Hospital and Department Overview

Brigham and Women’s Hospital, located in Boston’s Longwood Medical Area, is a 793-bed nonprofit teaching affiliate of Harvard Medical School and a founding member of Partners HealthCare, Inc. BWH has consistently been named one of the best hospitals in the United States by US News & World Report’s Honor Roll of America’s Best Hospitals. The Department of Pharmacy provides services to inpatient, outpatient, and satellite clinic locations throughout the Metro Boston area. The department is regarded as an innovator and leader in medication safety technology, clinical information systems, and clinical pharmacy services at the local and national level.

Accreditation

- ASHP-accredited residency

Duration

- July 1st – June 30th

Positions available

- 4 U.S. positions, 2 International positions

Stipend

- ~$54,000

Benefits

- Accrued benefit time
- Health, dental, vision, and life insurance
- 403(b) retirement plan
- Travel Stipend
Program Overview

Philosophy

Brigham and Women’s Hospital’s residency training program provides organized and directed pharmacy training in tertiary academic medical center. The program centers on creating a caring and compassionate environment that promotes respect and dignity for every person. The program develops the knowledge and skills of the resident in various areas including: medication therapy management, leadership, communication, practice management, critical thinking, time management, clinical research, and teaching. The program offers the resident the opportunity and stimulus to develop, to the highest degree obtainable, his/her professional expertise as a practitioner.

A Brigham resident is a pharmacist, first and foremost, and is expected to contribute to the achievement of the Department of Pharmacy’s mission and vision statement, as well as the annual strategic plan. This will be achieved through participation in designated residency projects, activities, and successful completion of the program objectives.

Efforts to provide optimal training and guidance for the resident will be extended whenever possible to the mutual satisfaction of the resident and the preceptor teams. A demonstrable desire to learn, a sincere career interest in pharmacy practice, and a dedication to fully meeting all objectives and requirements of the residency program are expected of the resident.

Purpose

The purpose of this program is to train highly motivated pharmacists to develop skills in clinical service, teaching, research, and leadership. Graduates will be prepared to enter practice as pharmacist clinicians in a variety of patient care settings or a specialty of their choosing.

Educational Outcomes

Through the completion of the education goals and objectives, a resident will meet the following six (6) educational outcomes:

- Manage and improve the medication use process
- Provide evidence-based, patient centered medication therapy management with interdisciplinary teams
- Exercise leadership and practice management skills
- Demonstrate project management skills
- Provide medication and practice-related education/training
- Utilize medical informatics
- Develop independent learning skills
Program Structure

Rotations

A minimum of 2,000 hours of contact time, extending over a minimum period of 50 weeks, provides for the achievement of the residency goals.

Diverse rotations in many areas of specialization offer experience in the provision of adult patient-centered care. The scheduling of resident rotations includes a combination of required and elective rotations to ensure that the resident is exposed to a variety of patient populations, medications, disease states, range of complexity, and interdisciplinary team members. No more than three months of the program can be with a specific patient population or practice area. Residents will be allowed time in the various areas as the schedule permits. Certain learning activities, such as allergy and the hemostatic antithrombotic stewardship program, are reserved for PGY2 residents only or may be considered at the end of the PGY1 year as an elective with approval from the coordinators and rotation preceptor. The standard length of time for a learning experience is four (4) weeks. The seven (7) learning experiences listed below comprise the required residency experiences for the program. See below for additional information on specific rotation sites.

<table>
<thead>
<tr>
<th>Required PGY1 Learning Activities*</th>
<th>Elective Learning Activities</th>
<th>Longitudinal Activities</th>
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<tr>
<td>• Ambulatory (one of the following): o South Huntington o Jen Center o 800 Huntington</td>
<td>• Ambulatory – Pain Management Clinic • Critical Care (up to two of the following) o Medical ICU o Surgical ICU o Burn Trauma ICU o Thoracic ICU o Neuroscience ICU o Coronary Care ICU o Cardiac Surgery ICU o Neonatal ICU • ELEC – Hematology/Oncology o Hematologic Malignancy o Hematopoietic Stem Cell Transplant • ELEC – Solid Organ Transplant o Kidney o Cardiovascular o Thoracic • ELEC – Emergency Medicine • ELEC – Investigational Drug Service • ELEC – Center for Drug Policy</td>
<td>• Research project • Service Commitment (staffing) • Aminoglycoside Program • Committee Membership • Student Precepting</td>
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<tr>
<td>• AMS- Anticoagulation Management Service</td>
<td>• ELEC – Hematology/Oncology o Hematologic Malignancy o Hematopoietic Stem Cell Transplant</td>
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<td>• Cardiology (one of the following) o Heart Failure o General Cardiology (B1/B2) o Coronary Care ICU</td>
<td>• Ambulatory – Pain Management Clinic • Critical Care (up to two of the following) o Medical ICU o Surgical ICU o Burn Trauma ICU o Thoracic ICU o Neuroscience ICU o Coronary Care ICU o Cardiac Surgery ICU o Neonatal ICU • ELEC – Hematology/Oncology o Hematologic Malignancy o Hematopoietic Stem Cell Transplant • ELEC – Solid Organ Transplant o Kidney o Cardiovascular o Thoracic • ELEC – Emergency Medicine • ELEC – Investigational Drug Service • ELEC – Center for Drug Policy</td>
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<td>• Critical Care (one of the following) o Medical ICU o Surgical ICU o Burn/Trauma ICU</td>
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<td>• General Medicine • Infectious Disease • Pharmacy Administration and Leadership</td>
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*Unless otherwise approved by RAC; ELEC = elective

See below for additional information on specific rotation sites
Research

Research projects are selected during the orientation process with the purpose to benefit the department and add experiential value to the resident. Individual preceptors provide guidance, instruction, and feedback regarding research methodology to the resident throughout the year.

The research product undertaken will be suitable quality for publication in peer-reviewed journals, presentation at major scientific meetings, and the Eastern States Pharmacy Resident Conference.

Other research opportunities may present themselves throughout the residency year and include but not limited to case reports, review articles, and quality improvement projects.

Staffing

Each resident is required to staff every other weekend and one evening shift every two weeks. Staff holidays are scheduled on a rotating basis and in accordance with departmental needs and policy. Additional staffing responsibilities are subject to departmental needs.

Presentations

In addition to the formal residency project presentations, each resident will have the opportunity for many formal and informal presentations throughout the year. Rotation specific presentations include department education at the daily clinical staff meeting, journal clubs and watches, and topic discussions. A formal case conference is completed during the first half of the residency year and provides a setting for staff education in a didactic lecture setting. A formal continuing education based upon ACPE education gaps will help the resident gain experience in teaching and the associated process.

Chief Resident

The Chief Resident schedule is assigned at the beginning of the year. This is a rotating position that has a month-long commitment. Responsibilities include acting as a liaison between residency leadership and the residents, aiding with pertinent scheduling, and taking minutes at the biweekly resident/coordinator meeting.

Drug monitoring programs

The aminoglycoside program is a resident run monitoring program that works to ensure safe and effective therapy for any patient receiving an aminoglycoside. The program is a part of the department training and orientation. PGY1 residents perform the daily workup of patients with oversight from PGY2 residents and attending pharmacists.

Other drug monitoring services include BWH’s Inpatient Orthopedic Anticoagulation Management Service, Heart Failure Infusion Clinic, and pharmacy stewardship programs.
Academia

Teaching is a strong component for personal development and contributing to pharmacy practice. Residents will be required to complete a teaching certificate program offered by Northeastern University. Additionally, preceptorship to introductory and advance pharmacy practice experiences occurs throughout the year. Residents are expected to orient all pharmacy students that are rotating through the hospital.

Committee membership

All residents will be assigned 1-2 committees. Membership and active participation will foster interdisciplinary and interdepartmental working relationships, teach organization and management skills, and introduce the resident to the working structure of the hospital.

Current Residents

Bashayer Alshehri, PharmD

Bashayer Alshehri is originally from Riyadh, Saudi Arabia. She received her Bachelor of Science in Pharmaceutical Science degree from King Saud University and her Doctor of Pharmacy degree from the University of Illinois at Chicago. Her practice interests include infectious disease and hematology/oncology. In her spare time, she enjoys exploring the city, going to museums and theaters, and trying new restaurants. Upon completion of her PGY-1 residency, she plans to pursue a PGY-2 in one of her practice interests.
Reem Alsultan is originally from Riyadh, Saudi Arabia. She received her Bachelor of Science degree in Pharmaceutical Science from King Saud University and her Doctor of Pharmacy degree from the University of Illinois at Chicago. Her practice interests include emergency medicine, critical care, and cardiology. In her spare time, she enjoys make up, fashion and traveling. Upon completion of her PGY-1 residency, she plans to pursue a PGY-2 residency in emergency medicine.

**Reem Alsultan, PharmD**

Nicholas Hunt is originally from Chicago, Illinois. He studied chemical engineering at the University of Kentucky and received his Doctor of Pharmacy degree from the University of Minnesota. His practice interests include critical care and emergency medicine. In his spare time, he enjoys traveling, watching Kentucky basketball, and catching up on sleep. Upon completion of his PGY-1 residency, he plans to pursue a PGY-2 residency in critical care or emergency medicine.

**Nicholas Hunt, PharmD**

Catherine Li is originally from Seattle, Washington. She received her Bachelor of Science in Pharmacy Studies and Doctor of Pharmacy degrees from Northeastern University. Her practice interests include critical care and infectious disease. In her spare time, she enjoys exploring the city, watching Netflix series, and trying new restaurants and bakeries. Upon completion of her PGY-1 residency, she plans to pursue a PGY-2 residency in infectious disease.

**Catherine Li, PharmD**

Brian Schuler is originally from Cleveland, Ohio. He received his Doctor of Pharmacy degree from the University of Findlay. His practice interests include infectious disease and critical care. In his spare time, he enjoys running, finding new bands at concerts, and traveling. Upon completion of his PGY-1 residency, he plans to pursue a PGY-2 in critical care.

**Brian Schuler, PharmD**
Clara Ting is originally from Indianapolis, Indiana. She received her Bachelor of Science in Pharmacy Studies and Doctor of Pharmacy degrees from Northeastern University. Her practice interests include cardiology, critical care, and research. In her spare time, she enjoys traveling, baking, and going to Red Sox games. Upon completion of her PGY-1 residency, she plans to pursue a PGY-2 residency in cardiology.

Clara Ting, PharmD

Lena Tran is originally from Tampa, Florida. She received her Bachelor of Science in Pharmacy Studies and her Doctor of Pharmacy degree from Northeastern University. Her clinical interests include emergency medicine and critical care. In her spare time, she enjoys listening to music, watching sports, and taking road trips. Upon completion of her PGY-1 residency, she plans to pursue a PGY-2 residency in one of her interest areas.

Lena Tran, PharmD

Sara Zekery-Saad is originally from Cairo, Egypt and grew up in Abu Dhabi, United Arab Emirates. She received her Bachelor of Science in Pharmacy Studies and Doctor of Pharmacy degree from Northeastern University, Boston, MA. Her clinical interests include infectious disease, cardiology and transitions of care. In her spare time, she enjoys traveling, meeting new people, and trying new restaurants. Upon completion of her PGY-1 residency, she plans to pursue a PGY-2 residency in one of her interest areas.

Sara Zekery-Saad, PharmD

Residency Program Director

John Fanikos earned his Bachelor of Science degree in Pharmacy at Massachusetts College of Pharmacy and his Master of Business Administration degree at Northeastern University. Before becoming Executive Director of Pharmacy Services, John served in a multitude of roles while at BWH including investigational drug pharmacist, inpatient and outpatient pharmacy supervisor, clinical preceptor, and pharmacy administrator. He continues to contribute to the progression of the pharmacy profession by being actively involved in patient care initiatives, precepting students and residents, and as a researcher.

John Fanikos, RPh, MBA

Executive Director of Pharmacy Services
Rotation Descriptions

**Medical Intensive Care Unit**

Preceptors: Jeremy Degrado, PharmD, BCPS, BCCCP; Kevin Dube, PharmD, BCPS, BCCCP

This is a 4 to 6 week rotation that focuses on the overall pharmacological care of critically ill medical patients. The Pulmonary and Critical Care Medicine Division at Brigham and Women's Hospital is a world leader in clinical and academic respiratory disorders. There are two, 10-bed medical intensive care units (ICUs) at BWH, each with a multidisciplinary team consisting of ICU attendings, pulmonary fellows, medicine residents and interns, critical care nurses, and clinical pharmacists. Throughout this rotation, the resident will be involved in all aspects of patient care in the medical ICU. Time will be spent rounding on a daily basis with the MICU pharmacist, developing a daily pharmacological care plan for each patient in the MICU, answering drug information questions, working on clinical and quality improvement research, and learning how to effectively utilize and critique primary literature.

**Burn-Trauma Intensive Care Unit**

Preceptor: Krystina Geiger, PharmD, BCPS, BCCCP

This 4 to 6 week rotation focuses on the overall pharmacological care of critically ill trauma, burn and surgical patients. The resident is expected to be involved in all aspects of patient care in the ICU. Time will be spent developing a pharmacological care plan for every patient, participating in daily rounds, providing education and drug information to the ICU team, contributing to clinical and quality improvement research, and learning how to effectively evaluate and utilize primary literature. At the conclusion of the rotation, the pharmacy resident should be able to actively participate in the pharmaceutical care of trauma, burn, and surgical ICU patients and effectively communicate with the ICU team and nursing staff to optimize medication use.

Surgical Intensive Care Unit Pharmacy
Preceptors Becca Nashett, Krystina Geiger, and Gaspar Hacobian
Emergency Medicine

Preceptors: Sarah Culbreth, PharmD, BCPS; Dave Nickerson, PharmD

The Emergency Medicine rotation is a 4-6 week learning experience for PGY1 Pharmacy practice residents. The rotation involves the provision of pharmaceutical care for patients in Emergency Departments. The emergency department at BWH has 55 beds, carries a level one trauma designation, and serves over 60,000 visits annually. The Emergency Medicine team consists of attending physicians, resident physicians, nurses, and clinical pharmacists. The resident is exposed to a variety of patients and disease states and is expected to provide active pharmaceutical care under the ED pharmacist. Goals of the rotation are tailored to each individual resident dependent on needs and interests. Residents may participate in the care of patients with cardiovascular emergencies including cardiac arrest, neurologic emergencies including stroke, toxicology emergencies, pulmonary emergencies, infectious processes, and many non-emergent patient care topics. Residents will be interacting with nurses, physicians, physician assistants, and students daily during the rotation. Residents will have opportunity to verify physician orders, participate in research, precept students, participate in discharge patient education as requested, answer consult requests from providers, provide in-services, and present pertinent patient cases during BWH pharmacy department clinical meetings.

Infectious Disease

Preceptors: Brandon Dionne, PharmD; Jeff Pearson, PharmD

The infectious disease rotation focuses on critically ill patients with severe bacterial, viral, and/or fungal infections. Time will be spent rounding on a daily basis with the infectious disease consult service, answering drug information questions, learning how to effectively utilize and critique primary literature, and attending infectious disease clinical conferences. At the conclusion of the rotation, the pharmacy resident should feel comfortable dealing with the medical treatment and management of these unique patient populations.

Emergency Medicine Pharmacy Preceptors
David Nickerson and Sarah Culbreth
Abdominal Transplant

Preceptor: Steve Gabardi, PharmD, FCCP, BCPS

Brigham and Women’s Hospital is a recognized leader in transplant services. The Kidney Transplant Program at Brigham and Women’s Hospital is the oldest established renal program in the country. The first identical twin kidney transplant was performed here in 1954 by Dr. Joseph Murray, who was later awarded the Nobel Science Prize for his pioneering work with immunosuppressants. Pre and post kidney transplant care is provided by a multidisciplinary team of specialists. The resident provides consultative services to physicians, physician’s assistants, nurses, care coordinators, and other healthcare personnel in both inpatient and outpatient renal/pancreas transplant patient care areas. The resident will have responsibilities to both the transplant services and the pharmacy. The resident will be working in the inpatient and outpatient settings with the transplant teams. Within each clinical setting, the resident is responsible for documentation of the cost-effectiveness and quality of his/her therapeutic interventions.

General Medicine

Preceptors: Kevin Day, PharmD; Christine Gillis, PharmD; Gretchen Stern, PharmD, BCPS; Alka Vaidya, PharmD, BCPS

The General Medicine Service (GMS) rotation is a 4-6 week learning experience for PGY1 residents. The goal of the experience is to increase the resident’s knowledge and skills in general medicine and therapeutics. The resident plays a role in optimizing outcomes of internal medicine patients by providing evidence-based medication therapy as an integral part of an interdisciplinary team. The GMS team is comprised of an attending physician, 2 residents, 2 interns, a medical or international student, a care coordinator, and the clinical pharmacist. The resident participates in the care of patients with a wide range of diseases (asthma, diabetes, chronic obstructive pulmonary disease, cirrhosis, hypertension, and hypercholesterolemia). Residents assist in the optimization of medical therapy for all patients on the medical team and provide educational topic presentations for the group as needed. General medicine residents also play a role in obtaining accurate medication histories, medication reconciliation, and medication counseling for patients as needed. They will also precept general medicine students during the rotation. The resident’s knowledge and skills are enhanced by successful completion of the rotation objectives, daily activities, therapeutic discussions, patient case discussions, topic presentations, journal clubs, and research and writing opportunities.
Acute Care Cardiology – Coronary Care Unit

Preceptors: Bryan Cook, PharmD, BCPS; Danielle Knowles, PharmD, BCPS, CACP

The Cardiac Intensive Care Unit (CCU) rotation is a 4-6 week learning experience for pharmacy practice residents. The goals of the experience are to integrate and apply the principles of therapeutics, clinical pharmacology and pathophysiology of disease processes in the management of patients with cardiovascular disorders and to enhance oral and written communication skills with multidisciplinary health care professionals. The CCU team is comprised of an attending physician, a fellow, 2 residents, 4 interns, and the clinical pharmacist. The pharmacy resident participates in the care of patients with acute myocardial infarction, cardiogenic shock, heart failure, arrhythmias, pulmonary hypertension, and more. Residents assist in the optimization of medical therapy for all patients on the medical team and provide educational topic presentations for the group as needed. They will also assist in precepting cardiology students during the rotation. The resident’s knowledge and skills are enhanced by successful completion of the rotation objectives, daily activities, therapeutic discussions, patient case discussions, topic presentations, journal clubs, and research and writing opportunities.

General Cardiology (B1/B2) Rotation

Preceptors: Jillian Dempsey, PharmD, BCPS; Ken Lupi, PharmD, BCPS; Megan Rhoten, PharmD, BCPS

The General Cardiology rotation is a 4-6 week learning experience for pharmacy practice residents. The goal of the experience is to increase the resident’s knowledge and skills in cardiovascular disease and therapeutics. The cardiology team is comprised of an attending physician, a fellow, 1-2 residents, 2 interns, a medical or international student, and the clinical pharmacist. The resident participates in the care of patients with coronary artery disease (acute myocardial infarction, unstable angina, stable angina) and heart failure. Residents are also exposed to a variety of other cardiovascular disease states including but not limited to atrial fibrillation and flutter, ventricular arrhythmias, hypertension, and hypercholesterolemia. Residents assist in the optimization of medical therapy for all patients on the medical team and provide educational topic presentations for the group as needed. They will also precept cardiology students during the rotation. The resident’s knowledge and skills are enhanced by successful completion of the rotation objectives, daily activities, therapeutic discussions, patient case discussions, topic presentations, journal clubs, and research and writing opportunities.
Cardiology – Heart Failure

Preceptor: Judy Cheng, PharmD, MPH, FCCP, BCPS

The Heart Failure Rotation is a 4 week learning experience for pharmacy practice residents. The rotation involves the provision of pharmaceutical care for patients on the inpatient Heart Failure service. Residents will become familiarize with the pathophysiology and pharmacotherapy of heart failure as well as cardiac hemodynamics. The inpatient Heart Failure team consists of one attending physician, one cardiology fellow specializing in heart failure, one medical resident, two medical interns, a nurse practitioner and the clinical pharmacist. The pharmacy resident will have the opportunity to provide care to patients with decompensated heart failure, those with end-stage heart failure waiting for heart transplant, and those who develop post heart transplant complications. The residents will be interacting with members of the team to facilitate medication use for patients and to provide drug information as requested. Residents will also have the opportunity to co-precept pharmacy students and provide therapeutic topic discussion to the team and to the pharmacy department. If interested, the resident will also be provided the opportunity to submit manuscript for publication.

Cardiac Surgery

Preceptor: Rhynn Malloy, PharmD, BCPS

The Cardiothoracic Surgery ICU (CS-ICU) rotation is a four week learning experience at Brigham and Women's Hospital. The purpose of the Cardiac Surgery rotation is to increase the resident’s knowledge base and pharmacotherapeutic skills while enhancing care for cardiac surgery patients. To that end, the resident will develop pharmacotherapeutic skills in the identification and resolution of drug therapy problems in an acutely ill patient population. During this rotation, the resident is expected to follow and directly participate in the comprehensive care of all patients covered by the rounding team. The resident is expected to interact with members of the medical team, including attending physicians, resident and fellow physicians, nurses, dieticians, respiratory therapists, social workers, and translators as necessary to fulfill patient care and rotation responsibilities. 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.
Administration, Leadership, Medication Safety

Preceptor: Caryn Belisle, PharmD; Tim Clouser, MBA, CRA; Tom Cooley, Rph, MBA; Mike Cotugno, Rph; Heather Dell’Orfano, PharmD, BCPS, CACP John Fanikos, Rph, MS; Lina Matta, PharmD, MPH, BCPS

The pharmacy leadership rotation is aimed at exposing the resident to pharmacy leadership through direct interaction with the executive director of pharmacy services. The resident will gain knowledge and insight on the broad scope of pharmacy leadership practice through interactive discussion with the director, attendance at daily activities, committee meetings, and meetings with senior executives from BWH as well as outside entities and corporations. In addition, the resident will be exposed to a great deal of confidential information regarding pharmacy business performance, human resource management, strategic planning, innovation, mentoring and coaching, and compliance management. Also, the resident will get actual hands on participation in projects and tasks normally undertaken by the executive director or his/her designees. The pharmacy resident will also prepare two 30 minute oral presentations on leadership topics as assigned by the executive director.

Ambulatory Anticoagulation Management Service

Preceptor: Katelyn Sylvester, PharmD, BCPS, CACP; Andrea Lewin, PharmD

This 4 to 6 week rotation focuses on inpatient and outpatient anticoagulation management services (AMS). Throughout this rotation, the resident will be involved in all aspects of anticoagulation management. Time will be spent evaluating patients’ anticoagulation management plan, developing an anticoagulation management plan, discussing recommendations with patients, providing education and drug information to new anticoagulation management patients, contributing to clinical and quality improvement research, and evaluating primary literature and current clinical practice guidelines as they apply to anticoagulation patients. At the conclusion of the rotation, the pharmacy resident should be able to actively develop an anticoagulation management plan of AMS patients and effectively communicate with patients to ensure safe and optimal medication use.

Cardiology Pharmacy Preceptors Danielle Knowles, Brian Cook, and Rhynn Malloy
**Thoracic Intensive Care Unit**

Preceptor: Gaspar Hacobian PharmD

The Thoracic Intensive Care Unit is a ten-bed unit specialized in caring for post-surgical thoracic patients. This includes patients with lobectomy, pneumonectomy, extrapleural pneumonectomy, and lung transplantation. The ICU team is comprised of an attending, two fellows (anesthesia, pulmonary, or surgical), two anesthesia residents, one surgical resident, and a clinical pharmacist. The pharmacy resident's responsibilities in the course of four to six weeks include participation on daily rounds, development of a pharmacological care plan for all the patients, presentations to the pharmacy staff, and providing educational material for the ICU team. The objective of the rotation is made to fit each resident based on his or her interests, but will also include major topics in intensive care and all aspects of post-surgical thoracic patient care. Residents will have the opportunity to participate in research and to co-precept pharmacy students during their clinical rotation.

**Hematology/Oncology and Hematopoietic Stem Cell Transplant**

Preceptor: Anne McDonnell PharmD, BCPS, BCOP; Daniel Voit, PharmD

The Hematology/Oncology rotation is a four to six week learning experience for pharmacy practice residents. The rotation involves the provision of pharmaceutical care for patients admitted to the hematology/oncology services at Brigham and Women's Hospital, which includes the Dana Farber/Brigham and Women's Cancer Center (DFBWCC). The DFBWCC has 120 beds dedicated to the management of patients with a hematologic or oncologic diagnosis. In all, there are eight medical teams that service patients admitted to the hematology/oncology and hematopoietic stem cell transplant services. Medical teams are composed of an attending physician and either house staff physicians or physician assistants. Goals of the rotation are tailored to each individual resident dependent on needs and interests. The resident is exposed to a variety of patients and disease states depending on rotation. The resident is expected to provide active pharmaceutical care under the oncology pharmacist. Residents are expected to integrate into the medical team, participate in daily rounds, and assist in the supportive care of patients. Additionally, residents may have the opportunity to review orders, participate in research, precept students, and participate in discharge counseling as requested. Residents will also be expected to present at clinical staff meetings, in-service members of the medical and nursing team, and participate in weekly topic discussions when appropriate.
**Neuroscience Intensive Care Unit**

Preceptor: Patricia Krause PharmD, BCPS

The Neuroscience Intensive Care Unit rotation is a 4-6 week learning experience for pharmacy practice residents. The rotation involves provision of pharmaceutical care for patients in the Neuroscience ICU. The Neuroscience ICU at BWH has 20 beds, consisting of mixed Neurology and Neurosurgical services. The Neurology team consists of one attending, one fellow, 2 residents, one nurse practitioner, and the clinical pharmacist. The Neurosurgical team consists of one attending, one fellow, nurse practitioner, and an intern, and a clinical pharmacist. The resident is exposed to a variety of patients and disease states and is expected to provide active pharmaceutical care under the neuroscience pharmacist. Goals of the rotation are tailored to each individual resident and depend on needs and interests. Residents may participate in care of patients with ischemic or hemorrhagic stroke, meningitis, encephalitis, seizures or status epilepticus, Guillain-Barré, myasthenia gravis, hyponatremia, brain trauma, and post-neurosurgical patients (AVM, tumor resections, traumatic evacuation, spine fusion, etc). Residents will interact with nurses, physicians, physician assistants, and students during the rotation. Residents will have the opportunity to review orders, participate in research, precept students, answer consult requests from the Neuro teams, provide education, and present patient cases during BWH pharmacy department clinical meetings. Time-permitting, the resident may observe a neurosurgical case or cerebral angiography pertaining to a patient they are providing care for.

**Heart & Lung Transplant**

Preceptor: Miae Kim, PharmD, MSc, BCPS; Keri Townsend PharmD, BCPS

For patients with end stage cardiac and/or lung disease, transplantation is often considered the most effective treatment available. This rotation will focus on the pathophysiology and pharmacotherapy surrounding both heart and lung transplantation. In addition, emphasis will be placed on management of non-pulmonary/cardiac diseases influenced by the presence of transplantation. Specific activities will include monitoring the acute and chronic care of patients, pharmacotherapeutic decision making, pharmacokinetic consulting, searching the literature to answer drug information questions, and patient counseling. At the conclusion of the rotation, the resident should be able to independently and effectively work with the heart and lung transplant teams maximizing patient care.
Neonatal Intensive Care Unit

Preceptors: Brittini Allain, PharmD; Sara Rostas PharmD, BCPPS

This 3 to 4 week rotation focuses on the overall pharmacological care of critically ill and premature neonates. This ICU rotation will include developing a pharmacological care plan for every patient, participating in daily rounds, attending daily intern lectures on NICU-related topics, providing education and drug information to the NICU team, contributing to clinical and quality improvement research, and evaluating primary literature and current clinical practice guidelines as they apply to neonatal patients. At the conclusion of the rotation, the pharmacy resident should be able to actively participate in the pharmaceutical care of neonatal ICU patients and effectively communicate with the neonatal ICU team and nursing staff to optimize medication use.

Ambulatory Care - Pain Management Center

Preceptor: Michele Matthews, PharmD

The ambulatory care practice experience at the Pain Management Center (PMC) at the Brigham and Women's Hospital will emphasize the role of the pharmacist in both clinical and research settings as they relate to pain management. Residents will be exposed to various aspects of pain management including chronic analgesic therapy, interventional procedures, and investigational therapies. They will be provided with opportunities to partake in patient visits, research, quality improvement initiatives, and educational conferences. Residents will also be involved with the teaching and mentoring of pharmacy students from the Massachusetts College of Pharmacy and Health Sciences. The rotation experience at the PMC is designed to further develop the resident's knowledge of pharmacotherapy for patients within an ambulatory care setting with a focus on pain management. Communication skills, interactions with patients, physical assessment techniques, patient monitoring skills, and the provision of drug information to health care professionals, patients, and patients' families will be emphasized. After successful completion of this rotation, the resident will be able to define pain and describe its pathophysiology, identify chronic pain syndromes based on patient presentation, assess pain through the use of various screening tools, develop an appropriate pharmacotherapeutic plan for patients experiencing chronic pain syndromes, provide effective and appropriate pain-related education to both patients and clinicians, analyze pertinent pain-related clinical literature, and understand the role of the pharmacist in pain management-related clinical research.
**Surgical Intensive Care Unit**

Preceptor: Becca Nashett, PharmD, BCPS

The surgical intensive unit (SICU) offers a 4-6 week rotation for pharmacy practice residents that encompasses many aspects of critical care. The surgical intensive care unit is a ten bed ICU for patients requiring critical care pre/post surgical interventions. During the resident’s rotation, he or she will actively participate in daily rounds with the SICU team, optimize and monitor pharmacological regimens, answer drug information questions, provide education to clinical staff, and effectively apply evidence based medicine to patient care. Each resident will be expected to conduct or contribute to a quality improvement project in order to provide and maintain the standard of care to all patients. Goals of the rotation are tailored to each individual resident dependent on needs and interests. Residents will also have the opportunity to participate in research, precept students, and lead topic discussions during BWH pharmacy department clinical meetings. At the conclusion of the rotation, the pharmacy resident should be able to actively participate in the pharmaceutical care of surgical ICU patients and effectively communicate with the ICU team and nursing staff to optimize medication use.

**Investigational Drug Service**

Preceptor: Kevin Anger, PharmD, BCPS; Jamie Sommers, PharmD

The Investigational Drug Service rotation is a 4 week learning experience for pharmacy practice residents. The rotation involves an expanded range of research activities to help ensure the delivery of high quality health care, while minimizing the risks associated with participation in an investigational drug trial. The Investigational Drug Service (IDS) manages approximately 300 research studies for Brigham and Women’s Hospital and Dana Farber Cancer Institute. The Investigational Drug Service consists of seven research pharmacists, two technicians, and one co-op student (from Northeastern University). The resident is exposed to many diverse aspects of investigational pharmacy including protocol development and implementation, an introduction to the Partners’ Institutional Review Board (IRB), compliance with hospital policy, JCAHO, state and federal standards, appropriate medication storage, drug handling, drug accountability, and information access. Goals and expectations of the rotation are tailored to each individual resident. Residents may participate in a voting discussion at the Institutional Review Board meetings on the subject of clinical trial approval based on equipoise and safety. Residents will have the opportunity to learn Good Manufacturing Practice (GMP) through our compounding facilities, conduct Drug and Biologic reviews, answer clinician concerns about research design and pharmacy involvement, review and approve orders, dispense protocol specific medication, design pharmacy guidelines for dispensation of protocol specific supply, present clinical information on current on-going research, and learn a unique online research pharmacy software system.