Bone Marrow Transplant (Hematopoietic Stem Cell Transplantation) Patients

I. Description

Describes the infection control practices to reduce infection risk for hematopoietic stem cell transplant (HSCT) patients

II. Rationale

Patients who have received a HSCT are highly immunosuppressed for 2-3 weeks or longer, depending on type of HSCT received. Immunosuppression increases their risk of healthcare-associated infections. This policy pertains to patients under the direct care of the adult and pediatric BMT 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. Bone Marrow Transplant Unit staff working in the Protective Environment are required to receive the inactivated influenza vaccine annually. HCP working on Inpatient BMTU who develop respiratory symptoms with or without fever should follow guidelines specific to the Protective Environment (BMTU) for Management of HCP with an Upper Respiratory Tract Infection in Infection Prevention Policy: Infection Control and Screening Program: Occupational Health Service.

   b. HCP who are not permanently assigned to work within the BMTU but may provide care or enter the room of a BMT recipient and have received the live attenuated flu vaccine (FluMist Intranasal) should follow BMT Policy: Flu Vaccine Addendum for BMT Recipients.

2. HCP should adhere to all personnel guidelines in the Infection Prevention Policy: Infection Control 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.

   a. Hand washing is the single-most critical and effective procedure for preventing healthcare-
associated infections. All persons, but particularly HCPs, should wash their hands before entering and after leaving the rooms of patients regardless of whether they were soiled from the patient, environment, or objects.


5. Infection control education, including OSHA-required education for bloodborne pathogens and TB, is completed annually via LMS.

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. Patients with central venous access devices and their caregivers will be educated by nursing regarding catheter care to prevent IV-related infections.

3. Daily CHG treatments with CHG-containing wipes should be performed in all ICUs, step-downs, and for in-patients with a central line in the adult oncology unit, adult bone marrow transplant unit, and on 5Childrens.

4. Staff should follow Nursing Policy: Blood Cultures.

5. 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 BMT diet guidelines.

6. Each patient and their caregivers will be educated about personal hygiene and hand hygiene by nursing, LIPs, and care coordinators.

7. 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.

8. 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 – Nursing Policy: Hospital Visitation.

2. All visitors for BMT patients must be taught principles and importance of hand hygiene while visiting or accompanying patients. Visitors are expected to perform hand hygiene when entering and exiting 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 recipients or candidate undergoing conditioning therapy. Ideally, staff should actively screen visitors daily.

4. Children under 2 years of age are not permitted to visit BMTU 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. 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. stethoscopes, glucometers) or other items such as toys, games, videos and computers must be disinfected per Infection Prevention Policy: Infection Control Guidelines for Adult and Pediatric Inpatient Care. 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 practiced for all bone marrow transplant recipients during the entire transplant hospital stay (see Infection Prevention Policy: Isolation Precautions). Patient room door must remain closed to ensure positive pressure.
   a. If a BMTU 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. NC Children's Hospital Rooms which are appropriate for placing patients who require Protective Precautions without a portable HEPA filter
      i. 5C07, 5C08, 5C10 through 5C24
      ii. 2C11, 2C12, 2C15 (PICU)

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 a negative pressure room 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 polices 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 a negative pressure room on **Airborne plus Contact Precautions**.

c. NC Children's Hospital Rooms which are appropriate for placing BMT patients with infections requiring airborne isolation

   i. 2C11, 2C12, 2C15 (PICU) with a portable HEPA unit in the ante room

   ii. 5C08 with portable HEPA unit in the ante room

   iii. 5C24

4. Inpatients and outpatients with symptoms of an upper respiratory infection (URI) will be placed on Droplet and Contact Precautions until it is determined that the cause of symptoms is not an infectious agent that requires more than Standard Precautions, OR until the patient is no longer infectious. Once the diagnosis is confirmed follow the guidelines in **Infection Prevention Policy: 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 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 hospital disinfectant (e.g., MetriGuard, Sani-Cloths, Oxivir TB) or a bleach wipe for Enteric Contact 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 a negative pressure room. The tissue test should be used to test for negative pressure prior to placing the patient in the room. 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 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 also Infection Prevention of outages that are anticipated to last past one hour in duration.

3. The patient room windows will remain closed at all times.

4. In the event of a water leak, patients should be removed from the area and the Plant Engineering notified immediately for remediation. After remediation, Environmental Services should perform a terminal cleaning prior to placing patients in the area. Notify the Infection Prevention Department as soon as feasible.
5. Nursing staff and Plant Engineering will coordinate to assure that maintenance activities (i.e., air filter changes) requiring the vacating of patient rooms are completed in a timely fashion.

6. 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 BMTU staff to ensure proper precautions are utilized to protect patients during these activities.
   c. BMTU/5Children's Intermediate Care 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 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


V. Related Policies

Infection Prevention Policy: Plant Engineering and Maintenance

Infection Prevention Policy: Isolation Precautions

Infection Prevention Policy: TB Control Plan

Infection Prevention Policy: Infection Control Guidelines for Adult and Pediatric Inpatient Care

Infection Prevention Policy: Respiratory Care Department

Patient Care – Nursing Policy: Hospital Visitation

Infection Prevention Policy: The Prevention of Intravascular Catheter-Related Infections

Nursing Policy: Central Venous Access Device (CVAD) Care and Maintenance

Nursing Policy: Blood Cultures
### Nursing Policy: Neutropenia

#### Approval Signatures

<table>
<thead>
<tr>
<th>Step Description</th>
<th>Approver</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Stat Administrator</td>
<td>Patricia Ness: Nurse Educator</td>
<td>04/2019</td>
</tr>
<tr>
<td></td>
<td>Thomas Ivester: CMO/VP Medical Affairs</td>
<td>04/2019</td>
</tr>
<tr>
<td></td>
<td>Emily Vavalle: Director, Epidemiology</td>
<td>04/2019</td>
</tr>
<tr>
<td></td>
<td>Sherie Goldbach: Infection Prevention Registrar</td>
<td>04/2019</td>
</tr>
</tbody>
</table>

#### Applicability

UNC Medical Center