



BMT (Bone Marrow Transplant) - Acute Care Elective

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Supporting Faculty:

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Duration: 4 Weeks

Site Description:

The inpatient BMT service manages admitted patients receiving stem cell transplants and acutely ill stem cell transplant recipients not currently undergoing stem cell transplant. While the inpatient BMT unit has up to 25 beds that may be shared with other services, the pharmacists are responsible for managing or co-managing pharmacotherapy for all patients admitted to the inpatient BMT service, regardless of physical location, including patients admitted to other areas of the hospital such as the intensive care unit.

Rotation Description:

The role of the BMT pharmacist includes ensuring the clinical appropriateness and safety of all medications prescribed for admitted patients, verifying the accuracy and appropriate dispensing of chemotherapy orders, performing medication reconciliation at admission and discharge, and educating patients on their medications every time they are discharged from the inpatient BMT service. Additional responsibilities include coordination of discharge medications, clinic follow up, and home health needs upon discharge; and writing daily parenteral nutrition orders using dietician macronutrient recommendations when available.

Role of the Pharmacist:

The pharmacists function in a decentralized capacity and work directly with BMT attending physicians, hospitalists, oncology fellows, physician assistants, nurse practitioners, nurses, medical assistants, as well as centralized pharmacists and pharmacy technicians to optimize pharmaceutical care of inpatient BMT patients. The pharmacist also works with the entire BMT program on updating standards of practice for all aspects of the BMT service, ensuring that standing orders for chemotherapy regimens are appropriate, and attending numerous multidisciplinary meetings including a weekly intake meeting where patients who will be admitted to the inpatient BMT service are discussed and planned for. The pharmacists also

participate in pharmacy department educational activities and meetings, as time allows, based on the needs of the inpatient BMT service. This is a 4-week elective experience for PGY1 residents.

Expectations of the Resident:

The pharmacy resident is responsible for identifying and resolving medication therapy issues daily with the BMT team and will work toward assuming care of all patients on the unit throughout the learning experience. The resident will provide therapeutic drug monitoring services for patients on their team including, but not limited to, immunosuppressants and antibiotics. The resident will be involved with admission medication reconciliation, discharge education, parental nutrition orders, and chemotherapy verification and other medication order-entry as applicable. Good communication and interpersonal skills are vital to success in this experience. The resident must devise efficient strategies for accomplishing the required activities in a limited time frame.

Typical Daily/Weekly/Monthly Activities:

Pharmacists start at 0730 with working up patients for daily rounds. Residents should arrive at approximately 0730, or earlier if additional time is needed to work up patients before rounds at 0930. Rounds typically last 2 to 4 hours, depending on the patient census and attending physician. Time after rounds is occupied by patient discharge and counseling, following up on planned interventions discussed in rounds, attending educational activities and meetings, entering chemotherapy orders, and topic discussions.

Expected progression of resident responsibility on this learning experience:

(Length of time preceptor spends in each of the phases will be customized based upon resident's abilities and timing of the learning experience during the residency training year)

Day 1: Preceptor will orient the resident and review learning activities and expectations.

Week 1: Resident to work up approximately 2-4 of the team's patients and present to preceptor daily. Preceptor to attend and participate in team rounds with resident, modeling pharmacist's role on the health care team.

Week 2: Resident to work toward working up about half of the team's patients and discuss problems with preceptor daily. Resident will be the pharmacist in charge of all the aspects of their respective patients care (making recommendations on rounds, medication order verification/review, counseling patients/families), with the preceptor available to assist as needed.

Weeks 3-4: Each week the resident is expected to take over more of the responsibility of the team's patients, continuing to discuss identified problems with preceptor daily. Ideally the resident will be able to round independently, and the preceptor will continue to assist the resident as the pharmacist on the team. At the end of the 4-

week rotation the resident should be able to successfully manage about 3/4 the patients on the BMT service.

(FIRST acute care rotation):

GOAL R1.1 In collaboration with the health care team, provide safe and effective patient care to a diverse range of patients, including those with multiple co-morbidities, high-risk medication regimens, and multiple medications following a consistent patient care process

- OBJ R1.1.1 Interact effectively with health care teams to manage patients' medication therapy
- OBJ R1.1.2 Interact effectively with patients, family members, and caregivers
- OBJ R1.1.4 Analyze and assess information on which to base safe and effective medication therapy
- OBJ R1.1.5 Design or redesign safe and effective patient-centered therapeutic regimens and monitoring plans (care plans)
- OBJ R1.1.7 Document direct patient care activities appropriately in the medical record or where appropriate
- OBJ R1.1.8 Demonstrate responsibility to patients

GOAL R1.2 Ensure continuity of care during patient transitions between care settings

- OBJ R1.2.1 Manage transitions of care effectively

GOAL R3.1 Demonstrate leadership skills

- OBJ R3.1.1 Demonstrate personal, interpersonal, and teamwork skills critical for effective leadership

GOAL R4.1 Provide effective medication and practice-related education to patients, caregivers, health care professionals, students, and the public

- OBJ R4.1.1 When engaged in teaching, select a preceptor role that meets learners' educational needs

Activities Evaluated:

Rotation Activity	RLS Objective	Teaching Methods
Work up and/or follow a minimum of 5 of the admitted patients each day, depending on patient load and the resident's comfort level with BMT practices.	R1.1.4-5	IMCF
Attend and participate in daily inpatient rounds.	R1.1.1 R1.1.8	IMCF
Interact daily with physicians, nurse practitioners, nurses, medical assistants, other pharmacy personnel, and patients to resolve medication-related problems for these patients.	R1.1.1 R1.1.2 R.3.1.1	IMCF
Lead presentations on medication-related topics of the inpatient BMT team's choosing (if applicable).	R3.1.1	CF
Lead 5 discussions with preceptors on a variety of BMT topics.	R1.1.4 R4.1.1	CF
Give 5 formal and/or informal patient presentations to the preceptors.	R1.1.4-5	CF
As appropriate inform the clinic pharmacist of follow up items from inpatient discharge	R1.1.1 R1.2.1	MCF
Respond to drug information requests from the providers and nurses	R1.1.4	MCF

Verify and enter orders for 2 chemotherapy regimens, which will be double-checked by the pharmacist preceptor and an additional pharmacist.	R1.1.4 R1.1.8	IMCF
Assist in 5 patient's medication reconciliation at admission and discharge (if patient load allows), patient education at discharge, and maintaining accurate patient medication lists for the patients and BMT service providers.	R1.1.2 R1.1.7 R1.1.8	IMCF
The resident will complete one project while on rotation with the inpatient BMT service. The choice of project will depend on the interests of the resident and the needs of the BMT program. If the preceptor is working on a project of interest to the resident, they would be able to assist in that endeavor.	R3.1.1	CF
Use and incorporate feedback from preceptors to continuously improve performance on the rotation	R3.1.1	CF

Teaching Methods include: I=direct instruction, C=coaching, M=modeling, and F=facilitation

Readings and Preparatory Work:

Topic discussion and reading suggestions will be provided to the resident upon starting the rotation. Topic discussions will occur 1-2 times per week. When more than one learner is on rotation at a given time, they will alternate leading the discussions but all involved should be capable of leading or taking over a discussion as much as possible.

Possible topics:

- HSCT Basics
 - Allo vs, Auto
 - Stem cell sources
 - Conditioning Regimens
 - Myeloablative vs. Nonmyeloablative
 - Chemotherapy dosing in obese patients
- Infection Prophylaxis/Neutropenic Fever
- Graft versus host disease
 - Prophylaxis
 - Acute Treatment
 - Chronic treatment
- Oncologic Emergencies
- Drug Interactions
- Pulmonary Complications/Critical Care Considerations
- Chemotherapy Induced Nausea & Vomiting
- Oral Complications/mucositis
- GI Complications
- VOD/SOS
- Infections
 - Fungal
 - Viral (CMV)
 - Infections prior to engraftment

Evaluations:

Residents will receive daily feedback from the inpatient pharmacist regarding their knowledge, skills and abilities. A short summative evaluation will be recorded in PharmAcademic at the midpoint of the rotation. At the end of each rotation, the resident will self-evaluate, the preceptor will evaluate the resident, and the resident will evaluate both the preceptor and the learning experience.