

## PGY2 Solid Organ Transplant Pharmacy Residency

### ASHP PGY2 Purpose Statement

PGY2 residency programs build upon Doctor of Pharmacy (PharmD) education and PGY1 pharmacy residency training to develop pharmacist practitioners with knowledge, skills, and abilities as defined in the educational competency areas, goals, and objectives for advanced practice areas. Residents who successfully complete PGY2 residency programs are prepared for advanced patient care or other specialized positions, and board certification in the advanced practice area, if available.

### Purpose Statement

The objective of the PGY2 Solid Organ Transplant residency program is to develop a high-level, Solid Organ Transplant pharmacy specialist who is qualified to practice in all major organ transplant groups. The residency facilitates clinical and professional growth, emphasizes evidence-based medicine, and provides the ability to critically assess and manage complex transplant patients. Residents will be fully integrated within the interdisciplinary solid organ transplant team through a variety of rotations and will have numerous opportunities to develop teaching, precepting, and presentation styles as well as engage in research and committees. The solid organ transplant specialty residency program will provide residents with opportunities to conceptualize, integrate and transform accumulated experiences and knowledge into skill, competence, and confidence in providing patient care to this specialty patient population.

### Program Overview

**Number of residency positions available: 1**

**Locations:**

1. Intermountain Medical Center  
5121 South Cottonwood Street, Murray, UT 84107
2. University of Utah  
50 Medical Dr N, Salt Lake City, UT 84132

**Resident Pay and Benefits:** Refer to the Intermountain Health Pharmacy Residency website (<https://intermountainhealthcare.org/careers/residencies-training/pharmacy-residency/application-information/benefits/>) for details on salary and benefits.

**Requirements of Residents Prior to Starting the Program:**

PGY1 residents who have matched with Intermountain Medical Center's PGY2 Solid Organ Transplant Residency Program must meet the following requirements:

1. Graduated from an ACPE-accredited school of pharmacy with a Doctor of Pharmacy degree
2. Successfully completed an ASHP-accredited PGY1 pharmacy residency
  - a. Please see System Residency Manual section "PGY2 Residency Programs Overview" for full policy details
3. Strongly encouraged to obtain a **temporary Utah pharmacist license** or **full Utah pharmacist license** prior to the PGY2 residency start date
  - a. For more information on the temporary pharmacist licenses please refer to the [Utah Pharmacy Practice Act Rule](#) and the [DOPL Website](#).

- b. Residents must obtain their **temporary Utah pharmacist license within 30 days of the start date** of the residency. Residents must obtain their **full Utah pharmacist license within 90 days of the start date** of the residency. If the resident does not meet both deadlines the resident will be dismissed from the program unless a formal appeal is submitted and approved (please see System Residency Manual for more details).

### Application:

All applicants must be enrolled in the ASHP Resident Matching Program. Please visit <https://natmatch.com/ashprmp/> for more information. Applications will be accepted when PhORCAS opens and are due by January 2<sup>nd</sup> and must include the following:

1. Letter of intent addressing why you wish to complete a PGY2 Solid Organ Transplant pharmacy resident at Intermountain Medical Center.
2. Current *Curriculum Vitae* with all experientials completed and anticipated learning experiences as well as pharmacy and non-pharmacy work experience.
3. Three electronic references are required.
  - a. Please have recommendation writers complete the electronic reference form within PhORCAS with detailed characteristic and narrative comments. One to two areas of improvement or constructive feedback that the recommender feels the candidate should continue to work on as a PGY2 resident should be identified. No separate letter of recommendation is required.

### Program Objectives

Specific outcomes and goals for PGY2 Solid Organ Transplant Pharmacy have been defined by ASHP in collaboration with the American College of Clinical Pharmacy and the American Society of Transplantation (AST) Transplant Pharmacy Community of Practice and can be viewed at: [pgy2-transplant-cago-2017.pdf \(ashp.org\)](https://www.ashp.org/~/media/ASHP/Programs/PGY2-Transplant-Pharmacy/PGY2-transplant-cago-2017.pdf).

- R1: Patient Care
- R2: Advancing Practice and Improving Care
- R3: Leadership and Management
- R4: Teaching, Education, and Dissemination of Knowledge

### Learning Experiences

- All learning experience descriptions are documented in PharmAcademic and include:
  - A general description, including a site description and the role of the pharmacist
  - Expectations of residents including resident progression
  - Educational goals and objectives assigned to the learning experience
  - For each objective, a list of learning activities that will facilitate achievement
  - Description of preceptor/resident evaluations
- Preceptors will orient residents to their learning experience using the learning experience description.
- During learning experiences, preceptors will use the four preceptor roles (instructing, modeling, coaching, and facilitating) as needed based on residents' needs.
- At the start of each learning experience, preceptors orient the residents, provide copies of the educational goals and objectives, describe learning activities, and review evaluation strategy.

**Rotations (11)**

- 3-4 weeks of orientation/training (duration based on resident's previous experience)
- Learning experiences will be scheduled as 3-5 week blocks depending on learners schedule
- Required (8)
  - Inpatient Kidney Transplant
  - Inpatient Liver Transplant
  - Inpatient Advance Heart Failure/Heart Transplant
  - Inpatient Lung Transplant (University of Utah)
  - Outpatient Kidney Transplant
  - Outpatient Liver Transplant
  - Outpatient Heart Transplant
  - Infectious Disease
- Elective (2-3)
  - STICU
  - Hepatology
  - Pediatric Advanced Heart Failure/Heart Transplant at PCH
  - Pediatric Liver/Kidney Transplant at PCH
  - Bone Marrow Transplant at LDS
  - Repeat a required rotation
  - Other ideas for elective rotations may be proposed

**Staffing: 12 months**

- The resident is expected to staff on T10 alternating every 2<sup>nd</sup> weekend and every 4<sup>th</sup> weekend for an average of every 3 weeks
- A total of 16 weekends
- Average of 24 hours per month
- One major holiday (Thanksgiving, Christmas Eve, Christmas Day, New Years)

**Transplant Research Project: 12 months**

The resident will be responsible for conducting a longitudinal research project during the residency year with the following requirements:

- Complete CITI training
- Complete project design and obtain IRB approval
- Complete data collection and analysis
- Prepare a manuscript ready for publication (submission is at the resident's discretion and not required for residency completion)
- Present poster at ASHP Midyear Conference or similar conference
- Present Results at Mountain States Conference
- Submit and present research (if selected) at the American Transplant Congress

**Project Days for PGY2 Solid Organ Transplant Resident**

- 4 isolated weeks are scheduled for direct project time
- Typical timing includes 1 week in quarter 1, 2 weeks in quarter 2, and 1 week in quarter 3
- The resident is expected to complete an 8-hour workday and be on site; however, the resident may discuss work from home options with the RPD
- There is no residency project month

**Protocol Review: 12 months**

- Create a new protocol or revise an existing protocol

**Teaching and Presentations**

- One ACPE accredited CE (1 hour): 6 months
- Two 45 minutes non ACPE accredited seminar to Transplant Department: 3-5 weeks
- Optional Intermountain Academic Teaching Certificate: 12 months

**Topic Discussions**

- The resident is expected to complete all required topic discussions
- Progress on completion of these topic discussions will be tracked by the PGY2 Solid Organ Transplant Resident and discussed during quarterly evaluations

<b>Transplant Topic Discussions</b>			
<b>Core (To be completed within the first 2 months)</b>			<b>Date Completed</b>
Transplant History/Transplant Immunology			
Organ Procurement / Preservation Process & Donor Management			
Induction Therapy			
Maintenance Immunosuppression 1 (CNI/mTOR/Steroid) - 2 parts			
Maintenance Immunosuppression 2 (MMF/AZA/Belatacept) - 2 parts			
Posterior Reversible Encephalopathy Syndrome (PRES)			
Acute Cellular Rejection (ACR)			
Antibody Mediated Rejection (AMR)			
Desensitization/ABO Incompatible			
Cell free-DNA (Allosure, Allomap)/Molecular Microscope			
New Onset Diabetes Mellitus after Transplant (NODAT)			
Cytomegalovirus (CMV)			
Post-Transplant Lymphoproliferative Disorder (PTLD) & EBV			
HIV in Solid Organ Transplantation			
Pregnancy in Solid Organ Transplant			
Transplant Regulations: UNOS, CMS, Risk Evaluation, and Mitigation Strategies (Preceptor lead)			
<b>Renal Transplant</b>			
<b>INPATIENT</b>	<b>Date Completed</b>	<b>OUTPATIENT</b>	<b>Date Completed</b>
Hypertension		Polyoma Virus Nephropathy (screening and treatment)	
Post-Surgical Complications - Ureteral Obstruction/Leak/Hydronephrosis		Membranous Glomerulonephritis (GN)	
Systemic Lupus Erythematosus (SLE)		Hyperparathyroidism	
Dialysis - Peritoneal / CRRT / Hemodialysis		IgA Nephropathy	
Focal Segmental Glomerulosclerosis (FSGS)		Polycystic Kidney and Liver Disease	
TMA - Hemolytic Uremic Syndrome & Thrombocytopenic purpura			

(HUS/TTP) (CNI/rapa-related versus other etiologies)			
Pancreas Transplant / SPK			
<b>Liver Transplant</b>			
<b>INPATIENT</b>	Date Completed	<b>OUTPATIENT</b>	Date Completed
Combined Liver/Kidney Transplant		Vaccines (Pre/Post/Asplenic)	
Decompensated Cirrhosis - Portal Hypertension/Ascites/Varices;/ Hepatic encephalopathy		Primary Sclerosing Cholangitis (PSC)/Primary Biliary Cirrhosis (PBC)	
Post-Surgical Complications - HAT, bile leak, stenosis/stricture		Autoimmune Hepatitis	
Spontaneous Bacterial Peritonitis (SBP)		Hepatitis B / Hepatitis D	
Hepatitis C		Nonalcoholic Steatohepatitis (NASH)	
EtOH/French Criteria		Drug Induced Liver Injury (DILI)	
Budd-Chiari/Anticoagulation in Liver Disease		Hepatopulmonary Syndrome	
Hepatorenal Syndrome		HCC/Milan Criteria/USCF Criteria	
Intestine Transplant and N/V/D			
<b>Heart Transplant/LVAD</b>			Date Completed
Cardiogenic Shock/Hemodynamics			
Heart Failure			
ECMO			
Mechanical Support/Anticoagulation			
Cardiac Allograft Vasculopathy (CAV)			
<b>Lung Transplant</b>			Date Completed
Chronic Lung Allograft Dysfunction (CLAD) - Bronchiolitis Obliterans Syndrome (BOS) & Restrictive Allograft Syndrome (RAS)			
Bronchiolitis Obliterans Organizing Pneumonia (BOOP)			
Pulmonary Hypertension			
Interpreting PFT's / Spirometry			
Cystic Fibrosis			
Pulmonary Sarcoidosis			
<b>Infectious Disease</b>			Date Completed
Aspergillosis/Candida			
Cryptococcus/Histoplasmosis			
Endemic Fungal Infections			
Pneumocystis Jirovecii Pneumonia (PCP)			
Polyoma Virus/Parvovirus B19			
Cryptosporidium			
HSV/VZV			
Tuberculosis (TB)			

Mycobacteria/Nocardia/Parasites	
<b>Pediatric Transplant</b>	Date Completed
Age-Appropriate Pediatric Communication/Teaching	
Pediatric PK/PD	
Hypoplastic Left Heart Syndrome (HLHS)	
Renal dysplasia/obstructive uropathies/reflux nephropathy	
Biliary Atresia/Kasai	
Managing Transitions of Care / Motivational Interviewing	
*Topics may always be added/deleted during rotation at the preceptor's discretion, RPD reserves the right to adjust topic discussions as needed	

### Minimum Requirements for Successful Completion

Requirements for successful completion and expectations of the residency program will be documented and provided to applicants invited to interview and will be reviewed upon starting the program. The requirements and progress will be reviewed with the resident at each quarterly evaluation. Failure to meet the minimum requirements by the end of the residency year will result in the resident not receiving a certificate of achievement and will not complete the PGY2 Solid Organ Transplant residency program. Consequences of failure to obtain appropriate licensure, BLS, PALS, or ACLS certification are addressed in General Residency Information section of this manual.

#### **Minimum requirements include:**

- Obtain full Utah pharmacist license within the first 90 day
- Obtain/Maintain ACLS and PALS
- Attain “achieved” on at least 75% of all objectives (including 100% of the objectives in competency areas surrounding patient care) and attain satisfactory progress on all other objectives by the end of the year
- Successfully complete all required rotations as previously described
- Complete CITI Training
- Complete a research project with the following deliverables:
  - Deliver a poster presentation at a residency conference during the residency year
  - Deliver a presentation at a residency conference during the residency year
  - Submit research to the American Transplant Conference
  - Complete and submit a project manuscript to the residency program director prior to completion of the residency. Residents are highly encouraged but not required to submit their project for publication
- Prepare and present two presentations for transplant department
- Prepare and present a system-level continuing ACPE education presentation
  - Must upload 4 deidentified EMR notes
    - 1 Transplant Pharmacy Pre-Transplant Evaluation note
    - 1 Transplant Pharmacy Progress note
    - 1 Transplant Pharmacy Medication Education note
    - 1 of the following 3: insulin consult note, warfarin consult note, vancomycin consult note
- Review and update one protocol
- Complete all PharmAcademic evaluations and requirements

- Complete and track all SOT topic discussions
- Completed all required staffing weekends (minimum 16 weeks)

## Description of Intermountain Medical Center RAC & Participation in System RAC

The purpose of the Intermountain Medical Center Residency Advisory Committee (RAC) is to provide direction and oversight to the Intermountain Medical Center pharmacy residency programs including the Solid Organ Transplant PGY2 residency program and ensure compliance with the American Society of Health System Pharmacists (ASHP) and Intermountain requirements.

- The RPD (Residency Program Director) shall serve as a member and will be responsible for development of RAC items to be discussed at each meeting
- The RPD will represent the Solid Organ Transplant PGY2 program on the Intermountain System RAC
- The RPD, in conjunction with the RAC, shall be responsible to:
  - Provide oversight of the residents and resident rotations
  - Provide guidance on resident project design and presentation(s), and their completion
  - Develop an effective mechanism for resident selection
  - Address other professional and operational issues relating to the training of residents
  - Provide advice concerning the future direction of the resident training program
  - Evaluate the quality and appropriateness of learning experiences, rotations, and preceptors
  - Ensure evaluations are conducted and learning objectives are met
  - Review each resident's training schedule, rotation plan and objectives
  - Review and approve resident research projects

## Standards of PGY2 Solid Organ Transplant Pharmacy Residency Program

### **Standard 1: Recruitment and Selection of Residents**

Described in the "Recruitment and Selection of Residents" section of the Intermountain Health Pharmacy Residency Manual unless otherwise noted

- During Phase I the top 5 candidates will be offered an interview. If one or more declines to interview the next candidate in the ranking list will be offered an interview
- During Phase II the top candidates will be offered an interview. If one or more declines to interview the next candidate in the ranking will be offered an interview

### **Standard 2: Program Requirements and Policies**

Described in the Intermountain Health Pharmacy Residency Manual unless otherwise noted

- Moonlighting is not permitted

### **Standard 3: Design and Conduct of the Residency Program**

Described in the Intermountain Health Pharmacy Residency Manual unless otherwise noted

- The PGY2 Solid Organ Transplant Pharmacy Resident is not required to attend Core Curriculum
- The program tracks graduates from the residency program, including initial employment and if possible, further education, changes in employment, board certification, etc.

### **Standard 4: Requirements of the Residency Program Director and Preceptors**

Described in the Intermountain Health Pharmacy Residency Manual unless otherwise noted

### **Standard 5: Pharmacy Services**

Described in the Intermountain Health Pharmacy Residency Manual unless otherwise noted

## Research Project Timeline

Activity	Due Date
CITI Training	7/14/23
Project Pitch/Research Question	7/14/23
Concept Sheet	7/21/23
Transplant Research Scientific and Operational Review (SRB)	7/26/23
Manuscript: Background Rough Draft (5-10 references)	8/11/23
IRB Submission	8/11/23
Manuscript: Background Final Draft (10-15 references)	8/18/23
ASHP Abstract Rough Draft	9/15/23
Manuscript: Methods Rough Draft	9/15/23
Manuscript: Methods Final Draft	9/23/23
Submit Final Abstract ASHP Midyear	9/27/23
Complete Draft ASHP Poster	10/20/23
Final ASHP Poster (Must be sent to Conor for Printing)	11/6/23
Present Poster at ASHP Midyear	12/3/23 – 12/7/23
ATC Abstract Submission	12/23
Manuscript: Results/Discussion Rough Draft	2/2/24
Manuscript: Results/Discussion Final Draft	2/16/24
Mountain States Residency Conference Abstract Due	TBD by MSC
Mountain States Slides Due	TBD by MSC
Mountain States Presentation	TBD by MSC
Manuscript: Complete Document Rough Draft (>15 references)	5/3/24
Manuscript: Final Report/Submission	5/24/24
ATC Presentation (If accepted)	May/June 2024



## ACPE Accredited Presentation Timeline

### ***PGY2 ACPE-Accredited Presentation Deadlines (2023-2024 Residency Class)***

<b>Activity</b>	<b>Deadline</b>	<b>Responsible Party</b>
Submit completed <a href="#">PGY1/PGY2 Continuing Pharmacy Education (CPE) Seminar Activity Form</a> to <a href="mailto:RxEducationResearch@imail.org">RxEducationResearch@imail.org</a>	Friday, August 18, 2023 @ 2359 Mountain Time	PGY2 resident
Approval of topic, presentation title, and learning outcomes. Approval of preceptors mentors and/or suggestions for other preceptors.	Friday, August 25, 2023	TSM
Complete LOA, COI, and CV as required for ACPE accreditation.	Deadline to be determined by IPCE	PGY2 resident and preceptor(s)
Final date to switch presentation date (only if necessary) <sup>b</sup>	Friday, September 8, 2023	
Presentation materials due to local preceptors to review	Friday, September 15, 2023	PGY2 resident
Review presentation and active learning	Between September 18-22, 2023	Content preceptor(s)
Update presentation materials based upon preceptor feedback	Between September 18-29, 2023	PGY2 resident
<b>Completed</b> presentation materials including: <ul style="list-style-type: none"> <li>• PowerPoint with: <ul style="list-style-type: none"> <li>○ Disclosure slide</li> <li>○ Objective slide for pharmacists</li> <li>○ Objective slide for pharmacy technicians</li> <li>○ References on each slide footer and formal bibliography at the end of the presentation</li> <li>○ At least 3 active learning questions</li> <li>○ Target audience for each active learning question</li> </ul> </li> <li>• Post-test questions <ul style="list-style-type: none"> <li>○ Five for pharmacists</li> <li>○ Five for pharmacy technicians</li> <li>○ Key including correct answer and justification why each option is correct/incorrect</li> </ul> </li> </ul>	Friday September 29, 2023 at 2359 Mountain Time  Email materials to <a href="mailto:RxEducationResearch@imail.org">RxEducationResearch@imail.org</a> .	PGY2 resident
Initial review of presentation for ACPE compliance and feedback sent to resident	Rolling basis between October 2-6, 2023	TSM
Additional presentation draft(s) due to TSM <sup>a</sup>	Between October 6-20, 2023	PGY2 resident
Practice presentation(s) at local site with preceptors	Between October 6-20, 2023	PGY2 resident
<b>Finalized</b> presentation materials due <sup>c</sup>	Friday October 20, 2023 @ 2359 Mountain Time	PGY2 resident
Post finalized presentation handouts on Education and Onboarding website*	Rolling basis between October 23-27, 2023	TSM
PGY2 resident CE presentations	Between late October and end of November 2023	PGY2 resident

<sup>a</sup>The TSM may provide additional interim deadlines to ensure resident revises materials and has approval of these changes from local site preceptors. Once the title and learning objectives have been finalized by the TSM, they cannot be changed.

<sup>b</sup>An example reason to switch presentation dates is family and medical leave-related (FMLA). Presentation date changes must be approved by RPD and TSM.

<sup>c</sup>After this date, no changes can be made to presentation content unless there are significant new updates in primary literature or guidelines. This includes fixing typographical or grammatical errors, rearranging slide order, and adding/modifying speaker notes.

## Protocol Review Timeline

<b>Activity</b>	<b>Due Date</b>
Protocol Selection	8/11/23
1st Draft	11/10/23
2nd Draft	2/9/24
Final Draft	4/26/24
Present to Transplant leadership	5/24
Protocol Implementation	6/24