT patients are not allowed to visit the general play area on 5 Children's Intermediate Care Unit.
6. All visitors must be able to follow appropriate hand hygiene and isolation precautions as listed on the isolation signs. Staff must educate patients and visitors regarding isolation precautions where applicable. It will be the responsibility of the nursing staff to educate the caregiver regarding appropriate Isolation Precautions and hand hygiene. It will be the responsibility of the medical staff to assist the nursing staff as necessary with patient and visitor/family education and enforcement of this policy.

D. Equipment

Shared equipment (e.g. lifts, glucometers) must be disinfected per Infection Prevention policy: [Infection Prevention Guidelines for Adult and Pediatric Inpatient Care](#). For guidelines on cleaning of other items such as toys, games, videos, and computers, refer to the Infection Prevention policy: [Diversional Supplies \(e.g., toys and books\)](#). For guidelines on cleaning equipment after use in an isolation room refer to Infection Prevention policy: [Isolation Precautions](#). Respiratory equipment will be managed by following Infection Prevention policy: [Respiratory Care Department](#).

E. Isolation Precautions

1. In the inpatient setting, it is the policy of UNC Medical Center that all healthcare personnel, visitors, and family members must comply with Isolation Precautions. For details regarding UNC Medical Center isolation policies refer to Infection Prevention policy: [Isolation Precautions](#).
2. Protective Precautions are to be initiated per provider discretion. Patient room door must remain closed to ensure positive pressure.
 - a. If a BMTCT patient on Protective Precautions must be transferred to a room that is not HEPA-filtered, a portable HEPA unit (from Patient Equipment) should be ordered and placed in their room, near the door, and run on "high." Ideally, the patient room door should remain closed.
 - b. A listing of rooms that are appropriate for placing patients who require protective Precautions without a portable HEPA unit can be found on the

[Infection Prevention intranet page.](#)

3. Airborne Infectious Diseases

- a. In accordance with the Infection Prevention policy: [TB Control Plan](#), patients requiring Airborne Precautions for known or suspected *Mycobacterium tuberculosis* will be relocated to an airborne infection isolation room (AIIR) meeting CDC recommendations for housing such patients. Anterooms should be used to ensure appropriate air balance relative to the Protective Environment and hallway. For details regarding Airborne Precaution policies and room management refer to the Infection Prevention policy: [Isolation Precautions](#).
 - b. Patients with shingles (herpes zoster) or chicken pox (varicella) should be housed in an AIIR on Airborne plus Contact Precautions.
 - c. A listing of rooms that are appropriate for placing patients who require protective Precautions without a portable HEPA unit can be found on the [Infection Prevention intranet page](#).
4. Inpatients and outpatients with symptoms of an upper respiratory infection (URI) will be placed on the appropriate isolation precautions until it is determined that the cause of symptoms is not an infectious agent that requires more than Standard Precautions. Once the diagnosis is confirmed follow the guidelines in Infection Prevention policy: [Isolation Precautions: Appendix 3: Quick Glance for Respiratory Virus Panel Isolation Precautions](#). Outpatients with URI symptoms should be given a surgical mask to wear until placed in a room.
5. In the BMT and Peds Hem/Onc Clinics, isolation precautions signs should be used for BMT patients with suspected or confirmed infections requiring precautions per Infection Prevention policy: [Isolation Precautions](#). The sign should remain in place until the patient has left and the room has been cleaned. Prior to placing another patient in the room all surfaces in the room, such as the exam table, will be wiped with an EPA-registered disinfectant or a bleach wipe for Enteric Precautions.
6. Clinic patients with possible communicable disease transmissible via the airborne route (e.g., shingles or chickenpox) should not wait in the waiting area; instead, they should be immediately placed in an AIIR. The tissue test should be used to test for negative pressure prior to placing the patient in an AIIR. After the patient leaves, the room should be left unoccupied with the door closed and the airborne isolation sign displayed for 30 minutes and the room cleaned prior to placing another patient in the room.

F. Environmental Controls

1. Ventilation will be consistent per Infection Prevention policy: [Plant Engineering and](#)

[Maintenance](#) for a protective environment in regards to filtration, pressurization and air exchanges. Patient room doors should be kept closed. All areas in the BMTU and the protective environment on 5HC are supplied with HEPA-filtered air. This system is maintained by Plant Engineering.

2. In the event of an air-handling unit system disruption continuously for greater than one hour, unit staff will place BMT patients in tight fitting surgical masks. Masks will remain on the patients for 30 minutes after the air handler has come back online. Plant Engineering will notify unit staff and Infection Prevention of outages that are anticipated to last past one hour in duration.
3. The patient room windows will always remain closed.
4. In the event of a water leak, patients should be removed from the area and Plant Engineering notified immediately for remediation. After remediation, Environmental Services should perform a terminal cleaning prior to placing patients in the area. Notify Infection Prevention as soon as feasible.
5. Construction, renovation, and repairs in, near, or impacting the BMTU, BMT Clinic, Pediatric Oncology Clinic, and 5 Children's Intermediate Care.
 - a. Occasionally Plant Engineering and other departments must enter ceiling tiles to perform installations, repairs or maintenance. The precautions for this type of work are located in the Infection Prevention policy: [Plant Engineering and Maintenance, Appendix 3, "Precautions for Patients in Clinical Areas Where Ceiling Work is Planned"](#).
 - b. Construction, renovation and repairs will be performed in accordance with the Infection Prevention policy: [Plant Engineering and Maintenance](#). Infection Prevention will work closely with Plant Engineering, contractors, clinic staff and HCPs working in these areas to ensure proper precautions are utilized to protect patients during these activities.
 - c. Staff should contact Infection Prevention for questions about ceiling work or other construction/maintenance activities.

G. Implementation

It is the responsibility of the Nurse Supervisors, Program Director, and Medical Directors of the Bone Marrow Transplant and Cellular Therapy Program to implement this policy. It is the responsibility of all HCP involved in the BMTU, 5 Children's Intermediate Care, BMT Clinic, and Pediatric Hematology/Oncology Clinic to adhere to this policy.

IV. Reference

CDC. Guidelines for Preventing Opportunistic Infections among Hematopoietic Stem Cell Transplant Recipients. MMWR 2000; 49 (No. RR-10): 1-125.

Yokoe, D., Caper, C., Dubberke, E., Lee, G., Munoz, P., Palmore, T., Sepkowitz, K., Young, J-AH., & Donnelly, J. (2009) Guidelines: Safe living after hematopoietic cell transplantation. Bone Marrow Transplant (44), 509-519.

V. Related Policies

[Bone Marrow Transplant and Cellular Therapy Policy: Flu Vaccine Addendum for BMTCTP Recipients](#)

[Infection Prevention Policy: Diversional Supplies \(e.g., toys and books\)](#)

[Infection Prevention Policy: Exposure Control Plan for Bloodborne Pathogens](#)

[Infection Prevention Policy: Hand Hygiene and Use of Antiseptics for Skin Preparation](#)

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

[Infection Prevention Policy: Infection Prevention Guidelines for Adult and Pediatric Inpatient Care](#)

[Infection Prevention Policy: Isolation Precautions](#)

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

[Prevention Policy: Respiratory Care Department](#)

[Infection Prevention Policy: The Prevention of Intravascular Catheter-Related Infections](#)

[Infection Prevention Policy: Tuberculosis Control Plan](#)

[Nursing Policy: Central Venous Access Device \(CVAD\) Care and Maintenance](#)

[Nursing Policy: Neutropenia](#)

[Patient Care Policy: Hospital Visitation](#)

Approval Signatures

Step Description	Approver	Date
Policy Stat Administrator	Kimberly Novak-Jones: Nurse Educator	03/2022
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