



MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Department of Pharmacy Services Annual Report

2021–2022



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Message from the Chief Pharmacy Officer



Stan Kent, RPh, MS, FASHP

Welcome to the 2021–22 UMH Department of Pharmacy annual report! I hope you find the information here of interest. This report collates much of our work and highlights all of our divisions — but it's just the tip of the iceberg. Much more is accomplished that isn't included here. In that regard, I want to acknowledge our teams for everything they've done to contribute to the success of the department and the care of our patients.

When I wrote this introduction last year it had been a year like no other. Well, this year, it felt like Groundhog Day. Another year of battling the pandemic, Zoom meetings, and life not quite like it should be. Despite the challenges, we made it through another year by being flexible, helping each other, and working very hard. Leaders adapt. Thanks to all of the staff for your leadership.

This past year saw us focus on two main themes: specialty pharmacy growth/expansion and the pharmacy technician workforce. While it will take another year or two for all the work we have done to make an impact, it is all important to the future success of the department.

Please take a few minutes to read more about it in the following pages.

Go Blue!

Stan Kent, RPh, MS, FASHP
Chief Pharmacy Officer

Department of Pharmacy Services FY 2021-22



700
Team Members



4.4M+
Orders Filled
Annually



85K+
Infusions



283K+
Prescriptions



20
Patient Care
Services



90+
Research
Publications

This past year saw us focus on two main themes: specialty pharmacy growth/expansion and the pharmacy technician workforce. While it will take another year or two for all the work we have done to make an impact, it is all important to the future success of the department.



Adult Hospitals



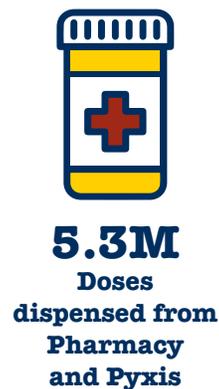
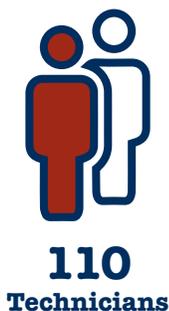
(Back row) Kelsey Olmack, Devin Rice, Annalise Sheehan, Megan Lim (Front row) Daraoun Mashrah, Kristen Zofchak, Emily Han, Katie Cunningham, Alyssa Divens

Serving the Patients of University Hospital and the Frankel Cardiovascular Center

Our department's acute care pharmacy clinical services in University Hospital and the Cardiovascular Center include the following inpatient teams and pharmacies:

- University Hospital Medicine Team
- University Hospital and Cardiovascular Center Cardiology and Surgery Team
- University Hospital and Cardiovascular Center Transplant Team
- Adult and Pediatric Hospitals Emergency Medicine Team
- University Hospital Central Pharmacy
- Adult Operating Room and Cardiovascular Center Pharmacy

During FY22, the work of these five groups included:



Clinical Services

UH/CVC pharmacists care for **660 patients per day** on average across 22 pharmacist positions when fully staffed.

Average **dosing and monitoring** activity:

- Anticoagulants: 255 times per day
- Pharmacokinetics: 142 times per day

Average **patient education** activity:

- Anticoagulation discharge education: 277 patients per month
- Transplant medication education: 48 patients per month

Pharmacy Medicine

With a total of 18 pharmacists, the Medicine Team is one of the largest inpatient pharmacist teams at UH. The team is responsible for the care of a wide range of patients on a daily basis, and typically accounts for covering approximately half of the inpatient adult census. Services include a large spectrum of patient populations including, but not limited to, medical and neuro ICUs, neurosurgery, inpatient psychiatry, GI/liver specialty services, inpatient rehab, inpatient family medicine, and both medical observation units, along with up to 19 various general medicine teams.

Many team members are also cross-trained in numerous other areas in the department, making the Medicine Team a crucial component of the department. The team also plays a significant role in the precepting and development of our students and residents.



Lenah Suleiman, Abby Scott, Adamo Brancaccio, Dana Blanchard, Kristin Zofchak



18
Pharmacists



Expanded to Hospital Care at Home program

FY22 Highlights:

- The team has expanded by two pharmacists:
 - » Due to the expansion of CCMU to 8D, we were able to recruit for and hire an additional ICU pharmacist
 - » With the continued expansion of our hospitalists and number of internal medicine patients, we have also increased our generalist team by one
- Our team participated in precepting or co-precepting APPE and IPPE student rotations as well as PGY-1 and PGY-2 residents rotations over the past academic year
- Team members were flexible in covering several staffing gaps in both pharmacist and technician roles across the department
- Partnered with hospitalists to improve communication between pharmacy and providers with more remote work occurring
- Expanded clinical coverage to include patients in the Hospital Care at Home program



Adult Hospitals



Devin Rice, Patti Kaarto, Alyssa Divens, Annalise Sheehan



Sarah Adie, Jessica Sullivan, Kristen Pogue



Jim Miller, Nick Farina

Cardiology and Surgery

The Cardiology and Surgery Team provides pharmacy services in both University Hospital and the Cardiovascular Center. The team is made up of a total of 17 clinical pharmacists and continues to grow. This year we added new clinical pharmacist generalists and specialists. We will also welcome a new manager in the CVC satellite and for the Cardiology and Surgery teams. The team's main responsibilities include dispensing and preparing medications for patients and working alongside colleagues in Medicine, Nursing, and Nutrition to ensure patients receive safe and effective medications. Core clinical services include therapeutic anticoagulation management, pharmacokinetic dosing, medication reconciliation, renal dosing, TPN management, facilitating transitions of care, and IV to PO formulation conversions. Several team members serve on committees within the department, such as the Clinical Practice Committee, Residency Advisory Committee, and MUE, as well as outside the department on the Critical Care Steering Committee, various unit specific quality committees, and P&T Subcommittees, including Anticoagulation, Glycemic Management, and VTE Subcommittees.

FY22 Highlights:

- Raised \$1,849.46 for the American Heart Association Heart walk. Michigan Medicine exceeded its goal with \$31K+!
- Developed guidelines (Idarucizumab, Dabigatran, Cyanokit for Cyanide Poisoning) conducted MUEs (Tigan)
- Published book chapters (DOAC use in special populations, CCSAP) and several journal articles
- Attended virtual conferences including SCCM and ACC
- Presented 8 Quality Month Posters
- Collaborated with Nursing to streamline the discharge process for newly implanted LVAD patients



Awards & Recognition

- **BPS Cardiology Specialty Council-Chair**
- **Fellow of American College of Clinical Pharmacy-Inductee**
- **MSPEN-President (2021)/ Past President (2022)**
- **SCCM Michigan Education Committee-Chair Elect**
- **50+ Making a Difference Awards**

Transplant

The transplant team's primary focus is to promote the safe and effective use of medications within transplant programs. Transplant pharmacists are involved in all the phases of transplant. Prior to transplant, the pharmacists participate in the selection meeting and address medication-related questions from the transplant evaluation team. During admission, the pharmacist rounds with the multidisciplinary team providing pharmacotherapy recommendations and patient education on medications prior to discharge. In the outpatient clinic (abdominal programs), the pharmacist provides medication education to patients and family/caregivers, assesses for medication-related adverse effects, and assists the rest of the team regarding monitoring and managing medications. They collaborate with providers to manage complications from transplant medications (e.g. hyperglycemia, hypertension, renal dose adjustments, etc.).

Our team also provides services in the transplant endocrine clinic and adult cystic fibrosis clinic. Transplant pharmacists are available to answer medication-related questions via MiChart in-basket during non-clinic days. The pharmacists also follow up with patients after medication adjustments and perform comprehensive medication reviews for patients on non-clinic days. In addition, the transplant pharmacists lead and support various QAPI initiatives (including protocol development and sustainment) throughout the Transplant Center and cystic fibrosis team. The transplant team also participates in training the PGY-2 Transplant resident, PGY-2 Ambulatory Care residents, PGY-1 pharmacy residents, and P4 students.



Created/
revised
15
protocols



Awards & Recognition

- **2021 American College of Clinical Pharmacy Immunology/Transplant PRN Distinguished Investigator Award** earned by Jamie Park
- **WILEY Top Cited Article 2020-2021** (Lichvar AB, Pierce DR, Salerno D, Klem P, Waldman G, Park JM. Utilization of direct acting oral anticoagulation in solid organ transplant patients: a national survey of institutional practices. *Clinical Transplantation*. 2020;34(6):e13853. doi:10.1111/ctr.13853.)



(Back row) Hansa Mreyoud, Jen Hagopian
(Front row) Krysta Walter, Liz Wilpula, Jamie Park, Linda Fitzgerald

FY22 Highlights:

- Completed multidisciplinary QAPI project in which the team developed and implemented a nurse-managed standardized tacrolimus therapeutic drug monitoring protocol for adult kidney transplant recipients. A retrospective review showed this protocol reduced the mean time to respond to tacrolimus trough levels by 13.2 hours without negatively impacting the inpatient variability in tacrolimus levels and graft function
- Conducted a pilot study of pre-transplant video medication education for living-donor kidney transplant recipients. Demonstrated the incorporation of video reduced time for in-person medication education post-transplant and improved knowledge retention
- Created or revised 12 Transplant Center or cystic fibrosis protocols
- Precepted 5 PGY-1 residents, 1 PGY-2 resident, and 8 PharmD students on Transplant Surgery, Medicine Pulmonary/Lung Transplant, and Liver Transplant clinics
- Precepted 4 PGY-1 Pharmacy residents on writing or research projects
- Invited presentation on "Our Relational Coordination Experience." Presented virtually at the 11th Annual Relational Coordination Collaborative Roundtable, Institute for Excellence in Health and Social Systems, November 11, 2021
- Presented 2 abstracts at the 2022 International Society of Heart and Lung Transplantation Meeting
- Co-authored 2 abstracts at the North American Cystic Fibrosis Conference in 2021

Adult Hospitals



73
Naloxone kits
provided at
discharge



170
COVID-19
vaccines
administered



15
Students
precepted for
26 rotations

FY22 Highlights:

- Successfully graduated third PGY-2-EM resident and matched fourth PGY-2-EM resident for next year
- Implemented pharmacist-led discharge counseling for patients on new start of rivaroxaban or apixaban for low risk DVT/PE treatment
- Facilitated proper outpatient COVID mab therapy for discharged patients
- Implemented MRSA nasal swab screening in the EDs for patients prescribed anti-MRSA antibiotics
- Improved AES nursing new intern pharmacy orientation education presentation
- Collaborated with CES leadership to ensure pharmacy needs are met during expansion
- Implemented stroke tPA eligibility screening tool
- Compounded and assisted with tPA administration for 37 patients with suspected ischemic stroke
- Involved in pharmacist code training classes
- Collaborated on pediatric DKA and agitation order set updates

Adult and Pediatric Hospitals Emergency Medicine

ADDRESSING PEDIATRIC & ADULT EMERGENCIES 24/7

The Emergency Department (ED) Pharmacy Team consists of 11 core pharmacists, two core pharmacy technicians, and one PGY-2 EM pharmacy resident who provide 24/7 pharmacy services for two emergency departments — Adult Emergency Services (AES) and Children’s Emergency Services (CES). The ED Pharmacy Team responds to all codes, traumas, and medical emergencies; assists with optimal drug and dose recommendations; compounds lifesaving drips and medications at bedside; provides medication counseling at discharge; precepts students and residents; and recommends proper dose titrations to achieve desired patient outcomes.

Additional services provided by 24/7 pharmacists in AES and CES include participation in critical airway management, responding to drug information questions and toxicology consults for acute ingestions, screening for eligibility and drug interactions and ensuring proper ordering of COVID-19 outpatient therapies; order verification, patient counseling, focused medication history reviews, and discharge medication review; compounding and documenting time-critical investigational drugs; and medication dispensing at discharge (some of which includes postexposure prophylactic meds for occupational exposure, rabies vaccine, and immune globulin, investigational drugs, and naloxone nasal spray to patients at high risk for opioid overdose). The AES pharmacist also attends daily rounds for critical patients in the Emergency Critical Care Center.

The ED pharmacy technicians play a critical role in medication dispensing, compounding for emergent use, conducting admission medication histories, managing the pharmacy satellite and Pyxis inventory, helping to ensure regulatory compliance, triaging phone calls, and other responsibilities that assist the pharmacist and promote optimal patient care.

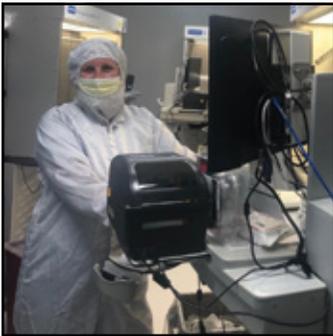


(Back row) Mary Dimo, Adrienne Bell, Becky Widdick, Colin Finley, Amira Gazaly, Andrea Setiawan, Liz VanWert
(Front row) Nada Saad, Kristen Koehl

Central Pharmacy

Pharmacists and technicians working in UH Central Pharmacy remain dedicated to teamwork and collaboration to ensure timely preparation and delivery of medications to our patients. Medication shortages and extreme staffing shortages have prompted innovation in workflow and staffing models to ensure safe patient care. The Central Pharmacy diligently serves all admitted patients in University Hospital, along with other University of Michigan Health pharmacies and more than 90 clinics. Central Pharmacy is responsible for medication order review and verification, sterile and non-sterile medication compounding, as well as unit dose preparation and delivery. The Central Pharmacy replenishes automated dispensing cabinets throughout UH, and promptly prepares and delivers first doses and STAT medications — including hazardous and investigational drugs. Our team also aids in drug information questions, code response, and oncology medication compounding and distribution. Despite the many roadblocks encountered over the past year, our team has kept patient care at the forefront of our work.

As an integral component of the Health System, UH Central Pharmacy prepared and dispensed over 1.24 million doses, including over 395,000 sterile compounds. In addition, our team provided over 5,000 COVID-19 vaccines for inpatient use and over 86,000 COVID-19 vaccines for outpatient, clinic use at 28 different locations.



Pamela Johnson



Nidhi Dugrani

FY22 Highlights:

- Dispensed over 90,000 COVID-19 vaccines
 - » 5,273 COVID-19 vaccines for inpatient use
 - » 86,870 COVID-19 vaccines to 28 different locations for outpatient, clinic use
- Revised the medication return process to help minimize redispensed doses, leading to about 9,000 avoided redispenses and overall reduction in inventory costs
- Optimized ADC inventory, making drug stock readily accessible by Nursing, and reducing delays and duplicative medication requests
 - » Additionally, this reduced the number of patient-specific doses pulled and sent to the unit by about 28,000 per month
- Implemented IV Prep software to improve accuracy and safety in sterile compounding
- Expanded services to include medication orders for Hospital Care at Home patients
- Implemented a phone tree to streamline phone calls from nurses and providers, reducing wait time, and increase staff satisfaction
- Clinic Requisitions team transitioned to the new BD Pharmogistics Remote Web Order Form, substantially decreasing time spent in the ordering process (~1.5-2 hours) by eliminating manual transcription of orders between two separate systems
- Updated non-sterile compounding workflow and procedures to improve compliance with updated regulatory chapter USP 795
- Implemented new evening pharmacist scheduling to improve employee satisfaction and retention
- Upgraded medication dispensing space for easier and more efficient preparation of unit-dose dispensing
- Implemented barcode training capabilities for all pharmacists, improving barcode compliance for medications throughout the continuum of storage, preparation, and dispensing
- Expanded leadership to include an evening manager, increasing oversight and providing additional routes of communication from frontline staff
- Converted from slip-tip oral syringes to ENfit oral syringes to reduce incorrectly administered oral medications intravenously
- Collaborated with Nursing to initiate a new make-ahead process for select chemotherapy agents to expedite turnaround times and improve patient experience
- Assisted the Beta-Lactam Allergy Evaluation Service in compounding and delivering the various penicillin skin test syringes



1.24M+
Doses
prepared and
dispensed



90K+
COVID-19
vaccines
dispensed



395K+
Sterile
compounds
prepared and
dispensed

Adult Hospitals



Carleigh Robinson and Moe Ghalib



Lisa Kepler, Sharon Zynda and Natalie Hujan

Operating Room and Cardiovascular Center Pharmacy

Operating Room (OR) and Cardiovascular Center (CVC) pharmacy team members provide services to support anesthesia, surgeons, OR nurses, and nurses in the perioperative care units in the care of surgical patients. There are currently four adult OR pharmacy practice sites: University Hospital, Cardiovascular Center, Brighton Center for Specialty Care, and East Ann Arbor Surgical Center (EAASC). In addition to supporting the CVC OR, our team collaborates in the care of CVC inpatients and patients receiving cardiac procedures in the Cath and EP labs.

The core services offered by pharmacists and technicians include medication order review and verification, sterile and non-sterile medication preparation and delivery, drug information, cardiac arrest response, Pyxis stocking, and inventory management. The team also works closely with Anesthesia to dispense, reconcile, and monitor usage of controlled substance medications.

FY22 Highlights:

- Implemented BD IV Prep
- Managed multiple national drug shortages affecting antimicrobials, pain medications, and anesthetic agents
- Opened an Operating Room Pharmacy at the East Ann Arbor Surgery Center including sterile compounding services
- Implemented multiple new controlled substance kits to support Anesthesia and improve medication security
- Developed a transfer process for controlled substance handoffs to maintain chain of custody between Anesthesia and inpatient nurses
- Modified medication contents of Anesthesia transport packs to reduce waste and improve safety
- Implemented DEA Form 41 to document destruction of controlled substance waste



C. S. Mott Children’s and Von Voigtlander Women’s Hospital Pharmacy

Our mission is to integrate clinical care, education, research, and advocacy to advance the health status of children, women, and their families and communities statewide.

C.S. Mott Children’s and Von Voigtlander Women’s Hospital are top ranked and an integral part of Michigan Medicine. Following the opening of the new building in 2011, the 348- and 50-bed hospitals continued to provide the same compassionate care with the latest technology. The pharmacy department provides services for a wide variety of diverse pediatric disease states as well as maternal fetal medicine and women’s health, adult oncology, and adult and pediatric infusion services. As a Level I trauma center, C.S. Mott Children’s Hospital provides the highest level of emergency and surgical care to pediatric patients.

DIRECT PATIENT CARE

Core Services

- Anticoagulation dosing and monitoring
- Pharmacokinetics – dosing and monitoring (per policy, vancomycin, aminoglycosides)
- Renal dosing
- IV to PO medication route change
- Review of patient’s record (labs, notes, vitals, medications, etc.)
- Family-centered patient care rounds
- Therapeutic drug monitoring – antiepileptic medications, immunosuppressants
- Drug information
- Total parenteral nutrition
- Patient/caregiver medication education
- Restricted antibiotics tier I & II review
- Code blue response

INDIRECT PATIENT CARE

Clinical Activities

- Guideline and policy development/revisions
- Albumin guideline
- Aminoglycoside & Vancomycin
- Anticoagulation in COVID-19/ MIS-C patients
- DKA clinical practice guideline
- Electrolyte replacement guideline
- Enoxaparin guideline
- GI prophylaxis CPG
- IV compatibility chart
- IVIG indications
- MIS-C clinical practice
- Paxlovid DDI guideline
- Sedation guideline
- Vitamin K (antidote)
- VTE prophylaxis
- Carpediem
- CRRT optimization
- Dose rounding
- Intranasal Dexmedetomidine
- RRT kits revamp
- Standard for safety – IV concentrations
- ISMP antidotes & Reversal Agents Task Force

Education/Professional Development

- PPA neonatology core competency
- Layered Learning Model Subcommittee
- Multidisciplinary PICU mock code
- Didactic teaching at the College of Pharmacy and Nursing programs
- Distribution/process improvements
- Education of prescribers, nurses, etc.
- Pyxis optimization project
- Epinephrine for pulmonary hemorrhage
- NICU FEN
- Pulmonary hypertension
- Precepting pharmacy students and residents
- Collaborated with Michigan Poison & Drug Information Center

Committee Involvement

- P&T, subcommittees, unit/ service quality committees

Shortage management

- Identification of alternatives, education of prescribers, etc.

Research-related activities

- Precept research and writing projects

APR-DRG Case Mix:

1.16/1.49*/2.18**

- Hospitals with an “average” level of complication to the patients they see have an APR-DRG of 1.0 Having a high APR-DRG means that we see patients that are significantly sicker and more complicated to treat.

*excluding newborns

** excluding newborns, women’s, & general services



76

Full-time employees



1.2M
Orders verified



76K
Patient-specific doses

C. S. Mott Children's and Von Voigtlander Women's Hospital Pharmacy



Aisha Alawdi



Brett Leja



Rachelle Wendt, Georgia Warmbein, Aisha Alawdi

Operational Service Highlights

CW10 Initiatives

- Stacked bins delivery method
- Amber ENFIT conversion
- CW pharmacy technician handbook
- Technician position resources
- Unit dose area redesign
- Dose rounding medications
- Optimizing prepack dosages
- Replenishment scanning alterations
- Ergonomic pharmacist positions
- Shift toward "ready to use" IV products and snap-together products
- Activation of the CW10 sterile and non-sterile pharmacy areas following construction
- DEA FORM 41

OR Initiatives

- Streamlining narcotic kits to just one kit type for CW operating rooms
- Sugammadex dose rounding to 25mg, 50mg, and 100mg syringes
- Provider utilization of order sets ahead of expected surgical procedures
- Eliminate compounding of commercially available products such as lidocaine/epinephrine dilutions
- Phase 1 workflow redesign for PM technician workflow

Ambulatory Pharmacy Services

Providing Patient-Centered Services Across the Care Continuum

Ambulatory pharmacy services team members provide high-quality, patient-centered services across the care continuum, including medication use and regulatory support to our ambulatory clinics. Our pharmacists, technicians, residents, and interns are involved in direct patient care, medication provision, and initiatives to improve cost, quality, and patient safety. Our staff collaborates with teams of health care providers to provide the best care to all partners and provides care across five outpatient pharmacies, seven infusion pharmacies, specialty pharmacy services, and pharmacists embedded in clinics.

Community Pharmacy Services

The five community pharmacies at University of Michigan Health provide services to patients receiving care at UMH health centers, hospitals, emergency departments, and surgery centers, along with U-M employees, retirees, and dependents.

UMH community pharmacies specialize in difficult-to-obtain medications. These drugs may have limited distribution networks, may be used to treat complex disease states, or are uncommon and simply not stocked by local pharmacies. Select community pharmacies also provide comprehensive non-sterile and/or sterile compounding services for medications that are not commercially manufactured in liquid form.

FY22 Highlights:

Across All Sites

- Filled 284K+ prescriptions across 5 locations serving 138K+ patients
- Total operating revenue for U-M community pharmacies was \$71.5M
- Engaged parents and caregivers in pediatric medication counseling and dispensed Deterra Drug Deactivation System to those receiving opioid prescriptions
- Implemented a standing order for COVID-19 Test Kits to facilitate widespread access to testing

Taubman Center

- Processed 73K+ prescriptions, serving 32K+ patients

- Engaged special populations including adult and pediatric LVAD, BMT, ventilator, cardiology, and transplant patients in comprehensive medication reconciliation before discharge

Rogel Cancer Center

- Processed 20K+ prescriptions at the Rogel Cancer Center Pharmacy serving 14K+ patients
- Initiated and received approval for 4K+ prior authorizations, facilitating medication access for patients with cancer
- Provided comprehensive medication education in compliance with federal REMS program requirements for common oral chemotherapy medications
- Onboarded Michael Cramer, Cancer Center Pharmacist following the retirement of Karen Dunlap

East Ann Arbor

- Processed 171K+ prescriptions

Kellogg Eye Center

- Onboarded Paul Workman, Lead Pharmacist
- Provided sterile compounding services to on-site operating rooms as well as patients requiring compounded Vancomycin/Tobramycin eye drops

Brighton Center for Specialty Care

- Processed 9K+ prescriptions



Kellogg Eye Center team: Blake Taylor, Jessica Pflueger, Paul Workman, Katherine St. Amour, Farah Mian, Amanda Rivera



Rogel Cancer Center team: Khoa Tran, Mathew Barras, Chelsea Schaefer, Michael Cramer, Janae Boyd



Taubman Center team: Michelle LaMay, Jennifer Freel, Ashley Popp, Steve Davies, Allison Cole, Frank Pawlicki, Kevin Siu, Heather Oard, Leah Fershtman, Katelyn Meyer, Fatima Waheedi, Diane Hobbs, Sarah Lakehal-Ayat, Jennifer Baldrige



284K+
Prescriptions
filled

Ambulatory Pharmacy Services



26K+
Co-insurance
checks
performed



19K+
Insurance
or pharmacy
issues resolved



33K+
Prior
authorizations
submitted



1,640
Payment
assistance and
copay card
applications
submitted

Transitions of Care Clinic Pharmacy

The Transitions of Care (TOC) clinic pharmacy technician team strives to facilitate prompt patient medication access. The TOC clinic technician team performs co-insurance checks to assure the affordability of medications, submits prior authorizations, appeals rejected prior authorizations, discovers preferred alternative medications, and overcomes any other barriers that might prevent patients from beginning or continuing therapy. These technicians significantly reduce wait times for obtaining medications, thereby improving patient outcomes and satisfaction.

The TOC clinic team includes 26 pharmacy technicians who aid patients with medication access in the cardiovascular, dermatology, endocrinology, gastroenterology/infectious disease, hepatology, pediatric multispecialty, post-transplant, pulmonary/nephrology, rheumatology, urology, and general medicine services lines within ambulatory care. These technicians play an integral role within the interdisciplinary patient care teams of these clinics and are often consulted by clinic nurses and providers.

FY22 Highlights:

- Expanded to include West Ann Arbor pulmonary/allergy, pediatric gastroenterology, Briarwood rheumatology, neurology, and East Ann Arbor psychology clinics, and added a floating clinic technician
- Hired 10 new clinic technicians
- Significantly reduced patient complaints and risk reports
- Worked with specialty pharmacy expansion to increase medications filled with Michigan Medicine, thus streamlining patient care and increasing volume
- One technician escalated a prior authorization to the state level to counteract a patient's insurance company's continual denial of coverage for a medication
- The previous supervisor, Lindsey Clark, transitioned to a new role overseeing all community pharmacies with Brandon Harkonen becoming the new supervisor

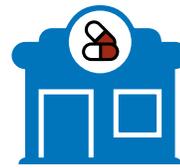
Transitions of Care Discharge Pharmacy

The Transitions of Care (TOC) discharge medication access pharmacy technician team strives to make the transition from hospital discharge to home as seamless as possible. The discharge medication access team performs co-insurance checks to assure the affordability of medications, submits prior authorizations, appeals rejected prior authorizations, discovers preferred alternative medications, and coordinates the filling and bedside delivery of medications to discharging patients. These technicians noticeably increase patient satisfaction during the transition from hospital to home.

The TOC discharge team includes four bedside delivery technicians, three medication access technicians, and one pharmacy intern coordinating adult inpatient discharge medications and their delivery via the MiRxExpress service. The team currently helps patients discharging from University Hospital, Frankel Cardiovascular Center, Von Voigtlander Women's Hospital Service, Adult Hematology/Oncology Service, Pediatric Endocrinology Service, and the Adult Emergency Services Department.

FY22 Highlights:

- Hired three new discharge technicians and currently hiring a technician for a new adult Bone Marrow Transplant discharge medication access technician
- Completed a highly successful MiRxExpress program trial including patients discharged from Mott Children's Hospital
- Staci Joseph, the technician supervisor for the discharge medication access team, transitioned to a more administrative role



197
Insurance
or pharmacy
issues resolved



7K+
Co-insurance
checks
performed



1,081
Prior
authorizations
submitted



7
Pharmacy
techs on team

Ambulatory Pharmacy Services



Ribbon cutting at EAA room B1-201 (previous infusion space), Dana Habers, Stan Kent, Mandy Helinski-Reed, Lauren Goetz, Rachel Cortis, John Clark, Caitlyn Hernley, Sarah Kaspari, Hae Mi Choe, Brandon Harkonen, Jiyon Nam, Crystal Ford-Nalli, Megan Pichla, Lindsey Kelley, Dawn Jackson.

FY22 Highlights:

- Purchased a new building to grow and ensure every patient has access to high-quality, convenient pharmacy care
- The specialty fulfillment team moved, allowing for continued growth while a new facility is constructed
- Patient satisfaction survey indicates over 95% of patients are extremely satisfied with our services and 99% would recommend our Specialty Pharmacy
- Specialty pharmacy welcomed new clinical pharmacists, patient financial coordinators, pharmacy technicians, and interns
- The team contemporized workflow by converting to paperless order communications within MiChart, minimizing paper-based errors
- Expanded the specialty pharmacy program into neurology, rheumatology, pulmonology, dermatology, and bone marrow transplant to improve the patient experience, enhance clinic efficiency, and provide real-time connection with patients and prescribers

Specialty Pharmacy Services

The Specialty Pharmacy Team ensures timely and continuous access to specialty and transplant medications. This team primarily handles medications that are either self-administered injectables, high-cost, and/or require special handling. Our pharmacists support patients with comprehensive, personalized care throughout the entire treatment process and ensure patients are getting the correct medications. Patient financial counselors reduce financial barriers to starting and continuing specialty medication therapy. Technicians in our call center coordinate medication refills; technicians in our fulfillment area fill prescriptions and prepare them for patients to send direct to their homes or pick up at a U-M pharmacy location. All team members help patients access their specialty prescriptions.

The Specialty Pharmacy Team maintained all aspects of specialty pharmacy services including medication access coordination, refill reminder calls, and clinical and fulfillment pharmacy needs.

Specialty Pharmacy Services – FY22 Statistics

Specialty Pharmacy Area	Monthly average
Call center	
• Inbound calls handled	2,200
• Outbound calls handled	3,600
Medication access	
• Patient touch points to start and continue medications	2,400
Patient Management Program	
• Patients enrolled in U-M Specialty Pharmacy Patient Medication Program	2,800
Fulfillment	
• Prescriptions shipped	13,200
• Packages shipped	4,900

Prescription volume trend increased throughout FY22. This is reflective of work across all specialty pharmacy teams.



13K+
Prescriptions
shipped



2,200
Inbound calls
handled

Infusion Pharmacy Services

The infusion team is located in Ann Arbor and the surrounding suburbs and is composed of roughly 66 team members (pharmacists, pharmacy interns, and pharmacy technicians).

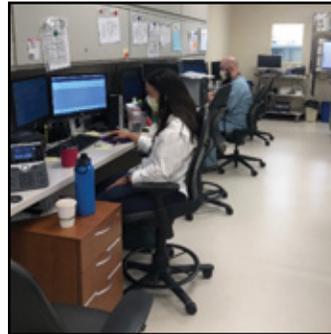
There are three infusion centers with a dedicated pharmacy on the main medical campus: C. S. Mott Children’s Hospital 7th Floor (CW7), A. Alfred Taubman Health Care Center, and Rogel Cancer Center.

Infusion centers in the Ann Arbor suburbs with a dedicated pharmacy include: Brighton Center for Specialty Care, East Ann Arbor Health Center, and West Ann Arbor-Parkland Plaza.

There are additional sites and specialty clinics supported by the infusion team for either infusion medications, hazardous biologic compounding, and other chemotherapy instillations: Chelsea Multispecialty Clinic, West Shore Urology, Allergy Clinic, Mohs Clinic, Interventional Radiology, and Urology Oncology Clinics.

FY22 Highlights:

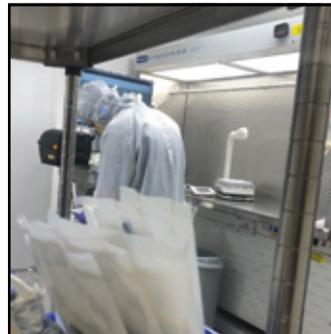
- Coordinated COVID monoclonal antibody infusions and subcutaneous injection treatments within Ambulatory Infusion Sites
- Assisted infectious disease department with screening and scheduling of COVID+ patients for monoclonal antibody treatment
- Finalized the transition from DoseEdge to BD IV Prep at all infusion site locations
- Collaborated with the Research Pharmacy on a new workflow for investigational drugs through BD IV Prep
- Successful transitioning of Jelmyto (mitomycin) pyelocalyceal treatments to BCSC Infusion for patients being treated at Brighton Multispecialty Clinic
- Successful trialing and sampling of two new CSTDs for the FY22 CSTD RFP. Assisted with implementation and go-live of adult infusion sites
- Successfully completed a state board inspection through NABP at our WAA Infusion site
- Began compounding and shipping BCG bladder instillations for Chelsea Multispecialty Clinic out of WAA Infusion
- Established Amerisource Bergen (ABC) and Omnicell accounts at all infusion offsite locations
- Implemented the use of a new elastomeric pump—SMARTeZ pumps
- Collaborated with Infusion Core Business Service Team in taking over patient-own medication (POM) services
- Continued growing and developing our Ambulatory Infusion Pharmacy/Oncology Advance Practice Pharmacy Experience for College of Pharmacy students



Pharmacist Brooke Hoff verifies compounds in BD IV Prep, and technician Kyle Bartle performs the drug order through ABC and Omnicell at the Brighton Center for Specialty Care Infusion Pharmacy



Pharmacy technician Lucinda Smith performs sterile compounding via IV Workflow Management System BD IV Prep in the HazD buffer room at the Brighton Center for Specialty Care Infusion Pharmacy



Pharmacy technician Brandon Biggs performs sterile compounding in a LAFW in the NHD buffer room at the Rogel Cancer Center Infusion Pharmacy



Pharmacist Joel Graham and technician Brandon Biggs in the general pharmacy area at the Brighton Center for Specialty Care Infusion Pharmacy



29.5
Pharmacists
FTEs



22.2
Technicians
FTEs



4.8
Other staff
FTEs



687K+
Orders verified



125K+
Doses dispensed

Hematology/Oncology Pharmacy Services

Inpatient Oncology Pharmacists

The inpatient oncology clinical specialist team comprises seven pharmacists providing care to 10 inpatient oncology services in C.S. Mott Children's Hospital and University Hospital. This team provides care for up to 100 complex pediatric and adult patients per day in the areas of bone marrow transplant, cellular therapy, medical oncology, and hematology. This team continues to advance the role of the pharmacist as an integral member of the care team with treatment planning, collaborative research initiatives, policy and guideline creation, and oncology stewardship.

Ambulatory Oncology Pharmacists

The ambulatory oncology clinical specialist team includes nine pharmacists who provide care in the Rogel Cancer Center, C.S. Mott Clinics, and the Brighton Center for Specialty Care. These pharmacists provide comprehensive oncology care as independent and collaborative care providers within the constructs of the medical team. This team provided pharmacist services for over 7,000 patients this year which accounted for over \$140,000 charges billed to patients' insurance.

Oral Medications for Cancer Therapy Program

The Oral Medications for Cancer Therapy Program was initiated in 2012 and follows all patients receiving oral anti-cancer medications. This team includes three pharmacists, two pharmacy interns, and four financial coordinators. The focus of this program is on streamlining and providing support for medication access, providing medication reconciliation, patient medication education, patient compliance/adherence information, drug-drug interaction review, and medical record documentation. This team also works on creating and providing the health system with oral medication education to empower patients in self-management of adverse effects yet know when to contact their clinic providers. The team evaluates and cares for more than 3,000 patients/year. This year the program has contributed to high performance on many of the ASCO GOPI measures and URAC accreditation in our specialty pharmacy partnership.

Clinical Orders Team

The University of Michigan continues to optimize workflows with the EPIC Beacon product for chemotherapy CPOE. This work is supported by a clinical orders team, which provides evidence-based reviews for treatment protocol requests and leads a standardized approach to the build for orders templates. The team of two-and-a-half pharmacist FTEs maintains over 1,200 commercial treatment or therapy plans and collaborated to manage over 330 research plans this year.

Medication Reconciliation Programs

The pharmacist-run medication reconciliation program for Cancer Center patients is an integral component of improving patient care and clinic efficiency. It is supported by IPPE students through partnership with the University of Michigan College of Pharmacy and pharmacist interns with infusion clinical pharmacist preceptorship. The program provides complete medication reconciliation for patients prior to their first Cancer Center visit. In addition, pharmacist team members provide Medication Management Services by request in which the pharmacist reviews medications, including herbal and dietary supplements, and assesses for drug or disease interactions. Recommendations are communicated with the patient's primary oncology team.

FY22 Highlights/Accomplishments:

- Served in a total of 46 committee and tumor board positions for Michigan Medicine & national, state, and local organizations
- Invited on the editorial board for *Elsevier Pediatric Hematology Oncology Drug Information*
- Peer reviewed for the *Journal of Oncology Pharmacy Practice*
- Invited to join NCCN Older Adult Oncology Panel
- Invited on American Society of Hematology AYA ALL Guidelines
- President of MSHP
- Developed a workflow for the monitoring and management of bispecific antibodies
- Significant revisions to Utilization of Floxuridine (FUDR) Hepatic Arterial Infusion Pumps (HAIP) in Adult Patients Guideline
- Awarded multiple Making a Difference Awards, Pharmacy Faculty Preceptor of the Year Award, HOPA Basic Science and Clinical Research Literature Award (second year in a row), and a nomination for Oncology Preceptor of the Year
- Developed a Cytokine Release and Neurotoxicity Guideline in Hematology
- Expansion of nausea text messaging program to Brighton Center for Specialty Care and Mott Children's Hospital
- Preceptor for 64 oncology rotations for residents and pharmacy students (10 IPPE, 20 APPE, at least 15 PGY-1, 20 PGY-2)
- Led the teaching certificate program for pharmacy residents

Delivered over



Presentations and lectures to health care providers and managed care professionals



15 Publications

Pain Management and Palliative Care



Abbey Schwery (PGY-2), Jillian DiClemente, Rania Bazzi (PGY-2)



Madison Irwin



7K
Visits supported



520+
Epidurals



2,800+
Consults



1,400+
Regional interventions

Pain Management and Palliative Care

The Pain Management and Palliative Care Team provides inpatient and ambulatory care for Palliative Care Services and Clinics, Inpatient Adult Acute Pain Service, Opioid Stewardship, and Addiction Consult Team. Our team's main responsibilities include providing clinical expertise to consult services and clinics, addressing institutional change through active participation in over 14 institutional and College of Pharmacy committees, precepting students and residents, multidisciplinary education, and participation in institution-wide initiatives.

SERVICE METRICS

- Supported more than 7,000 inpatient and outpatient visits with the adult palliative care service
- The Adult Acute Pain Service managed pain in more than 520 patients with epidurals, more than 1,400 patients with regional interventions, and more than 2,800 inpatient pain management consult or follow-up consult visits
- The Addiction Consult Team supported more than 700 inpatient consults for substance use disorder and or complex pain management and initiated a medication for opioid use disorder in 195 patients

FY22 Highlights:

- Chaired the Pain and Opioid Stewardship Subcommittee to improve the safe and effective use of opioids and other analgesics
- Core member and Metrics Team Lead for Rewrite the Script, an institutional initiative aimed at addressing pain management and opioid use disorder
- Program development and growth planning for expansion of pain and palliative care pharmacy services
- Development of the opioid stewardship clinical dashboard for the tracking, monitoring, and evaluating of patients experiencing pain
- Helped to revise or optimize several pain- and palliative-related policies and guidelines
- Coordinated a unified responsive to feedback on newly proposed CDC Opioid Prescribing Guidelines
- Mentored and/or precepted 10 students and 22 residents
- Nine publications, seven scientific presentations, four CE presentations, one podcast, and more than \$190,000 in grant funding
- Recruited the 5th PGY-2 for the PPC residency program including one non-traditional PGY-2 resident in pain management and palliative care and continued the fellowship in pain research
- Chair the Research Committee of SPPCP
- Team members for the Michigan Opioid Prescribing Engagement Network (M-OPEN) to address postoperative and acute care opioid prescribing statewide

Pharmacy Quality, Regulatory Compliance, Safety, and Analytics

Improving Care, Protecting Patients

The Pharmacy Quality, Regulatory Compliance, Safety, and Analytics (PQRSA) division is composed of experts in the practice of pharmacy, applicable rules and laws, best practices, improvement methodology, and optimal use of data, among other things. While the list of teams may seem disparate, the way that they serve the department, institution, and our customers and patients is actually quite similar. These teams work throughout all areas of the Department of Pharmacy to ensure continuous improvement, regulatory compliance, the safety of our teams and patients, and evidence-based decision-making.

Ensuring continuous **quality improvement** is critical to our efforts to be Leaders and Best and serve our patients in a highly reliable way. The team uses tried and true improvement methodologies to identify opportunities to improve and collaborates with subject matter experts to fully understand our processes, plan for improvement, execute change, and assess our impact. The team generates and supports projects aimed at enhancing the safety and effectiveness of the care we provide.

Regulatory Compliance in many realms is simply the enforcement of minimum quality and safety standards, but our teams operate as trailblazers even in this regard. The Diversion Prevention and Compounding Compliance Teams are both best in class and recognized as experts in the industry, often helping to craft new standards, and pushing best practices. The team also ensures we excel with regard to Joint Commission Medication Management standards and applicable National Patient Safety Goals. Our compliance teams approach their work in a supportive and collaborative manner, assuming but verifying that our teams operate with good intentions and providing assistance wherever possible to uphold safe and effective practices.

Medication Safety is everyone's responsibility. However, our skilled pharmacists and technicians ensure we have a systematic, reliable approach to address things not going to plan — both reactively and proactively. The team uses pure, humble inquiry, LEAN thinking, and high reliability skills to work with subject matter experts on error response and prevention. The culture of safety in the Department of Pharmacy starts with this team and is critical to a healthy work environment and safe patient care. The team fosters the safety needed for difficult conversations as well as the safety needed for innovation.

Pharmacy Analytics is the newest team within PQRSA. This group of technical experts has built the foundation for an engine that has the potential for truly cutting-edge analytics. The team builds and maintains information mega-highways to support data-based decisions. From dashboards and simple lists for compliance to machine learning and forecasting based on complex algorithms, the analytics team works with subject matter experts to ensure we understand the work we do, its impact, and our opportunities based on data of all sorts.



Jacob Holler, PharmD, MS, Director of Pharmacy Quality, Regulatory, Safety, and Analytics

Pharmacy Quality, Regulatory Compliance, Safety, and Analytics



CCT Members: Sybil MacDonald, Joey Jessing, Scott Blackburn, Jamie Tharp, Mackenzie Holden, David Melton, Carrie Penzien, Cheyanne Ward, and Craig Rurka



In-person labs resume in CCT-led Non-Sterile and Sterile Compounding labs

Compounding Compliance

The scope of pharmacy compounding at UMH encompasses 19 sterile compounding locations, nine non-sterile compounding locations, and approximately 450 compounders. The role of the Compounding Compliance Team (CCT) is to ensure regulatory compliance with compounding and hazardous drug safe handling standards. The CCT's primary mechanism to ensure ongoing regulatory readiness includes:

Compounder education and competency assessment through New Employee Aseptic Technique (NEAT) training during department orientation and ongoing annual media fill assessments

Compounding facilities monitoring through routine and ad hoc environmental sampling, viable air and surface sampling, certification of IV hoods/clean rooms, and evaluation of continuous systems monitoring trends

Developing and maintaining **policies, procedures, and job aids** within our scope of responsibility

Monitoring compliance of policies and standards through

- Leading the Compounding Compliance Oversight (CCOC) and Hazardous Drug Oversight (HDOC) Committees
- Conducting onsite audits of all compounding locations and review of cleaning logs and compounding records

FY22 Highlights:

- Progressed hazardous drug safe handling through
 - » Planning and coordination of a request for proposal (RFP) to evaluate a replacement closed system transfer device (CSTD) for UMH. The prior CSTD (PhaSeal) was replaced with the Halo brand system
 - » Leading USP 800 compliance project implementation planning in coordination with the Hazardous Drug Oversight Committee
- Planning and coordination of a Department of Pharmacy Non-Sterile Compounding (USP 795) practice advancement initiative
- Insourcing the incubation of personnel viable samples (e.g., media fills and gloved fingertip testing) within the CCT to save an estimated \$70,000/year
- Enhancing sterile compounder education and competency assessments to incorporate the use of IV workflow (e.g., BD IV Prep) and automated compounding device (e.g., Repeater pump) equipment
- Hosting and managing findings response for multiple inspections/surveys from the National Associations of Boards of Pharmacy (x 4) and a mock inspection by Joint Commission Consultants

Presentations

- Penzien C. **MPA Annual Conference and Exposition**
- Tharp J. *Making your Certification Reports and Certifier Work for You*; **ASHP Summer Meeting**
- Tharp J. *Applying Critical Evaluation Skills to Improve Your Pharmacy Certification Report*; **ASHP Summer Meeting**
- Melton D. *Managing a 503A Environmental Monitoring Program to Stand Up to Inspection*; **Compounding Compliance East Conference**

Diversion Prevention

The Diversion Prevention Team (DPT) aims to prevent, detect, and respond to controlled substance (CS) diversion.

- Prevention efforts include inservices tailored to the departments of nursing, pharmacy, and anesthesia while all employees receive education through annual MLearning modules. The DPT helps ensure that CS policies and procedures meet applicable regulatory requirements and best practices.
- Detection of controlled substance diversion is done primarily through data analytics but can include internal reports through the compliance hotline, safety reports.
- The DPT responds to potential CS diversion by conducting a thorough investigation and coordinating with area leaders, human resources, and the Office of Counseling and Workplace Resilience (OCWR) when necessary. The DPT leads investigational interviews and reports to all regulatory bodies when applicable.

In addition to preventing, detecting, and responding to CS drug diversion, the DPT is the centralized resource for guidance on CS handling. The DPT leads the Controlled Substance Safety and Compliance Committee which is a multidisciplinary committee that maintains compliance with CS policy and regulatory standards, supporting diversion prevention efforts, monitoring, and responding to key CS metrics to mitigate risk.

FY22 Highlights:

- Saved over 1,150 nursing hours through reconciliation efforts
- Became part of both IPPE and APPE student rotations
- Assisted in migrating data to PharmDW in partnership with Pharmacy Analytics to help stabilize access to data and expand the ability to detect CS diversion
- Saved over 300 hours of effort across nursing, pharmacy, and anesthesia by investigating and facilitating the resolution of Pyxis discrepancies
- Filed two DEA 106 forms
- Formally evaluated commercial diversion detection systems against internally created software
- Began formally closing gaps identified in our FY21 pharmacy CS gap analysis



Christie Campbell - Diversion Prevention Analyst



Steven Harvey, BSN, RN - Interim Manager, Diversion Prevention Program



447
In-depth
reviews
conducted



50+
Education
inservices
conducted

Pharmacy Quality, Regulatory Compliance, Safety, and Analytics



312
Inspections
completed



Karrie Sokolowski



29
Controlled
substance
inspections



Tiffany Smith

Medication Management, Quality, & Safety

MEDICATION MANAGEMENT

The Medication Management team's primary responsibilities include auditing our ambulatory care clinics and inpatient, community, and infusion pharmacies to support and ensure regulatory readiness. The team also serves as content experts for medication management standards and is responsible for responding to all queries involving these standards from the accreditation team, subject matter experts, and leaders across Michigan Medicine. Additionally, the team acts as a liaison between ambulatory care leaders and staff and the Pharmacy Department as it relates to medication management.

FY22 Highlights:

- 100% of community and infusion pharmacies and 96.5% of inpatient units maintain compliance with biannual unit inspections
- Departmental SME for policy management review in PolicyStat to ensure regulatory compliance
- Removed all controlled substances from two ambulatory care clinics
- Removed two high-alert medications from two ambulatory care clinics
- Completed 17 inspections across Pharmacy locations
- 16 Hot Topics highlighting Medication Management Standards to educate staff
- Quarterly newsletter for Ambulatory Care colleagues
- Cross-trained to increase medication safety outreach in Ambulatory Care environment
- Partnered with the Accreditation team to develop a workgroup to discuss common findings and ensure consistency between teams
- Inserviced new pharmacy staff on regulatory readiness and department policies
- Represented pharmacy on related committees such as Accreditation and Regulatory Readiness Committee (ARRC), Ambulatory Care Sites Subcommittee, and Inter-Professional Policy Committee (IPPC)
- Inserviced nursing leadership in Ambulatory Care on controlled substance handling and auditing expectations

QUALITY & CONTINUOUS IMPROVEMENT

Quality focus is on analyzing and improving outcomes, optimizing clinical processes and operations, supporting regulatory readiness, and supporting educational platforms for Quality, Continuous Improvement, and Safety. Julia Pasco is the Continuous Improvement Specialist who coordinates quality improvement projects.

Continuous Improvement Accomplishments:

- Pharmacy C&W Pyxis optimization
- FMEA Life of an order for UH B2 pharmacy and CW pharmacy process
- Current state workflow map of UH B2 and CW pharmacy stat orders
- Monthly report for stat orders in UH B2 and CW pharmacies
- Analysis of current state call-in volumes for UH and C&W technicians
- Identified variations in the current state of MM Ambulatory pharmacies



25
Quality Month
posters



Julia Pasco

FY22 Highlights:

Quality Month posters highlighted:

Time savings:

- Medication cart-fill process
- Reduced time delivering first dose antibiotics for sepsis treatment
- Medication formulary review to improve efficiency
- Pharmacy order optimization
- Improved controlled substance reconciliation
- Nurse-managed standardized tacrolimus therapeutic drug monitoring

Costs savings:

- Melphalan cost reduction, formulation, and dispensing changes
- Outmigration of TIP chemotherapy regimen
- Improving care coordination for pediatric leukemia patients receiving continuous infusion blinatumomab

Increased preventative behaviors:

- Always S.A.F.E. spotlight on medication safety
- Increased safety and quality awareness in the cleanroom

Quality enhancement, systems and services:

- Calculating morphine milligram equivalents
- Evaluating adherence to stress ulcer prophylaxis (SUP proton pump inhibitor (PPI)) protocol after cardiac surgery
- Impact of a general handbook to assist residents in caring for cardiovascular patients
- Preventing delays in care & discharge of patients
- Implementation of a spontaneous awakening trial protocol in the CICU
- Optimizing resident feedback in a virtual world
- Comparing dexmedetomidine vs propofol for time to extubation in select patients
- COVID-19 vaccine capacity dashboard
- Walk-in blood pressure check
- BHC COVID-19 vaccination focus measure gap closure pilot
- Reducing high-dose and off-label use of Xeljanz
- First-time quality for oral chemotherapy prior authorizations
- Implementing a dietary tip-sheet for specialty pharmacy patients on dimethyl fumarate (Tecfidera)

Pharmacy Quality, Regulatory Compliance, Safety, and Analytics



Medication Safety Team: Scott Ciarkowski, Christina Seeley, Wesley Wright, and Jeff Hurren



Courtney Doellner



7.3M
Doses
administered



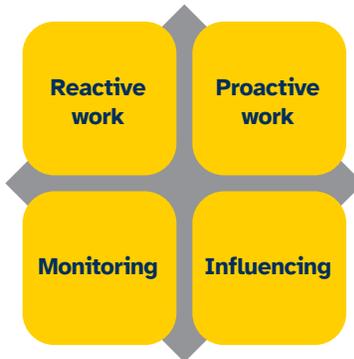
5,800
Medication-
related events
reported

MEDICATION SAFETY

The Medication Safety team’s responsibilities include reviewing medication events, safety improvement initiatives, medication use system surveillance, apparent cause analysis, root cause analysis for significant medication events, failure mode effects analysis for proactive work, and gap resolution identified through review of best practices and self-assessments.

FY22 Highlights:

- Conducted four medication use evaluations (MUE)
- Completed 11 Apparent Cause Analysis (ACA) and Root Cause Analysis (RCA)
- Completed three Failure Modes Effects Analysis (FMEA)
- Review of medication-related safety events voluntarily reported
 - » Medication-related events are either the #2 or #3 event type reported within Michigan Medicine
 - » 44% of reported incidents occurred prior to reaching the patient
 - » Events with patient harm represent ~10% of reports
- 6,032 risk report reviews
- 456 report follow-ups
- 58 E3 or greater event reviews
- 408 Alaris pump updates
- 329 Good Catch nominations
- 86 ISMP report organizations assessments
- 15 FDA Medwatch reports
- 15 Medication Safety observations cycles, involving 182 staff members
- Five ISMP reports
- Seven ADC (Pyxis) override reviews
- Education: HSPAL, Community Pharmacy, Research, Informatics, and PGY-1 Medication Safety resident rotations and APPE, IPPE student rotations
- 31 MedSafety technician/ Intern and 18 MedSafety Pharmacist onboarding sessions



Medication Use Policy

The Medication Use Policy (MUP) team relocated to a new office building at 2705 South Industrial in May. The team's primary focus continues to be the safe and effective use of medications throughout the institution. MUP's main responsibilities include supporting the Pharmacy and Therapeutics (P&T) Committee and providing drug information services. Core services include formulary management, medication use evaluations, development and revision of medication use policies/guidelines, answering drug-related questions, and supporting P&T Subcommittees. The MUP team also serves as a primary experiential training site for APPE pharmacy students and PGY-1 pharmacy residents.

FY22 Highlights:

- Facilitated 12 P&T Committee meetings
- Published 12 editions of the Pharmacy ForUM newsletter
- Supported 15 P&T Subcommittees
- Completed five drug class reviews
- \$1.5 million in estimated cost savings and cost avoidance through the Product and Vendor Selection Committee (PVSC)
- Developed an internal pharmacy external pharmacy review tool
- Assisted the critical care team with appropriate dexmedetomidine infusion dosing and durations
- Precepted 14 PharmD Candidates on a Drug Information APPE rotation
- Precepted 14 PGY-1 Pharmacy Residents on a Medication Use Policy rotation



Natalya Salganik, Emily Han, Kaylyn Dougherty, Karin Durant



Karin Durant, Julie Berman, Natalya Salganik, Kathy Dasse



12
ForUM
newsletters



12
P&T Committee
meetings



\$1.5M
Cost savings
through PVSC



Pharmacy Quality, Regulatory Compliance, Safety, and Analytics



(Top row) Andrew Bradley, Senior Project Manager; Thomas Mobley, Senior Business Info Analyst. (Bottom row) Chris Mannina, Pharmacist Specialist, Analytics; Karl Renius, Manager, Pharmacy Analytics; Rich Tata, Senior Clinical Info Analyst

200+

Tickets closed in six months

Pharmacy Analytics

Pharmacy analytics is inclusive of the data, tools, and methods used to help us to better understand our work and its impact on our patients and business. Primary components are data pipelines, data warehousing, retrieval, and analysis. Major analytics domains for the work include workload and productivity, drug costs and utilization tracking, clinical outcomes, diversion detection, and business intelligence.

FY22 Highlights:

- Formalize Pharmacy Analytics team, onboarded and trained new members
- Creation of ServiceNow processes for prioritization and transparent demand
- Joined Trusted Service Provider IT Community, increasing trust and access in IT domains
- Over 200 tickets closed in the first six months

Projects

Staffing Crisis Support – data model and visualization using Humanity data

- Provides insight into staffing levels over time and trajectory of changes

Acute and Ambulatory Care Consolidated Model and Dashboards

- Merges workload data with Humanity staffing metrics, allowing workload and staffing to be measured together

Specialty Pharmacy Analysis and Support

- Extensive data model and analysis to support Specialty pharmacy initiatives and key performance indicators

RxNorm Integration across purchasing, QS1, MiChart, and BD datasets

- Integrates medications between systems, previously not possible because each system has its own medication IDs. Opens the door for medication analysis across the health system

Design and Implementation of a Python-based Data Automation Platform

- Allows for much greater flexibility with data pipelines using programming languages instead of vendor-based software

Rebuild and Migration of Diversion Prevention Platform

- Moved data and analysis to the data warehouse for future-proofing and integration with other systems

Research Pharmacy

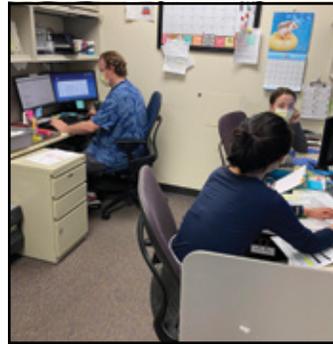
Research Pharmacy

The goal of the Research Pharmacy (RP) is to ensure that investigational drug studies and other drug-related research at Michigan Medicine are conducted according to the study protocol and in a safe and efficient manner. In doing so, the RP assists investigators in complying with the requirements of the FDA, study sponsors, Good Clinical Practice (GCP) guidelines, Michigan State Board of Pharmacy Regulations, Joint Commission standards, and Michigan Medicine policies. The RP will only handle protocols that have approval of the University of Michigan Medical School (UMMS) Institutional Review Board (IRB).

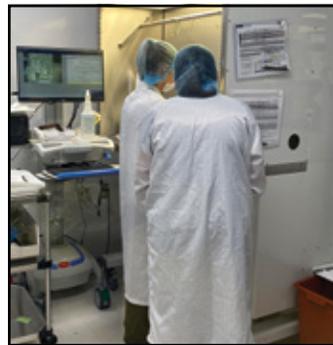
The RP is responsible for all pharmacy activities related to each research protocol that it oversees, including but not limited to procurement, storage, handling, labeling, dispensing, and disposal of investigational medications. Additionally, the RP's pharmacists develop protocol-specific dispensing guidelines that summarize these activities which ensure that all RP and satellite pharmacy staff are properly trained in proper dispensing and handling of each investigational medication in compliance with the study protocol and all regulations and policies. RP staff is responsible for maintaining proper documentation, inventory accountability, and oversight for all RP managed protocols.

FY22 Highlights:

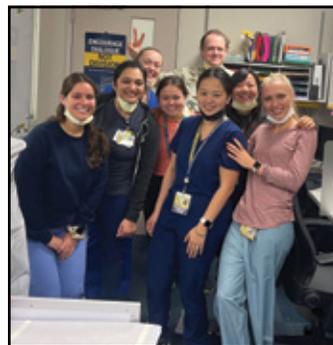
- Onboarded and trained three new pharmacists, five new certified technicians, three new interns, one PGY-2 resident, one new portfolio coordinator, and introduced the role of a new Residency Coordinator position
- Activated 180 new clinical trials, enrolled 1,200+ new study participants, dispensed 12,000+ doses of investigational product, and supported 66 new expanded access patients
- Demonstrated regulatory compliance via audits of over 120 studies and 800+ sponsor monitoring visits
- Implemented and optimized the workflow for BD IV Prep to compound sterile investigational products
- Planned implementation of USP <800> for hazardous drug handling of investigational products in alignment with institutional criteria and processes
- Most dispensing occurred in RP's location in B2 Central Pharmacy, followed by infusion/outpatient satellite pharmacies
- Dispenses were also supported in inpatient satellite pharmacies, Brighton Center for Specialty Care (BCSC), and by shipping



Inventory technician, Thomas White, works diligently to receive investigational products while technicians Adrienne Palmer and Rachael Sitarek prepare kits to be sent to Cancer Center.



Senior technician, Mckenzie Modigell, trains Shruti Naik on preparing sterile compounded investigational products in the segregated compounding area.



A portion of the Research Pharmacy team.



600
Open studies
maintained per
month



24
New studies
opened each
month



15
Studies closed
each month

Antimicrobial Stewardship Program



Infectious Diseases Team: Michelle Lee, Sam Aitken, Caleb Rux, Jerod Nagel, Karen Davidge, Greg Eschenauer

med.umich.edu/asp

Antimicrobial Stewardship Program

The Antimicrobial Stewardship Program (ASP) at Michigan Medicine is a collaborative effort between the Division of Infectious Diseases, the Division of Pediatric Infectious Diseases, the Department of Pharmacy Services, Infection Prevention, and Clinical Microbiology. The ASP was established to promote safe, appropriate, and cost-effective antimicrobial therapy to optimize patient outcomes and to minimize the selection of pathogenic microorganisms and the emergence of resistance.

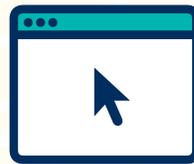
FY22 Highlights:

Launched four major initiatives:

- Beta-lactam allergy evaluation and testing service; approximately 300 patients de-labeled. 40% reduction in aztreonam utilization
- Multi-drug resistant bacteria treatment initiative; improved time to appropriate therapy and reduced hospital readmissions
- Pediatric handshake stewardship; 11% reduction in PICU antimicrobial utilization
- Ambulatory UTI treatment initiative; 65% reduction in inappropriate fluoroquinolone utilization

Coordination of inpatient and outpatient COVID treatment programs. See figure below for outpatient COVID treatment numbers

Antimicrobial stewardship continues to be a valuable resource: 114,535 views across 115 countries



114K+
Website views
across 115
countries



65%
Reduction in
inappropriate
fluoroquinolone
utilization



40%
Reduction in
aztreonam
utilization

HomeMed

HomeMed Infusion Pharmacy

HomeMed Infusion Pharmacy, in the division of Post-Acute Care Services, provides traditional and specialty pharmacy home infusion services to patients throughout Michigan, and in the states of Ohio, Indiana, and Florida. HomeMed facilitates and supports the coordinated continuum of care as patients and their families transition from the inpatient and outpatient settings to the home environment. The HomeMed team provides comprehensive and individualized in-home pharmacy and nutrition infusion products, specialty infusions, sterile compounding, clinical care management services, care coordination and monitoring, education and training, in-home nursing visits, and over the threshold delivery.

FY22 Highlights:

- All HomeMed Staff completed formal training in Diversity, Equity, and Inclusion
- Completed Quality Assurance Performance Improvement endeavors sourced to Infection Control and Workload Leveling to optimize work practices and safety
- Launched pro forma evaluation for the development of an Ambulatory Infusion Suite (AIS) to support Michigan Medicine expansion strategy
- Year-Over-Year increase in volume of patients served
- Supported Michigan Medicine Site of Care strategy to support patient outmigration for receiving specialty infusions in the home setting
- Successful NABP Survey Inspection on behalf of the State of Michigan Board of Pharmacy
- Ongoing compliance with The Joint Commission and URAC Accreditation standards
- Collaboration within Post-Acute Care Services to support Michigan Medicine Initiative of the Year: Hospital Care At Home



Distribution: Jason Pereira, Intermediate Pharmacy Technician, Dustyn Hall, Ryan Koeller, Senior Pharmacy Technicians. Andre Brown, Home Care Service Technician - work together to prepare orders for delivery to patient homes



Clean Room: Neptune Keshavarzi, Clinical Pharmacist Specialist and Chen Lu, Senior Pharmacy Technician, collaborate during the checking process for compounded sterile products



Pharmacist: Corey Edge, Clinical Pharmacist Specialist, providing care management clinical services for patients receiving home infusions



Reception: Crystal Szappon, Patient Services Associate, managing the call center and triaging patient incoming telephone calls



75K+
Prescriptions
filled



6K+
Home nursing
visits



59K+
Deliveries to
patient homes



137K+
Compounded
sterile products



42K+
Patients served

Medication Use Informatics and Technology

FY22 Highlights:

- Completed MiChart upgrades
- Implemented GS1 barcodes in Compounding and Repackaged MiChart activity
- Deployed BD IV Prep to UH B2 Pharmacy and CW7 pharmacy
- Upgraded Pyxis Logistics
- Upgraded Pyxis ES
- MiChart programming points to disallow chemotherapy orders in therapy plans



11

Pharmacists



**Systems
support**



**7,900+
Requests
completed**

Medication Use Informatics and Technology

The Medication Use Informatics & Technology (MUIT) teams support enterprise informatics and health information technology, to facilitate the provision of safe, effective, and efficient medication-use. The Medication Use team resides within the HITS Clinical Revenue Cycle division.

In addition to implementation and support, the Medication Use teams educate pharmacy informatics professionals through the PGY-2 Pharmacy Informatics program and precepting of an Informatics intern, pharmacy residents, and students from the College of Pharmacy.

GOALS

- Improve ordering and enhance patient safety and quality of care
- Exchange information across technologies to support medication reconciliation and transitions of care
- Support meaningful use and other key initiatives
- Enhance quality of electronic data to support patient care, education, and research

MEDICATION USE TECHNOLOGY

The Medication Use Technology (MUT) team supports technology and systems. This includes technical support for the MiChart Willow and Beacon systems as well as other pharmacy systems. The team supports automated dispensing systems, provides ad hoc report production, and offers other technical assistance such as device support. Critical systems supported include the Pharmacy DataWarehouse, SharePoint, Pyxis ES, Pyxis Logistics, Pyxis C2Safe, DoseEdge, IV Prep, ScriptPro dispensing system, LabelSafe, and the QS/1 outpatient pharmacy system.

MEDICATION USE INFORMATICS

The Medication Use Informatics (MUI) team is a group of pharmacists and nurses within HITS that supports clinical informatics for the MiChart Willow (Pharmacy) and Beacon (Oncology) applications. The team is responsible for all medication build, inpatient medication order sets, ambulatory medication smart sets, oncology regimens, ambulatory infusion therapies, and research medication and protocol build. They also facilitate associated workflow validations and process improvements as they pertain to electronic health records.

LEADERSHIP

Steve Ramsey, MBA – Director, Departmental Applications

Mike Forman, PharmD, MBA – Manager, Medication Use Informatics and Technology

Susan Crowe, PharmD – Medication Use Informatics Team Lead

Jason Matuszkiewicz – Medication Use Technology Team Lead

Christopher Zimmerman, PharmD, BCPS – Coordinator, Electronic Health Record (EHR) Decision Support

Education & Professional Development

Education is one pillar of the Missions of Michigan Medicine and the University of Michigan, and the Department of Pharmacy Services has a strong commitment to education. We support Education and Professional Development through our Professional Development Committee, as well as through our support of new employee recruiting, onboarding, and training. These efforts are led by our Education & Professional Development (EPD) Team. Key areas where we support the education mission include our Pharmacy Residency Programs, Pharmacy Technician Training, Pharmacy Student Experiential Education, and our Pharmacy Internship Program.

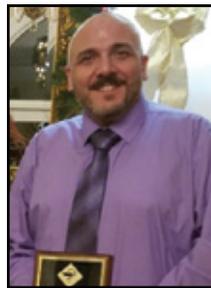
Recruiting, OnBoarding, and Training

This year was a very busy year hiring great new team members! Our team has worked hard to develop a standardized onboarding and core training to provide a great experience for new employees, and to help them feel welcomed to our team and prepared for success in their positions. This includes department orientation, welcome meetings with various leaders, and training meetings on some key aspects of practice (e.g., controlled substance management, medication safety, electronic health record). Our Pharmacy Technician core training, led and coordinated by **Chadi Abbas**, includes filling unit doses, Pyxis training, triage, pharmacy calculation, and non-sterile compounding. The training materials are reviewed and updated quarterly to ensure training remains current with pharmacy policies and procedures.

In order to improve efficiency in our recruiting and hiring process, and to provide candidates with a better experience, the EPD Team began conducting all pharmacy technician candidate interviews for our Department in October 2021. Overall, this has been very successful in streamlining the process, avoiding challenges with scheduling interviews, reducing the time to hire, and improving the candidate experience.

FY22 Highlights:

- All HomeMed Staff completed formal training in Diversity, Equity, and Inclusion
- Completed Quality Assurance Performance Improvement endeavors sourced to Infection Control and Workload Leveling to optimize work practices and safety
- Launched Pro Forma evaluation for the development of an Ambulatory Infusion Suite (AIS) to support Michigan Medicine expansion strategy
- Year-Over-Year increase in volume of patients served
- Supported Michigan Medicine Site of Care strategy to support patient outmigration for receiving specialty infusions in the home setting
- Successful NABP Survey Inspection on behalf of the State of Michigan Board of Pharmacy
- Ongoing compliance with The Joint Commission and URAC Accreditation standards
- Collaboration within Post-Acute Care Services to support Michigan Medicine Initiative of the Year: Hospital Care At Home



Chadi Abbas, CPhT
Pharmacy Technician
Recruiter & Trainer



Kaitlin Baisden, PharmD
Education & Professional
Development Coordinator
Pediatric Practice



Carolyn Richards, PharmD
Education & Professional
Development Coordinator
Adult Practice



Michael Kraft, PharmD,
BCNSP, FASPEN
Assistant Director
Education & Professional
Development

Education & Professional Development

Education & Professional Development

Professional development is vital to both employee job satisfaction and professional growth. In recognition of this, the Department of Pharmacy Services established the Professional Development Committee to provide team members with opportunities to expand their knowledge and further develop both their personal (such as stress/burnout, financial planning, etc.) and professional skills (such as precepting skills, leadership, etc.). The committee has been in place for approximately two years, and **Kaitlin Baisden** and **Carolyn Richards** serve as co-chairs.

FY22 Highlights:

- Organized quarterly Pharmacy Grand Rounds with the following presentations:
 - » **“Management of Oncologic Emergencies”** (November 2021): Martina Fraga, PharmD
 - » **“Renal Replacement Therapy in Adult and Pediatric Patients”** (May 2022): Michael Heung, MD, Bruce Mueller, PharmD, and Michael Kenes, PharmD
 - » **“Pharmacy Jurisprudence & Ethics Update”** (July 2022): Lindsey Kelley, PharmD and Steve Erickson, PharmD
- Organized one personal development seminar for pharmacy staff on stress & burnout, with another in development
- Collaborated with the Office for Health Equity & Inclusion (OHEI) to schedule several pharmacy-specific offerings of the required *“Building Toward Belonging: Michigan Medicine Implicit Bias Training”* for pharmacy staff, which allowed our staff to fulfill both an organizational and new licensure requirement
- Developed the Pharmacy Technician Certification Exam Topic Review M-Learning modules (Part 1 & Part 2) to address training discrepancies amongst technicians who are PTCE-certified vs. those who obtain a technician license through an employee-based training program (which may not address certain topics on the PTCE)



Education & Professional Development

Residency Programs



Kisha Prince
Pharmacy Residency Program
Administrator



Kate Starosta, PharmD, BCPS
Pharmacy Residency Manager
Incoming PGY-1 Pharmacy
Residency Program Director

Our Pharmacy Residency Programs strive to provide pharmacy residents with excellent training and educational experiences to develop practice and teaching and research skills, and nurture the pursuit of professionalism and leadership. Postgraduate pharmacy training is a deep part of our department's history in collaboration with the College of Pharmacy. The department established the first Pharmacy Residency Program in 1927 (previously called a postgraduate internship) under the leadership of Harvey A.K. Whitney, one of the founding members and first president of the American Society of Health-System Pharmacists (ASHP). Our residency program was also among the first Accredited Pharmacy Residency programs in the nation. Currently, we have 17 Pharmacy residency programs plus a leadership fellowship, with 34 residents and 1-2 fellows annually. All Pharmacy residency programs are fully accredited by ASHP. The success of our program is largely due to the leadership of **Kate Starosta**, the support of **Kisha Prince**, and the significant efforts and contributions of our wonderful Residency Program directors, Residency Program coordinators, and Residency preceptors!



The 2021-2022 Pharmacy residency class



John Clark, outgoing PGY-1 Pharmacy RPD, with some of the PGY-1 Pharmacy residents



Residents on Resi-Trip in Chicago with Kisha Prince and preceptor Nada Saad

FY22 Highlights:

- The Residency Program gained **Kisha Prince**, the Residency Program Administrator. She supports program directors with PharmAcademic, residency quality improvement projects, and resident reimbursement, recruitment, onboarding, and off-boarding procedures
- The Residency class was supported by two chief residents: **Michelle Lee** (PGY-1 Pharmacy Practice) serving as PGY-1 Chief Resident and **Colin Finley** (PGY-2 Emergency Medicine) serving as PGY-2 Chief Resident
- Previous chief resident and current Pain and Palliative fellow at the College of Pharmacy, **Madison Irwin**, was awarded Resident of the Year by Southeastern Michigan Society of Health-System Pharmacists (SMSHP)
- We celebrated **John Clark's** 14-year tenure as PGY-1 Pharmacy Program Director: THANK YOU for all you have done for the program and practice of pharmacy
- The Residency Advisory Committee (RAC) appointed 3 new Residency Program Directors (RPDs) and 4 new Residency Program Coordinators (RPC) for 2022-23:
 - » **Emily Ashjian:** PGY-2 Ambulatory Care RPD

- » **Adrienne Bell:** PGY-2 Emergency Medicine RPC
- » **Lindsey Clark:** PGY-1 Pharmacy/PGY-2 Health-System Pharmacy Administration & Leadership RPC
- » **Linda Fitzgerald:** PGY-2 Solid Organ Transplant RPD
- » **Jennifer Hagopian:** PGY-2 Solid Organ Transplant RPC
- » **Allison Schepers:** PGY-2 Oncology RPC
- » **Kate Starosta:** PGY-1 Pharmacy RPD
- RAC developed and implemented a DEI subcommittee to evaluate and change recruitment processes, including application scoring tools, program outreach across the country, and implicit bias training for all interviewers
- The program virtually hosted through ASHP's Visiting Leaders Program, Dr. Charles Daniels, Chief Pharmacy Officer at UC San Diego, and previous recipient of the John Webb award
- The residents experienced their first in-person meetings at the Great Lakes Pharmacy Residency Conference in 3 years and traveled to Chicago for resi-trip to visit University of Illinois Chicago and Northwestern



Residents at the Great Lakes Pharmacy Residency Conference



34
Pharmacy residents



Pharmacy residency programs

Education & Professional Development



Kristina Mulzer, CPhT
Pharmacy Technician Training
Supervisor

Technician Training

In order to best prepare individuals for a career as a pharmacy technician, and to help address the challenges we face in recruiting pharmacy technicians, we established a Pharmacy Technician Training Program in February 2022. We were fortunate to hire **Kristina Mulzer**, CPhT, to be the Pharmacy Technician Training Supervisor to oversee and coordinate this program.

We plan to have three cohorts per year with 10 students per cohort, and the program takes approximately five months to complete. Individuals who are offered a position are hired as full-time employees, and are paid during their time in the training program; we cover the cost of tuition. After trainees successfully complete the program, including passing all coursework and examinations/assessments, and meet all of our requirements and expectations, they will be hired into an open pharmacy technician position.

Cohort #1 started in February 2022, and six individuals successfully completed the program and transitioned to pharmacy technician positions in July. Cohort #2 started in May 2022 with nine individuals, and recruiting for Cohort #3 will begin in September. In addition to the didactic and lab coursework, trainees complete job shadowing opportunities in various areas, including Nuclear Medicine, Community Pharmacy, Emergency Department Pharmacy, Purchasing, Research Pharmacy, Transitions of Care, Specialty Pharmacy-Call center, and Fulfillment Pharmacy. During the final four weeks of the training program, trainees complete their four-week externship in several areas across our department, including: C&W Operations, B2 Cleanroom, UH Operations, and Taubman Community Pharmacy.



Pharmacy Technician Training Program Cohort #1 Graduation!

Student Experiential Education

Experiential education is an essential part of the Doctor of Pharmacy curriculum, and an important part of our support of the educational mission. Our preceptors are dedicated to providing exceptional learning opportunities. We offer a substantial number of both Advanced Pharmacy Practice Experiences (APPEs) for P-4 students, as well as Introductory Pharmacy Practice Experiences (IPPEs) for P-3 and P-2 students at the College of Pharmacy. Our APPE and IPPE rotations include opportunities in the following categories/practice settings:

- **APPE:** Health-System Pharmacy practice, Inpatient General Medicine/General Surgery (Generalist) practice, Inpatient Specialty practices, Ambulatory Care practice, Community Pharmacy practice, Management/Leadership practice, and several more specialized practices (e.g., research pharmacy/investigational drug service, pharmacy informatics, home infusion, etc.)
- **IPPE:** Health-System Pharmacy Practice (P-3 students), Direct Patient Care (P-3 students), Community Pharmacy Practice (P-2 students), and Ambulatory Care Practice (P-2 students)

This past year, we provided a significant number of experiential rotations for pharmacy students across the entire health system, including both inpatient and ambulatory care practice sites:

Rotation Type	Number	Preceptors	Practice Sites
APPE	317	109	32
P-3 IPPE	75	26	Numerous
P-2 IPPE	85	26	Community and Ambulatory Care

This contribution of APPE rotations represents approximately half of all of the APPE rotation spots for P-4 students at the College of Pharmacy, and a significant number of the IPPE rotations as well. Our pharmacist preceptors contribute substantially to pharmacy student education and profoundly impact their future careers through IPPE and APPE rotations, classroom instruction, and formal and informal mentorship. We provide some of the best experiential education in the country — all possible through the hard work and dedication of our incredible preceptors! This was highlighted by **Adamo Brancaccio**, PharmD, when he was named the 2022 College of Pharmacy Preceptor of the Year — congratulations to Adamo!



Adamo Brancaccio, PharmD



Education & Professional Development



The UMH Pharmacy Intern Classes of 2023 and 2024

Internship Program

The University of Michigan Health (UMH) Pharmacy Internship Program has existed since the 1970s. The program has trained many prominent figures within the UMH Department of Pharmacy Services and across the nation at numerous prestigious institutions. The program was reformed in 2006 through the hiring of three student Pharmacy Interns. Initially encompassing pharmacy technicians in the adult inpatient setting, the Pharmacy Internship Program slowly expanded into a two-year program and began to include other areas of pharmacy practice through partial support from the College of Pharmacy. As of the 2021–22 year, the UMH Pharmacy Internship Program has expanded to encompass 28 intern positions, providing opportunities in a variety of pharmacy practice areas. Our interns work throughout UMH in areas that include inpatient adult and pediatric care, central pharmacy operations, medication use systems, ambulatory care, oral oncology, infusion pharmacy, research pharmacy (investigational drug services), transitions of care, and specialty pharmacy. This past year also saw the introduction of two new Pharmacy Intern positions with the Medication Safety and Pharmacy Leadership teams.

The Pharmacy interns elect two Chief Pharmacy interns, one from each class, that have additional leadership opportunities and responsibilities. The Chief Pharmacy interns represent and advocate for the best interests of their respective classes. This past year our Senior Chief Intern was Alexander Kim (Infusion Pharmacy Team), and our Junior Chief Intern was Natalya S. Salganik (Medication Use Policy Team). This upcoming year, Natalya will move into the Senior Chief Intern position, and Julieta Bass (UH Pharmacy Team) will serve as the Junior Chief Intern.

Pharmacy interns can attend professional development meetings throughout the summer, including speakers and facilitators that discuss leadership, professional development, and other topics to foster success throughout their careers. A newsletter launched in 2021, Pharmacy INTERN-al Updates, serves as a platform for interns to demonstrate their achievements. Interns can also participate in a Mentorship Program as well as on-the-job shadowing opportunities.

SENIOR INTERN PROJECTS

During the second summer of the internship, Senior Interns complete a pharmacy-related project. Although the COVID-19 pandemic has required reductions or elimination of project time, some interns have continued to volunteer to work on projects outside of work time. Previous and prospective Senior Intern project topics have explored the following:

- Phone metrics in Taubman Pharmacy and Cancer Center Pharmacy
- Understanding access to oral oncolytics for breast cancer
- Ethanol locks and their role in MRSA
- Understanding the usage of Rinvoq® (upadacitinib) within UMH
- Creating specialized patient education within MiChart for the Anemia Clinic
- Piloting a new workflow for hazardous drug assessment of investigational products

In previous years, senior interns have attended the ASHP Midyear Clinical Meeting and presented their projects. Additionally, junior interns have attended the Michigan Pharmacist Association Annual Convention and Exposition. For both events, interns attended educational sessions and prepared reports that were distributed to the rest of the Pharmacy Management Team. Interns have additional opportunities for outreach and advocacy events, including leading hospital tours for prospective students at the College of Pharmacy. While some activities and events have changed or been suspended due to the COVID-19 pandemic, we are working to reinstitute as many as possible. Recruiting for the next class of pharmacy interns will begin in September.

Administration



Finance

The Pharmacy Finance team runs the operations related to financial oversight for the entire Pharmacy Department. The Finance team has five employees to support a variety of responsibilities and workloads, including creating budgets, monitoring financial performance, conducting inventory counts at various pharmacy locations, creating purchase orders to ensure drugs can be purchased, facilitate reimbursement expenses for employees, monitoring high-cost medications, supervising our partnerships with Contract Pharmacies, supporting annual audit, and much more.

FY22 Highlights:

- Moved 340B financial analyst that was embedded in another area to the finance team to streamline financial responsibilities
- Added one additional financial analyst to the team
- Created a monthly financial package to share financial performance of the Pharmacy Department

Pharmacy Administration

The Administration team runs the day-to-day operations for the Pharmacy Department including human resources for 800 employees, payroll, office support, executive support, office supply ordering, setting up new employee access, maintaining personnel files, and so much more. The Administration team now has the staffing resources to revamp some historic processes and create new solutions for a growing department.

FY22 Highlights:

- Increased Administration team for a total of 5 employees to support entire Pharmacy Department
- Separated Administration team from Finance and installed a manager to focus efforts on Administration work
- Realigned responsibilities to better accommodate job titles and department needs
- Increased payroll training



(Top row) Steven Warner, Julie Hardesty, Dylan Adams (Bottom row) Stacey Blackburn, Jeffrey Heldt



(Top row) Judy Boldt, Christine Betts (Bottom row) Stephanie Wagle, Cari Marshall

The 340B Team

The function of the Pharmacy 340B team is to ensure that Michigan Medicine’s 340B program maintains regulatory compliance and integrity, while optimizing medication discount capture and margin enhancement through Contract Pharmacies. The 340B program enables health care organizations to stretch scarce Federal resources as far as possible, reaching more eligible patients and providing more comprehensive services. For FY23, the team looks to improve the 340B program through continued work to improve overall system logic, purchasing efficiency, and collaboration with external and internal partners on projects to enhance overall program compliance and optimize program savings.

FY22 Highlights:

- Successfully completed annual mock HRSA audit
- Separated work related to a major Contract Pharmacy chain into a unique 340B software platform
- Navigated new processes to capture 340B savings in Contract Pharmacies – 340B ESP
- 340B compliance enhancements and accumulation logic improvements
- Migrated 340B team functions and Purchasing to new 340B software platform



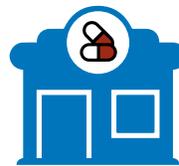
(Top row) Erin Raper, Janine Marie Lee, Thomas Martin Mobley (Center row) Sarah Ismail, Jeremy Dornbos, Peggy Martin (Bottom) Steven Warner

Contracting

The Pharmacy Contracting team maintains our existing Pharmacy Benefit Manager (PBM) relationships and establishes new payer targets to increase medication access for patients in the outpatient pharmacy. The team also ensures compliance to recredentialing requirements and completes recredentialing activities. In addition to collaborating with the pharmacy department, we work closely with compliance, legal, procurement, managed care, and HITS.

FY22 Highlights:

- Executed new contracts with ESI, Southern Scripts, PDMI, TMESYS, and PHP
- Performed re-credentialing for our entity-owned pharmacies with ESI, NCPDP, Caremark, and Optum Rx
- Established process and schedule to ensure PBM Provider Manual Reviews are completed timely and changes are implemented
- Utilized data from MiChart and QS1 to determine employer group targets to support payer access strategy



585
Contract
pharmacy
locations



317K+
Retail
pharmacy Rx's
evaluated



11K+
Manually
qualified Rx's



2.1M+
Outpatient
administrations
evaluated

Administration



(Top row) Amanda Haynes, Dianne Peters, Andrea Rittenhouse (Center row) Clayton Every, Kendall Lambert, Abby Feyssa (Bottom) Cindy Gillespie

Systems

The Pharmacy Systems analyst is a new position on the Business Operations Team. This position is responsible for the cleanup and standardization of the Payer, Patient, Physician, and Drug files within the Outpatient Pharmacy processing system. In addition, the analyst is responsible for New User Additions and weekly price file updates. The Pharmacy Systems analyst will support pharmacy operations throughout the conversion to the Willow Ambulatory system in 2023 and continue to support users after the transition. In addition to collaborating with the Pharmacy Department, we work closely with compliance, legal, procurement, managed care, and HITS.

FY22 Highlights:

- Began the QS1 Price Plan Standardization Project to streamline the 700+ plans in Qs1
- Transitioned the New User Requests Additions
- Assumed responsibility for price file updates

Billing

The Pharmacy Billing team is responsible for maintaining compliance with all insurance and state/federal prescription billing requirements. We are also responsible for ensuring charges are entered accurately in EPIC. We do this in several ways; by entering charges sent from outpatient pharmacies that need to be billed to the medical insurance, by reviewing certain charges for accuracy, and by reviewing claims that do not have the proper charge attached. We monitor 12 work queues, clearing an average of \$2.5 million per day. We coordinate our efforts with team members from other pharmacy departments, compliance, revenue cycle, and clinical areas throughout MM to maximize revenue capture.

FY22 Highlights:

- Responded to 144 audits from Pharmacy Benefit Managers, with claims totaling \$10.4 million
- Conducted internal audits on claims for compliance with State of Michigan and insurance regulations and Michigan Medicine policies
- Updated workflows with internal partners to enhance revenue capture and create efficiencies

Purchasing

The B2 Pharmacy Purchasing Team is responsible for overseeing the Health System's drug supply chain, which includes procuring medications that are administered within our Health System, managing our inventory database systems, and leading drug shortage mitigation efforts. The team orders a wide variety of line items per day (~500 unique items) from numerous distributors, ensuring they all have appropriate and optimal locations in the B2 Pharmacy inventory database. They also lead contract negotiation efforts that nets the health institution more than \$1M annually in drug cost savings. Lastly, they investigate, mitigate, and lead our drug shortage efforts for 400+ active drug shortages.

FY22 brought a lot of change to the Purchasing Team, including several personnel changes, addition of a senior buyer, and incorporation of the shortage pharmacist. This year also had a record-breaking number of drug shortages, which pushed them to work together to create novel strategies to appropriately handle this exponential increase in workload. Thanks to the Purchasing Team's hard work and dedication, the Health System's ability to navigate drug shortages has never been stronger.



(Top row) Angela Mullins, Noah Leja (Manager), Brian Brower, Lyle Lash (Bottom row) Brian Armbrustmacher, Amber Barbee, Austin Pytlowany

Publications

Publications

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Department of Pharmacy Services Leadership



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