



ANNUAL REPORT

Department of Pharmacy

Fiscal year 2017



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Duke Pharmacy
Duke University Hospital

Message from the Chief Pharmacy Officer

Paul Bush



It is my pleasure to present the 2017 Annual Report for the Department of Pharmacy. This annual report highlights the exceptional work that the Duke pharmacists and staff accomplish on a daily basis and the successful initiatives that transform the quality of pharmaceutical care for our patients. These exceptional accomplishments are detailed in the report under the respective service areas and program categories.

It has been a busy and productive year. I will highlight several accomplishments but suggest that you review the entire report to fully understand all that has been accomplished.

The department implemented several programs to support high quality, safe, compliant and efficient care. A "Meds to Beds" discharge medication program was launched which has positively impacted access to medications and the patient experience. The Campus Center Pharmacy opened in the Duke Student Health & Wellness Center. Medication stewardship continued to grow as the Pharmacy Utilization Management Program recorded financial savings of \$6 million through more than 30 operational, procurement, and utilization initiatives. To enhance and assure compliance, the Verity Hybrid 340B retail pharmacy patient eligibility model was implemented.

The production capability of the department continued to grow. Monthly, more than 50,000 units of sterile and non-sterile preparations are prepared, more than 70,000 individual unit dose oral solid and liquids are repackaged, and parenteral product prepared by the ivSTATION robot has grown to over 4000 units. The department continued investments in resources and technology with the addition of a second medication carousel in the North Central Pharmacy.

Accomplishments in the Women's and Children's Division include updating and adding 50 medications to the Alaris Guardrail library, standardizing medication doses to enhance safety and efficiency, and transitioning to electronic documentation of pharmacokinetic consults. The division continued focus on employee development and well-being through preceptor development, rounding and safety huddles.

Staffing was expanded based on inpatient, outpatient and retail growth. Clinical staff was added in inpatient critical care, cardiology, oncology and on the second shift, including partnering with providers of the LVAD population to optimize anticoagulation services. Clinical services have been added for ambulatory endocrine patients and staff has been added to support our growing Specialty Pharmacy program.

The 2016 Milton W. Skolaut Leadership Award recognizing the leadership and professional contributions of a past resident of the Duke University Hospital Pharmacy Residency Program was awarded to Nancy M. Allen LaPointe, PharmD, MHS, AACC.

All this work directly supports our mission and vision for pharmacy services at Duke University Hospital. These accomplishments would not be possible without the commitment and personal dedication of the Duke University Hospital pharmacy leadership team and staff members.

I would like to thank each and every member of the staff for their commitment to the profession and dedication to the care of Duke Health patients.

Sincerely,

A handwritten signature in black ink that reads "Paul W. Bush". The signature is written in a cursive, flowing style.

Paul W. Bush, PharmD, MBA, BCPS, FASHP
Chief Pharmacy Officer

II. Departmental Overview

Mission

We deliver exceptional pharmacy services for a healthier tomorrow

Vision

To be a distinguished global leader in pharmacy care

Goals

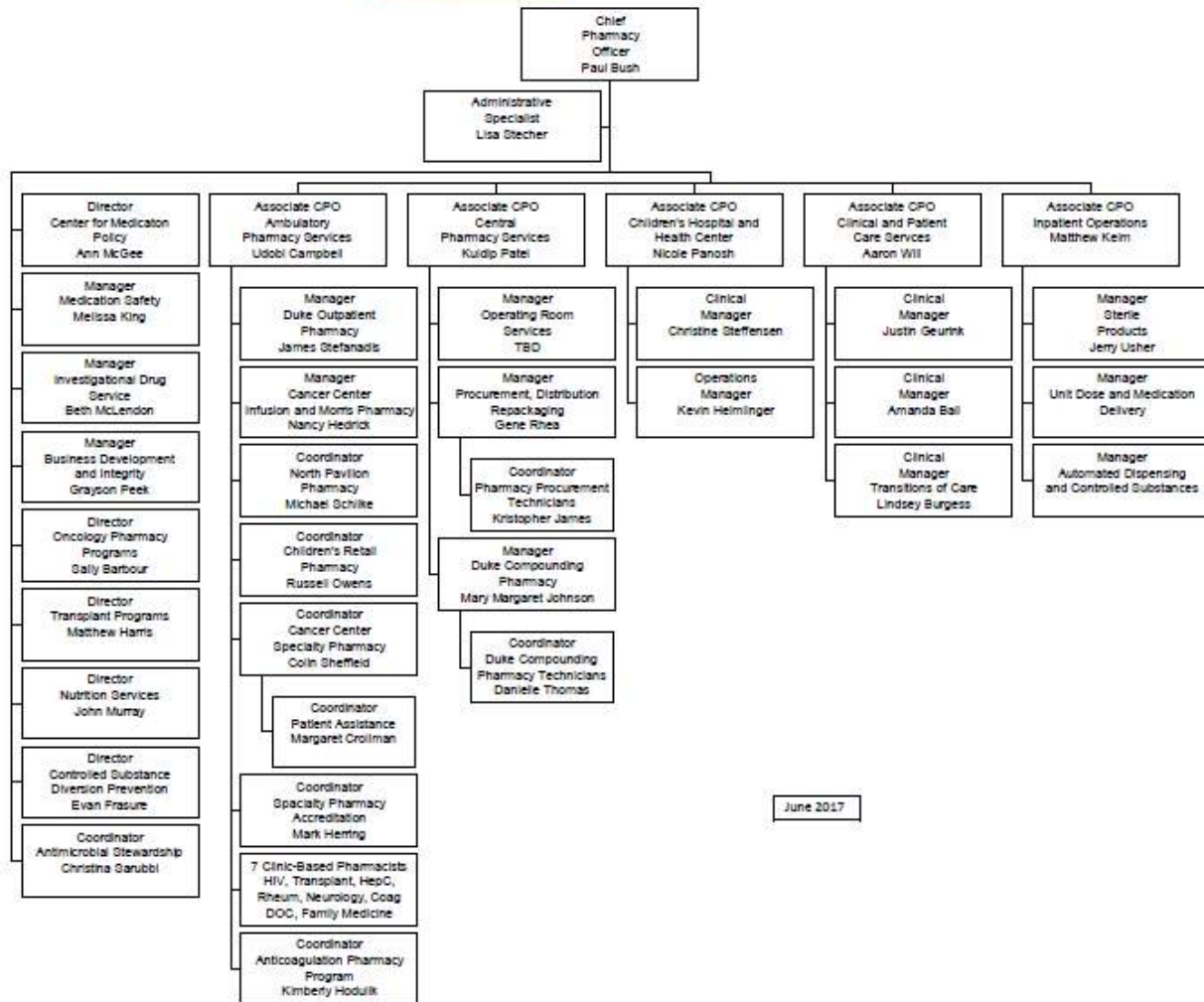
- To improve patient outcomes and provide the highest standards of pharmacy care,
- To foster a collaborative approach to medication safety among all disciplines,
- To provide an exceptional work environment that will establish Duke as the pharmacy employer of choice,
- To integrate new technological developments which improve efficiency and safety,
- To promote research to improve patient outcomes and the efficiency of care, and,
- To expand and promote excellence in pharmacy education.



III. Organizational Chart



Duke Pharmacy
Duke University Hospital



IV. Balanced Scorecard

Duke Health

Pharmacy

2017 Jun
(FY17 FP12)
ALL

Duke University Health System > Duke University Hospital > Pharmacy

QUALITY AND PATIENT SAFETY

Measure	Actual	Target	FYTD Actual	FYTD Target	Freq
ADM Override Rate (ICU)	4.97%	7.00%	5.21%	7.00%	M
ADM Override Rate (Non-ICU)	0.32%	1.00%	0.35%	1.00%	M
Formulary Compliance Post-Verification	99.81%	99.60%	99.72%	99.60%	M
Medication Turnaround Time - High Priority	7.8	10.0	10.0	10.0	M

PATIENT EXPERIENCE

Measure	Actual	Target	FYTD Actual	FYTD Target	Freq
HCAHPS: Communication About Medicines ^{CSF}	62.8%	62.9%	64.8%	62.9%	M
Percent Omnicell Stock-outs	0.46%	0.55%	0.50%	0.55%	M
Retail Pharmacy Customer Satisfaction	93.87%	80.00%	92.36%	80.00%	Q

FINANCE AND GROWTH

Measure	Actual	Target	FYTD Actual	FYTD Target	Freq
Direct Contribution Margin for Outpatient Pharmacy	\$2,048,895	\$3,242,257	\$23,909,840	\$38,859,846	M
Flex Expense Percent Variance ^{CSF}	-2.78%	0.00%	1.89%	0.00%	M
Flex FTE Percent Variance ^{CSF}	-4.30%	0.00%	-1.13%	0.00%	M
Pharmaceutical Utilization Management Program (PUMP) Program Savings	\$1,395,783	\$1,000,000	\$6,050,274	\$4,000,000	Q

PEOPLE AND THE ENVIRONMENT

Measure	Actual	Target	FYTD Actual	FYTD Target	Freq
Percent Terminations Annualized: Overall ^{CSF}	13.17%	15.50%	13.17%	15.50%	M



Duke Pharmacy
Duke University Hospital

V. Overview of Pharmacy Services: Scope and Accomplishments

Duke University Hospital (DUH) is an academic learning center and serves as the flagship for Duke University Health System. A tertiary and quaternary care hospital, the 943-bed DUH is consistently rated as one of the top hospitals in the United States. It offers comprehensive diagnostic and therapeutic facilities, including: a regional Level 1 emergency trauma center; multiple surgical platforms including a major surgery suite containing 50 operating rooms; an endo-surgery center; an ambulatory surgery center with nine operating rooms; an eye center with five operating rooms; and extensive diagnostic and interventional radiology facilities. DUH also functions as a research facility where innovations in medicine are consistently achieved and implemented. It is a teaching hospital for students of medicine, pharmacy, nursing, and the allied health sciences. The Department of Pharmacy provides a broad range of advanced pharmacy services. The mission of the Department of Pharmacy is to deliver exceptional pharmacy services for a healthier tomorrow.

To achieve this mission, the department employs multiple pharmacy practice models:

- Team and location-based pharmacotherapy specialist pharmacists deployed to the inpatient setting and outpatient clinics
- Specialized pharmacy services operating from discrete areas (e.g. Ambulatory pharmacies, Infusion pharmacies, Operating Room pharmacies, Investigational Drug Services, Production and Packaging and Sterile Products);
- Targeted patient care services (e.g. pain management, nutrition support, anticoagulation, transplantation, pharmacokinetic dosing consults, population health management); and
- Program-based services (e.g., performance improvement, medication safety, medication stewardship, antimicrobial stewardship, drug information and support to medical staff committees including the DUHS Pharmacy and Medication Management, DUHS Medication Safety Committee, DUH Pharmacy and Therapeutics Committee, DUH Medication Safety Committee, DUH Patient Safety and Clinical Quality Committee, Duke Medicine Institutional Review Committees, DUH Infection Control Committee and DUH Ethics Committee).

Services Provided to Duke Patients

- Admission
 - Assure a complete and accurate medication history and reconcile prescribed medication
 - Develop, document and initiate the medication-related components of the patient care plan
- Services
 - Review and approve medication orders before the first dose is administered
 - Review patient-specific medication profiles on a daily basis
 - Monitor the patient's response to medication therapy and adjust medication doses based on response or pharmacokinetic characteristics of the medication
 - Participate in the nutritional support of patients working collaboratively with team members to initiate parenteral nutrition and adjust formulations based on patient response
 - Monitor critically important medication serum concentrations and other clinically important laboratory analyses
 - Participate in patient care rounds
 - Participate in rapid response and resuscitation
- Discharge (Transition)
 - Educate patients about their medication, and establish processes to ensure complete and accurate prescriptions and medication-related continuity of care for discharged patients
 - Provide medications for home use

**Overview of services**

The Ambulatory Pharmacy Division provides an array of clinical and non-clinical services in collaboration with other healthcare disciplines at Duke University Hospital. These services are primarily rendered from the locations and programs outlined below:

- Children's Health Center Retail Pharmacy (CHC)
 - Pediatric patients, Duke employees, Discharge patients
- Duke Cancer Center Specialty Pharmacy
 - Oncology, Transplant, Hepatology, MS, Rheumatology, Osteoporosis, HIV, CF, Hyperlipidemia
- Patient Assistance Programs
 - Patient prescription enrollment for Duke Hospital Based Clinics
 - IV Drug Replacement for Duke Infusion Center patients
- Duke Cancer Center Infusion Pharmacy
 - Oncology Treatment Center, Oncology Clinics, Radiation Oncology
- Duke Outpatient Retail Pharmacy (OPD)
 - Duke Clinic patients, Duke employees, Duke University Students
- Morris Pharmacy
 - Non-Oncology Infusion Center, Duke Hospital Based Clinics
- North Pavilion Pharmacy
 - Ambulatory Surgery Center, Outpatient Bone Marrow Transplant
- Duke Campus Center Pharmacy
 - Duke Student Health & Wellness
- Clinic Pharmacists
 - Oncology Clinics
 - Breast, Brain Tumor, HOA, GU, Sarcoma, BMT, Thoracic, GI
 - Oncology Treatment Center
 - Duke Outpatient Clinic
 - Duke Family Medicine Clinic
 - Anticoagulation Clinic
 - Infectious Disease Clinic
 - Abdominal Transplant Clinic
 - Thoracic Transplant Clinic
 - Neurology Clinic
 - Hepatology Clinic
 - Rheumatology Clinic
 - Endocrine Clinic

Mission

- Provide excellent clinical patient care in accord with accepted best practices
- Maintain fiscal responsibility over medication use
- Maintain compliance with all pertinent regulatory requirements
- Expand services in response to society's changing health care needs and the shift towards ambulatory care

Goals

- To foster an environment for responsible medication use

- To develop a business model for self-sustaining clinical pharmacy services within Hospital Based Clinics, specifically in high acuity areas such as primary care, transplant, and oncology
- To ensure continuity of care as patients transition from inpatient to outpatient and to strengthen the collaboration between inpatient and outpatient pharmacy services
- To optimize the use of technology and automation to support pharmacy services
- To support pharmacy practice and clinical research, residency training and student clerkships
- To serve as the preferred retail pharmacy for all Duke University Hospital patients and employees
- To positively contribute to the direct contribution margin for Duke University Hospital
- To ensure that pharmacists will be available, visible, and serve as the primary resource for medication related issues across Duke University Hospital Outpatient Areas

Locations and Hours of Operation

- CHC Retail Pharmacy: 8:30 AM - 8:00 PM M-F; 8:30 AM -4:30 PM Sat & Sun
- Duke Cancer Center Specialty Pharmacy: 8:30 AM - 6:00 PM M-F; 24/7 On-Call
- Duke Cancer Center Infusion Pharmacy: 7:30 AM - 6:30 PM M-F
- Duke Outpatient Retail Pharmacy (OPD): 8:30 AM - 6:00 PM M-F
- Morris Pharmacy: 7:30 AM - 4:00 PM M-F
- North Pavilion Pharmacy: 6:30 AM - 5:00 PM M-F; 7:00 AM – 11:00 AM Sat & Sun
- Duke Campus Center Pharmacy 9:00 AM – 5:30 PM M,W,Th,F; 9:00 AM – 7 PM Tuesdays

Major Accomplishments

- Opened a new retail pharmacy located in the Duke Student Health & Wellness Center which primarily serves Duke students and employees.
- Fully implemented the i.v.STATION robot in CCIP for preparation of hazardous medications
- Established clinical pharmacy services in the Endocrine Clinic, clinic 1A
- Launched the Meds-To-Beds program to provide discharge medications to patients upon discharge from specific patient care units
- Expanded the role of pharmacy technicians to Brier Creek and Duke Outpatient clinics; Technicians provide prior authorizations, patient assistance and medication reconciliation support
- Developed a Tableau tool which provides visibility, in graphical form, into Duke prescription capture performance for Duke retail pharmacies
- Established a mechanism for capturing, on a monthly basis, hospital facility charges billed by ambulatory clinic pharmacists
- Successful and timely submission of the URAC desk-top review; Integration of Therigy case management system for tracking of patients on specialty medications
- Obtained provisional accommodation from BCBS to provide specialty medications to plan members
- Expanded specialty pharmacy access to Duke Plan members
- Achieved service agreement with Inmar for third-party reconciliation services for the retail pharmacies
- Established partnership with Duke Volunteer Services for volunteer placement in the retail pharmacies

*Opened the Campus
Center Retail
Pharmacy*

- Successfully integrated UNC immersion students into ambulatory clinic services

Team Members





Overview of services

Central Pharmacy Services is composed of three separate operating departments inclusive of the Duke Compounding Pharmacy, Perioperative Pharmacy Services, and Pharmacy Procurement, Repackaging, and Distribution.

- *The Duke Compounding Pharmacy* prepares Compounded Sterile Preparations (CSPs) in compliance with the United States Pharmacopeia – National Formulary compounding standards to support DUH and DUHS Pharmacies and Clinics. Duke Compounding Pharmacy supports the organizational mission to support patient safety by preparing medications in ready to use medication packages, and the research mission of DUH by supporting specialized pharmaceutical needs in collaboration with investigational drug services.
- *Perioperative Pharmacy* serves pre-, intra-, and postoperative patients at DUH by providing highly specialized clinical and technical pharmacy services to enhance surgery outcomes. The staff support this goal by collaborating with surgeons, anesthesiologists, nurse anesthetists, nurses, and other ancillary staff to deliver patient centered care, by facilitating safe and appropriate use of medications.
- *Pharmacy Procurement, Repackaging, and Distribution* services provide logistical support by being responsible for purchasing and distributing medications to DUH and DUHS Pharmacies and Clinics. Annual drug expense for DUH Pharmacies in 2016 was over \$200 million. The department uses highly innovative inventory management systems and high-speed solid and liquid packaging technology to organize and manage the supply chain efficiently.

Locations and Hours of Operation

The Duke Compounding Pharmacy operates 5:00 AM – 10:30 PM (M-F). Designated pharmacists and technicians are available for afterhours emergency support for patient care needs. The pharmacy is located in Duke South, room 0010, Davison Building.

Perioperative Pharmacy services operate two shifts (6:00 am – 9:30 pm) via the decentralized pharmacy satellites located on the 3rd Floor in the Duke North and Duke Medicine Pavilion. The Eye Center Perioperative Pharmacy services are available 6:00 AM – 3:15 PM (M-F). Designated support is available for afterhours emergency support via the Duke North Pavilion Perioperative Pharmacy.

The Pharmacy Storeroom (procurement) is open 24 hours and staffed from 5:00 AM – 11:30 PM (M-F) and 6:30 AM – 3:00 PM (Weekends).

Major Accomplishments

- Completed gap analysis and action plan for compliance with USP General Chapter <800> guidance.
- Completed a gap analysis to identify facility and practice changes necessary to operate the Duke Compounding Pharmacy under section 503B of the FD&C Act. (DUHS)
- Gained additional Microbiology Technician support from DUHS Labs to support the Duke Compounding quality assurance program.

DUH Compounding Facility prepares over 50,000 units of sterile and non-sterile preparations every month

- Submitted and received approval for capital requests (for \$875,000) for all DUH pharmacies to gain compliance with USP General Chapter <800> guidance.
- Collaborated with nursing leadership, Pharmacy Managers of clean rooms at DUHS, and DUHS Procurement to complete the RFP for CSTD vendor.
- Perioperative services implemented numerous PUMP projects resulting in significant drug expense savings (vasopressin, glycopyrrolate, epinephrine, phenylephrine).
- Completed a pilot of the safe labeling system (Codonics) in 13 operating rooms.
- Implemented new policy on narcotics reconciliation and auditing procedures in perioperative services.
- Implemented new high-speed unit dose repackaging technology and an overarching repackaging Policy and Procedures.
- Established a new temperature monitoring policy for refrigerators and pharmacy cleanrooms at all DUH Pharmacies.

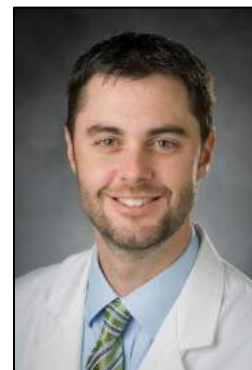
*The Safe Labeling System pilot in the operating rooms displayed a **75%** reduction in medication selection errors and a **60%** improvement in Omnicell AWS reconciliation*

*DUH Repackaging program prepares over **70,000** individual unit doses oral solids and liquids every month*

Team Members

The Central Pharmacy Services team delivers exceptional services to our internal and external customers utilizing the knowledge, skills, and experience of engaged managers, coordinators, pharmacists, and pharmacy technicians. Staff members actively support the department's mission by participating in clinical quality and process improvement efforts, promoting and fostering a positive work culture, and making the best use of medications to produce positive patient outcomes and customer experiences.





Overview of services

The Clinical and Patient Care Services Division (CPCS) comprises all adult inpatient medical and surgical areas and their related specialty areas.

- The pharmacy practice model employed within CPCS is an integrated model consisting of team-based services (e.g. nutrition support, anticoagulation, transplantation), and unit-based services for all inpatient care areas.
- Clinical services include medication monitoring programs and pharmacist protocols, provider order verification, targeted patient education, emergency response, and verification of patient medication histories.
- Clinical pharmacists participate in daily patient care rounds for most medical and selected surgical services.
- Pharmacists maintain competency to recognize and manage the pharmacotherapy needs of adult and geriatric patients.
- Pharmacists serve as primary and team-based preceptors for the University of North Carolina Eshelman (UNC) and Campbell University Schools of Pharmacy and for our Duke University Hospital Pharmacy Residency Programs.
- Clinical services, including clinical monitoring and order verification, operate from the Medication Management Center on evenings, overnights, weekends, and holidays.
- Clinical pharmacists also participate actively on departmental, hospital, and health-system committees involving quality improvement initiatives, informatics, medication policy, clinical research, and medication safety.

Availability:

Pharmacists provide services during day shift, Monday through Friday in direct patient care areas, and through order verification and clinical services in the Medication Management Center during weekday evenings, weekends, holidays, and overnight.

Major Accomplishments

- Added additional pharmacy support for growth through additional evening, critical care, cardiology, and oncology resources.
- Identified targeted areas for expansion for discharge pharmacy medication reconciliation.
- Established a CPCS Work Culture Committee.
- Developed a clinical scoring tool in the electronic medical record.
- Partnered with providers in the left ventricular assist device population to optimize anticoagulation services.
- Identified and added additional pharmacist competencies in code blue, inhaled prostacyclins, and warfarin.
- Developed desensitization policy and order sets.
- Optimized Quality Improvement assessments for our clinical programs.
- Transitioned pharmacokinetic monitoring for vancomycin and aminoglycosides to an electronic iVent system.
- Transitioned to a new expected job result evaluation system.

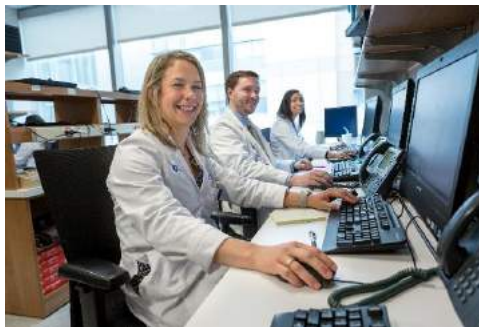
*Transitioned to an
iVent system for
Anticoagulation Daily
Monitoring*

*Developed a
desensitization policy
and order sets for
safety*

- Recruited and hired a Transitions of Care Manager.
- Staff recognized as outstanding preceptors by the Duke University Hospital Pharmacy Residency Programs and by the Campbell University and UNC Eshelman Schools of Pharmacy.
- Provided support to the profession through publications, posters, and presentations.
- Supported staff member attendance at regional and national conferences.

Our Team

The CPCS team consists of well-trained, highly-committed pharmacists who work collaboratively with internal and external customers to meet medication needs of adult patients at Duke University Hospital. Many staff members have greater than 5 years of experience at Duke, and many are trained to work in their specialty area as well as other areas within the division. Many pharmacists have completed one or two residency programs, and are board certified in their practice area. Several pharmacists hold full-time or adjunct faculty appointments at the UNC Eshelman School of Pharmacy and/or the Campbell University College of Pharmacy and Health Sciences. CPCS staff members also actively support the department's mission through ongoing participation in quality, safety, and process improvement efforts, research activities and resident and student education. Many CPCS staff are active members or hold leadership roles in state and national pharmacy organizations. Others have made contributions to the profession through publications and presentations at both local and national organizational meetings.





Overview of Services

The Department of Pharmacy Inpatient Operations Division provides an array of services which support care of patients in both the inpatient and outpatient arenas. These services include:

- Sterile preparation and distribution of both hazardous and non-hazardous medications in a USP 797-compliant environment
- Unit dose medication distribution utilizing a hybrid model which involves the use of patient care unit-based automated dispensing cabinets (ADC), unit dose cart-fill, and first dose dispensing
- Comprehensive ADC management
- Controlled substance management
- Code cart procurement, assembly, distribution and maintenance
- Overnight medication preparation, verification and distribution

Locations and Availability:

Duke University Hospital, zero level, room 0415 and Duke Medicine Pavilion, room 6W60. Services that are provided by the Inpatient Operations Division are available 24 hours a day, 7 days a week.

Methods of Drug Distribution

Our goal is to have the medication available at the patient care unit before the care nurse needs it for a patient. To meet this goal, we use different mechanisms to transfer medications from central pharmacy to the patient care unit. The most common methods, however, involve the use of highly motivated pharmacy technicians, who make routine deliveries, and STAT technicians who deliver urgent and emergent medications. The pneumatic tube system is another means by which medications are delivered to the patient care unit.

Use of Technology to Enhance Safety and Operational Efficiency

Several technology systems and software are utilized daily by staff members to accomplish the division tasks. Some of these key systems include:

- Automated compounding devices primarily used to support parenteral nutritional admixtures, eliminating the need for multiple manipulations.
- Dispense Prep and Dispense Check barcode scanning solution which complements the work of both the technician and the pharmacist by providing added verification that drug product selection is accurate.
- Automated dispensing cabinets which provide secure storage of medications while supporting timely availability of medications to the nurse following verification by a pharmacist.
- Controlled substance monitoring software used for tracking movement of scheduled medications and report generation for monitoring and quality assurance.
- Targeted barcode verification of specific high alert medications prior to dispensing or loading into an automated dispensing cabinet
- The i.v.STATION robot assures accurate preparation of sterile products through the use of gravimetric technology. Currently utilized for non-patient-specific preparations.
- Carousel technology is used for drug storage and dispensing. Includes guiding light and barcode technology which help assure accurate medication dispensing practices.
- PharmTrac.PD technology is used for tracking the location of medications once dispensed from the central pharmacy.

Major Accomplishments

- Improvement in robotic dose production to over 4000 doses monthly
- Significant contributions to the Pharmaceutical Utilization Management Program
- Partnership with Omnicell to Beta Test and install 12 Omnicell XT automated dispensing cabinets
- Digitizing Mini-Bag Plus inventory with significant improvements in inventory control
- Support for pharmacists with employee vaccination initiative.
- Implementation of a second carousel in the central pharmacy
- Increased use of barcode scanning technology for oral syringes and unit doses dispensed from the Central Pharmacy
- New CACIs (Chemotherapy isolators) installed to enhance the protection of SPC staff, and to insure properly prepared hazardous meds for the inpatient population.
- New SPC IV tech training manual provided for all new IV tech team members.

*Increased use of
barcode scanning
technology for oral
syringes and unit
doses*

Our Team

The Inpatient Operations team is made up of well trained, highly-committed pharmacists and technicians who work collaboratively with internal and external customers to meet the needs of patients at Duke Hospital. Many of the staff members have greater than 5 years of experience at Duke and are cross-trained to work across different areas of the division. Staff members actively support the department's mission through ongoing participation in quality and process improvement efforts, resident and student education, as well as research activities.



**Overview of services**

The Department of Pharmacy, Women's and Children's Division provides clinical and distributive services which support the care of pediatric patients and obstetrics-gynecology patients in the inpatient setting (~240 licensed beds). Distributive services are supported on the inpatient side by the 5th floor pediatric satellite pharmacy. Duke Children's Health Center ambulatory clinics are supported by a pediatric infusion center pharmacy located on the 4th floor of the Health Center.

Inpatient pharmacy services

- Practice models within the pediatric division are both integrated as well as specialized. Clinical pharmacists participate in daily patient care rounds to develop individual pharmacotherapy plans, provide medication and dosage recommendations/adjustments, pharmacokinetic evaluation and dosing, parenteral nutrition management, code and rapid response participation, education, research and publication.
- Specialized practice areas include pediatric bone marrow transplant (16 beds), pediatric intensive care (16 beds), pediatric cardiac intensive care (13 beds), and neonatal intensive care (60 beds) units.
- General pediatric pharmacists care for patients on several services, including general pediatrics, infectious diseases, hematology-oncology, cardiology, neurology, gastroenterology, solid organ transplant and allergy/immunology.
- The 5th floor pediatric satellite pharmacy supports the medication needs of these patient populations in collaboration with the Inpatient Operations Division.

Ambulatory pharmacy services

- The Children's Health Center Pharmacy is a sterile compounding facility located on the 4th floor of the Children's Health Center.
- Both low- and medium-risk doses of hazardous and non-hazardous compounded sterile preparations are provided to ambulatory pediatric patients.
- Clinical pharmacists, in collaboration with providers, monitor appropriateness of drugs, dosage, frequency, and adherence to protocols. Additionally, clinical pharmacists and technicians support investigational drug use.

Mission

To deliver optimal patient- and family-centered pharmaceutical care through evidence-based practice.

Goals

- To optimize medication therapy
- To prevent adverse effects
- To continuously improve medication safety for our patients and families
- To be a leader in best practices
- To be a leader in innovative research that contributes to prevention and effective treatment of childhood diseases
- To contribute to the overall body of knowledge

Availability

Duke Children's inpatient pharmacy services are provided 24 hours per day, 7 days per week through the clinical and distributive staff and satellite pharmacy. The Pediatric Pharmacy division collaborates with Inpatient Operations to provide comprehensive services. The Children's Health Center Ambulatory Pharmacy operates from 8:00 AM to 5:00 PM, Monday through Friday. Weekend coverage is provided through inpatient services.

Major Accomplishments

- Alaris pumps updated with additional ~50 medications
 - Pediatric Preceptor Development Committee
 - Formal presentations include:
 - Precepting to different levels of learners
 - Giving and receiving feedback
 - Surviving Sepsis Campaign
 - Standardization of antibiotic availability
 - Standardization of chemotherapy transfers from the clinic
 - "Pharmacy Consult: Hour Zero" order added to Maestro Care
 - Standardized handoff tool for inpatient transfers from the Children's Health Center
 - Implementation of electronic pharmacokinetics
 - Vancomycin
 - Aminoglycosides
 - Anticoagulation
 - Bed Tower Addition - Pediatric Pharmacy Design Planning
 - Technician Shift Descriptions created
 - Updated technician Compounding SOP
 - Standardization:
 - Clonidine oral suspension standardized to 20 mg/mL (inpatient and outpatient)
 - Methadone injection standardized to 1 mg/mL for inpatient pediatrics
 - PICU DKA Insulin Infusion Transitions (Maestro Care order set)
 - Intrapulmonary Factor VII for DAH (standard Maestro Care order)
 - Botox (Maestro Care order set)
 - Penicillin skin testing & associated Maestro Care build
 - Continued weekly Pharmacy and Nursing rounds
 - Process mapping for new precision medicine agents such as tisagenlecleucel (Kymriah®)
 - Implementation of USP 797 6-hour rule for IV stock solutions
 - High-cost drug approval policy implementation
 - Standardization of financial clearance process
 - Upgraded temperature tracking system in the Children's Health Center Pharmacy
 - Standardized lipid infusion filtering
 - Continued Beacon protocol review
 - Implementation of electronic signage for enhanced departmental communication
 - Implementation of standardized epinephrine (anaphylaxis) kits
 - Installation of humidity sensors in the Children's Health Center Pharmacy
 - Initiation of Early Immersion program
 - Continued weekly Pediatric Pharmacy Safety Huddles
- Updated and added 50 medications to the Alaris Guardrail library*
- Standardized medication doses to enhance safety and efficiency*

Our Team

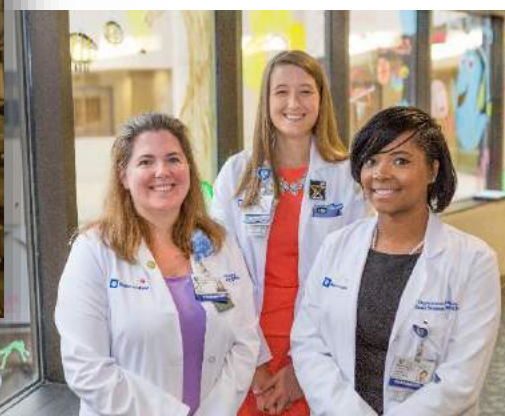
The pediatrics team is comprised of well-trained, highly committed pharmacists and technicians who collaborate with medical and nursing staff and colleagues to optimize medication use among a high-risk, vulnerable patient population. Many staff members are tenured and cross-trained to function and support multiple sub-specialty practice areas. A number of pharmacists have completed one or two residencies. The majority of pediatric pharmacists are board certified in pharmacotherapy, oncology and/or pediatrics. Staff members actively support the department's mission through ongoing participation in quality and process improvement efforts, resident and student education, as well as, research activities.

Committee Memberships

Institutional Review Boards
Children's Core Safety Team
Pharmacy Core Safety Team
Pediatric ADE Committee
Pediatric Chemotherapy Safety Committee
Women's Core Safety Committee
ICN Executive Committee
ICN Morbidity and Mortality Committee
DUHS Smart Pump Quality Oversight Committee
ICU/Anesthesia Formulary Evaluation Team
Pediatric Pain Committee
Pediatric Critical Care Medicine Leadership Committee
Work Culture Committee
ICN Medication Safety Alliance

Children's Pharmacy & Therapeutics Committee
DUH Medication Safety Committee
DUHS Anticoagulation Task Force
Formulary & Informatics Subcommittee
Pharmacy Oncology Committee
Pediatric Sedation Committee
Pediatric Nutrition Support Committee
PICU/PCICU Morbidity and Mortality Committee
PICU/PCICU Patient Safety and Clinical Quality Committee
Oncology Formulary Evaluation Team
Code/RRT/Performance Improvement Committee
DUH Preceptor Development Committee

Employee Activities Committee
Residency Advisory Committees



**Overview of services**

The administrative and business services team strives to improve quality and perform essential administrative and business functions within the department of pharmacy at Duke University Hospital. The team experienced some changes over the last year as outlined below. Services provided include:

- Participate in the Pharmacy Admission process through interviewing patients admitted to Duke University Hospital (DUH) and in the Emergency Department (ED) at DUH to gather information regarding medications taken at home.
- Monitor the patient-pharmacy hotline and online contact us link established to allow direct access to a pharmacist to answer questions or respond to concerns regarding any medication related issues
- Perform monthly medication area inspections to improve patient safety and regulatory compliance
- Conduct routine and random environmental and personnel testing for the 11 sterile preparation areas at Duke University Hospital
- Oversight and development of a Controlled Substance Diversion Prevention program for the Duke University Health System
- Human resource and payroll processes
- Pharmacy administration office management
- Coordination of educational efforts including the pharmacy resident teaching certificate program, Joint accreditation/ACPE activities, out of state student rotation requests, and shadowing opportunities
- Manage the departmental intranet and internet sites. Maintaining up to date information and responding to various inquiries
- Administrative oversight for smart pump drug libraries, Joint Commission readiness, and performance metric tracking

Our Team

The administrative and business services team was formed in July 2014 through uniting of several areas and includes:

- Eleven (11) Continuity of Care technicians
- Two (2) Pharmacy Administration office staff including an administrative assistant and HR Coordinator
- Two (2) Quality Assurance technicians – Sterile Preparations and Medication Area Inspector

Our team highlights the many advanced pharmacy technician roles available within the Department of Pharmacy at Duke. Our highly trained and skilled technicians perform many critical functions to help the department better serve our patients. The Pharmacy Administration office staff serve the department of pharmacy through numerous administrative functions.

Availability

Our office-based team is available during regular business hours. The continuity of care technicians visit patients every day of the year. They are available Monday through Friday from 7 AM until 10 PM and on the weekends and holidays from 8 AM until 6 PM. The Continuity of Care team can be reached via our triage pager at 970-0357. Other members of the team can

be reached by calling the Pharmacy Administration office during normal business hours at 681-2414.

Major Accomplishments

- Continual performance improvement for the Continuity of Care team and pharmacy admission process.
- Recruiting for a Transitions of Care Pharmacy Manager that will be dedicated to increasing pharmacy services provided at these critical points for our patients
- Moving the Continuity of Care team under the CPCS umbrella with the new Transitions of Care manager to provide enhanced teamwork between these two groups
- Establishing the DUHS Controlled Substance Diversion Prevention program with a dedicated Director for Controlled Substance Diversion Prevention leading this effort
- Trained fourth year pharmacy students to assist with the pharmacy admission process in collaboration with the COC team and pharmacy preceptors
- Improved visibility and other enhancements for the pharmacy dashboard for better tracking and trending of data
- Increasing the availability of safety parameters for additional medications in the smart pump library
- Continued improvements of the pharmacy resident Teaching and Learning Certificate Program

*Established the
Controlled
Substance Diversion
Prevention program
for DUHS*

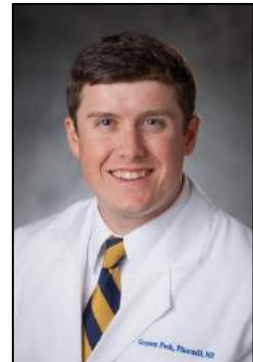
Business Development and Integrity

Grayson Peek

Overview of services

The Business Development and Integrity team provides oversight and ensures the integrity of business and financial considerations of the department including accounting, revenue management and the 340B Drug Discount Program. The team is also responsible for identifying and coordinating implementation of growth opportunities across the Department of Pharmacy in alignment with the overall objectives of the organization. Specific functions of the Business Development and Integrity team include:

- Managing the daily business and financial functions of the department
- Developing business plans to support recognized growth opportunities
- Overseeing inpatient, outpatient and retail pharmacy revenue and ensuring adequate record keeping, receipt and reporting of revenue
- Coordinating, in collaboration with DUH Finance, completion of the annual operating budget process
- Collaborating with accounts payable on purchasing needs and vendor invoicing/payments, conducting account reconciliation as needed
- Overseeing the process for month end financial closure for the department
- Preparing reports to evaluate productivity, expenditures and profitability
- Maintaining working knowledge of applicable federal, state, and local laws and regulations governing the 340B program and revenue management



- Developing and maintaining the organization's policies and procedures related to the 340B program, Maestro Care and retail pharmacy revenue management processes, including price file integrity
- Maintaining a quality assurance audit plan and performing audits on a periodic basis to ensure compliance with current 340B program regulations
- Planning, developing, organizing, implementing, directing, enforcing, and evaluating the organization's compliance and continuous effectiveness of the 340B program
- Monitoring and managing automated split billing software and Maestro Care/QS1 to ensure proper matching of NDCs and working closely with the software vendors and DHTS team members to resolve related problems
- Maintaining accurate and complete records and documentation related to the 340B program and MC Pharmacy revenue and price files
- Providing timely and accurate reporting or analysis of compliance with 340B program requirements and drug price file integrity

Our Team

The Business Development and Integrity team was formed in November 2016 and includes:

- One (1) Manager - Business Development and Integrity
- One (1) Accountant
- One (1) Accounting Clerk
- Two (2) Revenue Management Pharmacy Technicians
- One (1) 340B Specialist Pharmacy Technician

Availability

Our team is available during normal business hours by calling the Pharmacy Administration Office at 919-681-2414.

Major Accomplishments

- Established a mixed-use WAC minimization work group, leading to approximately \$2.2M in drug expense savings for FY17
- Implemented the Verity Hybrid 340B retail pharmacy patient eligibility model
- Implemented a Maestro Care charge configuration testing and validation process
- Utilized newly created wholesaler reports to proactively identify new products entering the organization for billing and 340B accumulator configuration
- Convened monthly meetings of the DUH 340B Oversight Committee
- Conducted quarterly comprehensive 340B self-audits
- Completed midyear and year-end physical inventory analyses
- Completed annual pharmaceutical price update and validation
- Enhanced process for receipt of retail pharmacy international patient payment
- Enhanced process for recovery of retail pharmacy hospital sponsorship funds for patients with previously pending Medicaid coverage

*Implemented the
Verity Hybrid 340B
retail pharmacy
patient eligibility
model*



Overview of services

The Center for Medication Policy (CMP) is a team within the Department of Pharmacy that collaborates with healthcare professionals across the health system to promote safe, effective and fiscally responsible use of medications. The CMP integrates its activities with the clinical, safety, informatics, administrative, and drug distribution systems of the Department to optimize medication use for patients.

Services include:

- Respond to patient specific and general inquiries regarding all aspects of medication use.
- Provide accurate, timely, unbiased evidence based drug information in support of rational medication therapy and policy.
- Provide support to the Pharmacy & Medication Management Committee, Pharmacy & Therapeutics Committee (P&T), and the respective subcommittees (Formulary Evaluation Teams, Formulary & Informatics Subcommittee, and Medication Safety Subcommittee).
- Participate in formulary management activities. Support the dissemination of drug information and medication policy updates via the Center for Medication Policy webpage, electronic newsletters, and staff meetings.
- Participate and support the conduct of medication use evaluations (MUEs). Query the MUE Universe tool to collect retrospective and real time medication utilization data for analysis for a variety of stake holders including P&T, Pharmaceutical Utilization Management Process (PUMP) and Value Analysis Team (VAT). This is one way in which adherence to formulary policies can be assessed.
- Monitor and assist with the implementation of drug shortage action plans.
- Track and develop medication specific Risk Evaluation and Mitigation Strategies (REMS) programs.
- Review FDA safety communications to facilitate changes to formulary policies and informatics systems.
- Review and track departmental drug information reference subscriptions.
- Provide a learning environment in which pharmacy students and residents can acquire or enhance skills necessary to research and respond to medication related queries and review and develop formulary related policies.
- Train a Drug Information Resident in collaboration with GlaxoSmithKline, that provides a learning environment for the resident to acquire and develop skills integral to the practice of hospital based drug information and med use policy.

Major Accomplishments

- Lead formulary review through a health system process. In FY17, the Committees completed formulary reviews for over 45 medications.
 - Medication Stewardship pharmacist coordinated the Pharmacy Utilization Management Program (PUMP). In FY17, 30 operational, procurement, and utilization initiatives were actively tracked.
 - In FY17, 4 therapeutic interchange programs were implemented as a means to guide the use of formulary medications.
 - Supported Care Redesign Teams
 - Supported the drug shortage policy by participating in the development and implementation of drug shortage action plans.
 - Maintained an up-to-date Center for Medication Policy website that provides current medication formulary and policy information. This website is accessible across DUHS.
 - Supported the 9 Formulary Evaluation Teams (FET) to meet the desired health system goals as outlined in the FET charter.
 - Collaborated with pharmacists and technicians from IT, operations, procurement and business finance to devise processes for implementing formulary changes and policy updates into IT systems in a timely manner.
 - Monitored the volume of medication alerts firing via Maestro Care. Actions approved at PMMC to reduce non-essential alerts.
 - Monitored non-formulary medication use and made suggestions for change to reduce overall utilization. Contributed to achieving the balanced score card performance target for non-formulary medication use.
 - Collaborated with the Pharmacy Education Committee to develop research project ideas for 10 UNC students to complete research projects at Duke.
- More than 40 drug shortage action plans implemented*
- Supported the formulary review of 45 medications, 8 class reviews, and completion of 18 MUEs*
- Precepted eight P4 pharmacy students and five pharmacy residents on rotations*

Our Team:

The CMP team is made up of well trained, highly-committed pharmacists who work collaboratively with those in the Department and throughout DUHS to help in the review and development of processes that help meet the medication needs of patients. All team members have completed one or two residency training programs. Some team members are Board Certified Pharmacotherapy Specialists. All support the department's mission through ongoing participation in quality and process improvement efforts, resident education, and research activities. Team members are members of state and national pharmacy organizations. The team makes contributions to the profession through internal and external publications and presentations.



References:

The CMP maintains an up-to-date core library of medical, pharmacology, and pharmacy practice texts and electronic references. Drug information references are evaluated as needed for suitability and need for purchase or renewal.

Locations and Hours of Operation

The CMP is located in the 0 level of Duke North across from North Central Pharmacy and is staffed Monday through Friday from 8 AM to 5 PM. After hours consultations are provided by an on-call system (pager 919-970-8110). Non-emergency requests may be left on voicemail (919-684-5125) or shared via email.

**Overview of services**

The Department of Pharmacy Investigational Drug Services supports clinical research involving study drugs for Duke Investigators and supports safety and care for subjects in both the inpatient and outpatient care areas as well as Duke Clinical Research Unit Phase I Studies. The Investigational Drug Services integrates its activities with the clinical, safety, informatics, administrative, and drug distribution systems of the Department to optimize study drug therapy for patients.

These services include:

- Creation of study drug orders in Maestro Care
- Integrity of blinding
- Regulatory compliance
- Prevention of errors involving study drugs
- Dispensing of investigational products in a timely manner
- Contribution to study design and data integrity
- Randomization and study drug accountability
- Aseptic preparation of IV's in a USP 797-compliant environment and distribution of both hazardous and non-hazardous study drugs
- Procurement of drugs and supplies for studies as needed
- Preparation of Drug Data Sheets for study drugs used for inpatients
- Inservices and education for inpatient studies
- Collaboration with DUH pharmacies to prepare and dispense study drugs as appropriate for patient care
- Education of Pharmacy students and residents regarding the research process, IDS team member roles and evaluation of literature

Availability and Location

Study drugs are received and dispensed from three primary areas, the Investigational Drug Service (IDS), the Investigational Chemotherapy Service (ICS) and the Infectious Diseases Research Pharmacy (IDRP). The Investigational Drug Services are staffed Monday through Friday from 8 AM to 5 PM. Arrangements are made to ensure study success for subjects needing study drugs outside of these hours. A team member from all services is on-call 24/7. (IDS on-call pager 970-8392; ICS and IDRP: individual team members via paging web). Non-emergent requests may be left on voicemail (IDS: 684-3543; ICS: 668-0657; IDRP: 681-1788). The IDS is located on the basement level of Duke Clinic at 0101b, Yellow Zone. The ICS is located within the Cancer Center Infusion Pharmacy on the fourth floor, room 4N33, of Duke Cancer Center. The IDRP is located within the infectious disease clinic, 1K room 1346.

Major Accomplishments

- Maestro Care:
 - Created study drug builds for all IRB approved studies using our services; a 10% increase from the previous year.
 - Validated approximately 177 order sets/protocols containing study drugs
 - Ongoing collaboration with DOCR, IRB and study teams for validation of study drug order sets/protocols and study drug for standardization and enhanced safety

Validated over 177 order sets/protocols containing study drugs

- Education and collaboration of study coordinators and investigators regarding study drug order entry options for Maestro Care
- ICS and IDS:
 - Participated in 62 audits
 - Participated in many National Clinical Trials Network (NCTN) audits (CITN, NCE and CTSU SWOG)
 - Created Willow builds for 177 separate protocols
 - Utilized access to the DOCR redcap site allowed increased study drug build completion before IRB approval; IDS rate = 91%, ICS rate = 93%.
 - Hosted 14 students/visitors (2 residents, 6 PY4 students, 4 immersion students, 3 PA students), 1 high school student, 1 visiting nurse from India, 1 pharmacist from OK and regulatory staff from GI/Phase I team and the Duke Early Phase Clinical Research Unit
 - Presented a poster to highlight the work and support provided by the ICS for oncology research studies at the Basic Science Day DCI Scientific Retreat
 - ICS worked with Heme team for pending collocation of clinic to North Pavilion.
 - ICS implementation of new billing structure
 - Contracted with Barlow Scientific for preventative maintenance of ultra-low freezers
 - Drafted new HR titles for IDSs staff with ladder for advancement
 - Worked with OESO for waste pickup (lithium batteries) and LN2 training
 - Worked to identify challenges and potential options of a Closed System Transfer Device in the investigational drug setting
 - Collected metrics regarding dispensing types and time of day for new CCIP hours
 - Completed first in man dosing in a Phase 1 study for a study drug invented at Duke
- IRB Coverage: with the help of department of pharmacy pharmacists, 80% (76/94) IRB meetings were covered by a pharmacist

Our Team

The Investigational Drug Service teams are made up of well trained, highly-competent and committed pharmacists, clinical trial specialists, clinical research coordinators, a technician and an accounting clerk II. These members work collaboratively with internal and external customers to meet the needs of study coordinators, investigators and subjects throughout the Duke Health System. Most of the staff members have greater than 15 years of experience at Duke and have worked with research for at least 7 years. IDS, ICS and IDRTP Team members actively support the department's mission through IRB membership, Clinical Research Unit membership, participation in quality and process improvement efforts, resident and student education, as well as research activities.





Overview of services

Three pharmacists and one full-time data administrator comprise the dedicated and experienced staff in the Medication Safety division. Services provided include:

- Management, investigation, and scoring of medication-related events reported via the Safety Reporting System (SRS)
- Administration of peer review process for medication-related SRS events
- Generation of monthly and quarterly reports which permit ongoing monitoring, trending, and analysis of medication related safety issues
- Preparation of ad hoc and custom reports to support the safety efforts at local, clinical service unit, institution and health system levels
- Facilitation of discussions around trends or specific medication related events which lead to actions aimed at addressing system failures and associated root causes
- Biweekly distribution of the Institute for Safe Medication Practices Newsletter
- Development of formal and informal safety data presentations tailored to audiences across the health system
- Consultations regarding specific safety issues, new products, and label changes
- Education and promotion of safe medication practices

Locations and Hours of Operation

The Medication Safety Office is located in Duke North Hospital across from the North Central Pharmacy. Our office is staffed weekdays from 7 AM to 5 PM. Services are covered by pager at all times.

Major Accomplishments

- Were recognized with the prestigious Rebecca Kirkland Award at the Duke Patient Safety Quality Conference 2017 for the best overall project “Achieving High Reliability Pediatric Medication Safety Through Multidisciplinary Adverse Drug Event Review”
- Maintained an active and engaged Medication Safety Committee
- Continued to lead and participate on multiple clinical service unit (CSU) level and specialty safety committees
- Participated in medication-related root cause analyses and learning from defects meetings
- Encouraged and recognized pharmacy department participation in SRS reporting to continue a high level of engagement as reflected in 287 individual pharmacy technicians and pharmacists who submitted medication related events in FY17.
- Developed Business Object SRS reports for Heart, Psychiatry, Transplant, Med Surg, Critical Care, Imaging, Emergency and Ambulatory CSUs which are distributed automatically monthly to select customers
- Generated more than 61 ad-hoc reports used for quality improvement and medication safety initiatives used to identify actions to address system failures
- Provided education and guidance to file managers interested in RL Solutions report writing tools, created

“Good Catch” reporting increased to 47.5% of medication-related safety events

Implemented 98 documented system improvements, enhancements and optimizations resulting in safer medication

safety reporting templates to be utilized by file managers and refined multiple file manager scopes.

- Used refined trigger tool to identify supratherapeutic INRs (>5) associated with warfarin. The Medication Safety Pharmacists submitted these events via the Safety Reporting System for peer review, aggregate analysis and further dissemination. Between July 2016 and June 2017, 94 patient charts were reviewed with 73 adverse warfarin events identified (79% positive predictive value). 31 of the 73 warfarin events (42%) were considered potentially preventable. Risk reduction strategies have been piloted and implemented and as a result of lessons learned.

*Reviewed, investigated,
and analyzed **5524**
medication-related
SRSs in FY17*

Our Team

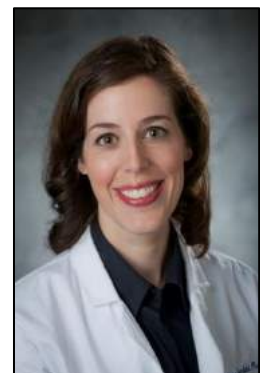


Antimicrobial Stewardship

Christina Sarubbi

Overview of services

The Antimicrobial Stewardship and Evaluation Team (ASET) is dedicated to enhancing the quality of antimicrobial use throughout Duke University Hospital. ASET works collaboratively with clinical pharmacists, medical staff and other healthcare workers to provide safe, efficacious, and cost-effective drug therapy to optimize outcomes in patients with infectious diseases.



Major Stewardship Initiatives

- Hospital-wide prospective antimicrobial review, feedback and intervention
- Pharmacist-driven penicillin allergy assessment and penicillin skin testing
- Rapid diagnostic testing interpretation in collaboration with microbiology
- Participating in the development of infectious-diseases related protocols and order sets
- Updating DUH infectious diseases guidelines to improve antibiotic decision-support for clinicians relating to the selection, dose, duration, and monitoring of antimicrobials
- Analyzing prescribing and utilization patterns to identify trends and improvement opportunities

- Participating in the conduct of didactic and experiential training of present and future physicians and pharmacists in principles of antimicrobial stewardship

Availability

An ASET member is available Monday through Friday 8 AM to 5 PM.

Major Accomplishments

- Increased our interventions by 50% with the hiring of an additional ID-trained pharmacist to further expand our program
- Approved the Stewardship Allergy Assessment protocol, expanding ASET's role in the management of patients with reported penicillin allergies
- Developed and implemented the following policies and guidelines: pharmacist-managed Antimicrobial Duration of Therapy Guidance for Adults, Antimicrobial Dosing in Obesity Guideline, and the Spectrum of Activity Chart
- Reviewed numerous drug monographs and MUEs pertaining to antimicrobials
- Collaborated with Infection Prevention to optimize perioperative antibiotics in surgical procedures with higher rates of *C.difficile*
- Participated in internal medicine, pharmacy, pediatric, and surgery educational conferences

*Facilitated over 300
ID Consults for
patients with
Staphylococcus
aureus bacteremia
and fungemia*

Our Team

Deverick Anderson, MD, MPH; ASET Medical Director
Coleen Cunningham, MD
Rebekah Moehring, MD, MPH
Christina Sarubbi, PharmD, BCPS
Rebekah Wrenn, PharmD, BCPS

Nutrition Support Pharmacy Programs

John Murray



Overview of services

The Duke University Hospital Adult Nutrition Support-Total Parenteral Nutrition Team (NSS-TPN) is a multidisciplinary collaboration between physicians, pharmacists, dietitians and nurses. It is a consult service for TPN that works in concert with the primary team, as well as the patient, to evaluate the need for specialized nutrition support for the adult patient population. Once the patient is determined to require specialized nutrition therapy, the team:

- Evaluates and determines the appropriate route of therapy including enteral or parenteral therapy
- Develops a nutrition care plan; verifying proper type, placement, and care of parenteral or enteral access including inserting enteral feeding tubes with a specialized device (Cortrak)
- Documents nutrition care plan and goal of therapy in the electronic medical record as agreed upon by the ordering team

- Initiates and manages patient specific parenteral nutrition for adult inpatients, including nutrition product evaluation and management of significant product shortages
- Initiates and manages patient specific enteral nutrition or diet until deemed appropriate to sign over to unit-based registered dietitians
- Evaluates drug therapy (including antibiotic therapy, prokinetic and ant motility agents, opioid sparing pain management, appetite stimulants, short bowel drug therapy, iron replacement, etc.), electrolytes, fluid and recommending changes as it pertains to nutrition care for the patient
- Reevaluate patient periodically to transition patient to a lower level of support, as appropriate (eg. Return to oral diet or transition from TPN to tube feeds)
- Coordinate transition to home or facility (when applicable including proper patient transport and providing guidance to other institutions for making TPN with their available products and vice versa)
- Manages patients receiving parenteral nutrition at home

For patients who require parenteral support after discharge, the NSS-TPN Team plays an integral role in evaluating the adult patient for appropriate therapy and providing guidance to discharge planners to request financial approval and home health services. The NSS-TPN Team provides support for Home Total Parenteral Nutrition (HTPN) patients by:

- Coordinate training to the patient and/or caregiver to be independent with the therapy in the home environment
- Monitor patient clinical condition for response to therapy
- Adjust TPN therapy as appropriate
- Wean TPN once goals of therapy have been achieved.
- Document all interventions in the electronic medical record.

The education of future nutrition support practitioners is facilitated through mentoring of pharmacists, dietitians, students, residents and other multidisciplinary staff

Major Accomplishments

- Implemented; an evaluation process of safety recorded events (SRS) related to TPN therapy. All SRS events from July 2016 to June 2017 were evaluated on a quarterly schedule. Events were collated to examine the location, month, attributable causes and severity. Emphasis is placed on events depending on, likelihood of causing harm, and frequency of occurrence. Focus is placed on identifying the sequence of events that resulted in a deviation from intended care then analyzing and implementing steps to deliver intended care. Formal review of the SRS events has provided a format that is nonjudgemental and focuses on system improvements. The process has been embraced with much enthusiasm from those directly involved in delivery of TPN therapy with the prospect of improving care.
- Continued to lead the monthly multidisciplinary Nutrition Council meetings to assist with the development of and maintenance of skilled Nutrition Support practitioners for adults and pediatrics so participants from several disciplines can come together to discuss ways to provide safer, more effective TPN therapy. Multidisciplinary professional continuing education topics of presentation for the 2016-2017 year included: *Troubleshooting and Complication of Enteral Access, Glycemic Control in the TPN Patient, New, Pediatric Total Parenteral Nutrition (TPN), Malnutrition: An Emergency in Our Hospitals. Can We Make a Difference? Technology for Diabetes Treatment in the Pediatric Patient, Nutritional Care of the Renal Patient, and A Comprehensive Nutrition-*

*Comprehensive
monitoring of
parenteral and enteral
nutritional quality and
safety*

Focused Quality Improvement Program Reduces 30-Day Readmissions and Length of Stay in Hospitalized Patients.

- Continued to build on the nutrition support forum. The forum provides resources for nutrition therapy and is located on the Pharmacy Department website.
- Introduced a new intravenous lipid emulsion product to the US market containing soybean oil, medium chain triglycerides, olive oil and fish oil (SMOF®) presented an alternative to soybean oil. There is theoretical potential for improving clinical outcomes by using an alternative ILE, although the benefit of a soybean oil-sparing strategy might depend on an individual patient's metabolic state and liver function. Even though a soybean oil-based ILE may be entirely appropriate for someone who is metabolically stable, an alternative ILE may be preferred for a patient with elevated liver function tests (LFTs) or for a metabolically unstable patient who is at increased risk for harm from the pro-inflammatory effects of soybean oil-based ILEs. A formal review of SMOF lipid emulsion was undertaken and approved by the Pediatric, DUH and DUHS P&T committees. The patient population receiving TPN at DUH includes neonates, critically ill, organ and bone marrow transplant and home TPN patients. Many of whom are susceptible to liver injury and pro-inflammatory conditions. Therefore, SMOF lipid has become the primary ILE provided at DUH.

*Continued to grow and
expand the Nutrition
Support Forum*

Oncology Pharmacy Programs

Sally Barbour



Overview of services

Oncology pharmacy specialists at Duke provide patient care to adult and pediatric cancer populations in both the inpatient and outpatient settings. Clinical services are tailored to patient care needs and include but are not limited to pharmacotherapeutic medication management, therapeutic drug monitoring, pharmacokinetic dosing, nutrition support, drug information, symptom management, supportive care, and patient education. The pharmacy team is also responsible for safely compounding and dispensing chemotherapy.

Pharmacists work collaboratively with other health care providers to provide safe, efficacious, and cost-effective drug therapy to optimize outcomes in patients with malignant diseases. Oncology practitioners are involved in the development, support, and management of research/investigational protocols. Additionally, the education of future pharmacy practitioners is facilitated through mentoring of pharmacy students and residents in a variety of clinical settings.

Locations and Hours of Operation

Currently, oncology pharmacists practice in the following areas:

- Ambulatory Oncology Clinics
 - Hematologic Malignancies, Genitourinary, Gastrointestinal, Thoracic, Breast, Sarcoma, Brain Tumor, Adult Bone Marrow Transplant (BMT), Pediatric BMT
- Inpatient Oncology Services
 - Hematologic Malignancies, Solid Tumors, Adult BMT, Pediatric BMT, Pediatric Oncology
- Infusion Pharmacies
 - Cancer Center Infusion Pharmacy
 - North Pavilion
 - Rainbow Day Hospital
- Investigational Chemotherapy Services

Major Accomplishments

- Continued support and development of Beacon templates supporting standardization and enhanced safety with chemotherapy regimens
- Continued development of standardized chemotherapy patient education materials
- Continued the Duke Oncology Pharmacy Oral Chemotherapy Management Program and implementation of Therigy
- URAC Accreditation of Duke Cancer Center Specialty Pharmacy
- Continuation of call back program for patients at high risk for chemotherapy induced nausea and vomiting
- Continuation of monthly oncology pharmacy meetings
- Provide clinical review and justification for Medicare audits
- Increase to 7 Clinical pharmacist practitioners (CPP's) within the oncology group
- Participation in the Duke Oncology Network Pharmacotherapy Updates in Cancer Series

*300+ standardized
chemotherapy
regimen education
sheets developed*

*Developed
organizational structure
for population health
pharmacy services*

- Creating and sending a quarterly newsletter to oncology practitioners across Health system
- Participation in teaching daily Chemotherapy Education Class
- Participation in the development of standardized chemotherapy education information sheets
- Support of PGY2 Oncology residency program and residents

Population Health Pharmacy Services

Benjamin Smith



Overview of services

Population health pharmacy services are integrated with the Duke Population Health Management Office (PHMO) DukeWELL care management services. The Duke PHMO was officially developed November 1st, 2016 to bring together different population health services into a single entity. The goal of the Duke PHMO is to facilitate higher-quality care that results in a greater return on healthcare dollars. The PHMO is responsible for cost and quality for approximately 250,000 patients served by Duke Health and other providers that participate in the Duke Connected Care (DCC) and Northern Piedmont Community Care (NPCC) networks.

Specific population health pharmacy services include:

- Supporting DukeWELL care management with medication reviews and education
- Serving as an education and pharmacy resource for providers
- Communicating policy changes related to Medicaid to providers and community pharmacies
- Conducting pharmacy technician home visits for select patients with medication management or adherence concerns
- Collaborating with specialists in endocrinology, geriatrics, nephrology, palliative care, and cardiology to conduct chart reviews in DukeWELL rounding sessions to provide recommendations to care management and primary care providers
- Utilizing PHMO reports to address medication-related quality measures or medication management improvement opportunities
- Collaborating with payer pharmacists and DukeWELL care management to develop strategies to improve medication-related quality measure performance
- Collaborating with external community resources, including community pharmacies, to improve medication management for DukeWELL eligible patients

Locations and Hours of Operation

- Our team is located in the PHMO offices at 718 Rutherford Street and at the NC Mutual Building at 411 W Chapel Hill St. We are available during normal business hours Monday through Friday by calling DukeWELL at 660-9355

Major Accomplishments

- Developed population health pharmacy structure as part of the

- DUH Department of Pharmacy to support the PHMO population health efforts
- Filled vacant Northern Piedmont Community Care (NPCC) Network Clinical Pharmacist position and incorporated that position into the DUH Department of Pharmacy
- Hired an additional population health clinical pharmacist
- Successfully contributed to completion of the Duke Connected Care (DCC) annual Medicare Shared Savings Program (MSSP) quality reporting to the Centers for Medicare and Medicaid Services
- Collaborated with a PHMO data analyst and PGY2 pharmacy resident to develop a report and outreach protocol for DukeWELL eligible patients that would likely benefit from the addition of a statin medication
- Developed and implemented a pharmacy technician home visit program
- Developed and implemented the Population Health Pharmacy Conference for pharmacy staff across DUHS that are interested in population health pharmacy initiatives
- Developed and implemented the Population Health Pharmacy Council to serve as a steering committee for population health pharmacy services

*Developed
organizational
structure for
population health
pharmacy services*

*Pharmacy technician
home visit program
implemented in
March 2017*

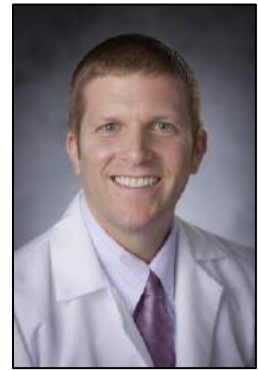
Team Members

- Population Health Pharmacy Services Manager
- Population Health Clinical Pharmacists
- Population Health Pharmacy Technicians



Transplant Pharmacy Programs

Matt Harris



Overview of services

Clinical pharmacy services are provided for heart, intestine, kidney, liver, lung, pancreas, and vascularized composite tissue transplant patients across the continuum of care at Duke Hospital. Seven full time pharmacists and one PGY2 transplant resident comprise the pharmacy transplant team. Services provided include:

- Involvement in the care of patients and donors in the pre-, peri-, and post-operative settings
- Identifying, solving and preventing medication-related problems or deficiencies in the solid organ transplant population and living donors for the abdominal and thoracic transplant programs
- Documenting pre- and post-transplant immunosuppressive plans
- Providing education regarding the safe and effective use of medications in the post solid organ transplant population to patients/families and the healthcare team
- Assisting the transplant teams in medication protocol development, review, and revision on an on-going basis
- Development and management of investigator initiated research and Pharmacy Utilization Management Programs
- Training students and residents in a variety of clinical settings

Locations and Hours of Operation

Inpatient services are provided by a Transplant Clinical Pharmacist seven days a week and all of the pharmacists are available by pager for after-hours questions or concerns. Currently transplant pharmacists practice in the following areas:

- Ambulatory Clinics
 - Abdominal Transplant
 - Hepatology/Hepatitis C
 - Thoracic Transplant
- Inpatient Coverage (CPCS)
 - Adult and pediatric abdominal transplant
 - Heart transplant/heart failure/VAD
 - Medical and surgical lung transplant
- Ambulatory Pharmacy
 - Duke Cancer Center Specialty Pharmacy

Major Accomplishments

- Four manuscripts published based on resident research projects
- Pharmacist initiated research projects presented at the International Society of Heart and Lung Transplant Annual Meeting and the American Transplant Congress
- Presentations at the Lung Transplant Symposium, Pharmacy Grand Rounds, and the Transplant Center Core Curriculum Lecture Series
- Tracking CMS required documentation and activities through iVents
- For the tenth year in a row the PGY2 Transplant Resident became a board certified pharmacotherapy specialist
- Continued to encourage post-transplant prescriptions be filled at the Duke Cancer Center Specialty Pharmacy generating significant organizational revenue

*Comprehensive
medication
management for
transplant patients
across the continuum*

Team Members

Matt Harris, PharmD, MHS, BCPS
Jennifer Gommer, PharmD, BCPS
Jennifer Byrns, PharmD, BCPS
Mara Watson, PharmD
Clark Benedetti, PharmD, CPP
Amanda Hulbert, PharmD, BCPS
Kristi Beermann, PharmD, BCPS
Melissa Laub, PharmD

Director Transplant Pharmacy Programs
Inpatient Abdominal Transplant Clinical Pharmacist
Ambulatory Abdominal Transplant/Hepatology Pharmacist
Inpatient Heart Transplant Clinical Pharmacist
Ambulatory Thoracic Transplant Clinical Pharmacist
Inpatient Medical Lung Transplant Clinical Pharmacist
Inpatient Surgical Lung Transplant Clinical Pharmacist
PGY2 Transplant Resident

VI. Research Program

Pharmacy Research Committee

Purpose

The Pharmacy Research Committee is a scientific advisory committee designed to enhance pharmacy staff, resident and student knowledge and participation in research.

Committee Function

The scope of the committee responsibilities shall include:

- Oversee, guide and facilitate research activities to include:
 - Study feasibility assessment
 - Compliance with Investigational Review Board requirements
 - Adherence to data security requirements via review of the Research Data Security Plan
 - Compliance with institutional training requirements
- Identify and arrange extra-departmental research support resources which may include:
 - Statistical consulting services
 - Clinical Research Unit /Institutional Review Board protocol review
 - Duke Office of Clinical Research (DOCR) review
- Issue a call for research project ideas on an annual basis and maintain a directory of interested research preceptors and their areas of research interests
- Establish guidelines/timelines for research projects
- Provide assistance to preceptors in developing suitable research projects
- Review and provide feedback to study investigators on Research Project Outlines and Research Protocols (including evaluation of scientific merit, design, feasibility, relevance to internal/external audiences, resources and regulatory compliance)
- Make recommendations to the Pharmacy Senior Management Group (SMG) regarding approval of projects
- Review and provide feedback on abstracts and presentations. Specific feedback shall be provided to pharmacy residents in preparation for the University Health System Consortium (UHC) meeting and Southeastern Residency Conference (SERC)
- Perform an annual assessment of the effectiveness of the resident research process
- Assess pharmacy staff and residents' learning needs regarding necessary research skills and facilitate the scheduling of research training sessions to meet these needs and those required by the institution
- Ensure that investigators maintain a regulatory file, which may be held electronically. Recommended contents of the files could include documents such as a project staff list and training updates, all IRB communications, a copy of the protocol and if applicable, consent templates.

Membership

Meredith T. Moorman, PharmD, BCOP, CPP - Chair
Clinical Pharmacist, Adult Hematology/Oncology Clinic

Amanda M. Ball, PharmD, BCPS, BCCCP
Clinical Manager, Clinical Patient Care Services
Duke University Hospital

Clark Benedetti, PharmD, CPP
Clinical Pharmacist, Lung Transplant
Duke University Hospital

Jennifer Byrns, PharmD, BCPS
Clinical Pharmacist, Ambulatory Abdominal Transplant
Duke University Hospital

April A. Cooper, PharmD
Clinical Pharmacy Specialist, Internal Medicine – Duke Regional Hospital
Clinical Assistant Professor- Campbell University College of Pharmacy & Health Sciences
Co-Director, PGY2 Internal Medicine – Duke Regional Hospital

Justin Geurink, PharmD, BCPS
Pharmacy Manager, Clinical and Patient Care Services
Duke University Hospital

Alicia Hairston, PharmD, BCOP
Clinical Pharmacist, Inpatient Hematology/Oncology
Duke University Hospital

Matt Harris, PharmD, MHSc, BCPS
Director of Transplant Pharmacy Programs
Clinical Pharmacist, Abdominal Transplant
PGY2 Transplant Residency Program Director
Duke University Hospital

Beth McLendon-Arvik, PharmD
Manager, Duke Investigational Drug Service and Investigational Chemotherapy Service
Director, PGY1 Pharmacy Residency
Duke University Hospital

Andrakeia (Drake) Shipman, PharmD, BCPS
Clinical Pediatric Pharmacist
Duke Children's Hospital and Health Center
Cathy Vaughan, PharmD
Drug Information Specialist, Center for Medication Policy
Duke University Hospital

Catherine Lewis Wente, PharmD, CACP, BCPS
Clinical Pharmacy Specialist, Internal Medicine – Duke Regional Hospital
Clinical Assistant Professor- Campbell University College of Pharmacy & Health Sciences
Co-Director, PGY2 Internal Medicine – Duke Regional Hospital

Michael D. Wolcott, PharmD, BCPS
Clinical Pharmacist, Clinical and Patient Care Services/Investigational Drug Services
Duke University Hospital

VII. Educational Program

Pharmacy Education Committee

Purpose

To promote and support educational activities of the department of pharmacy

Committee Function

- To establish and maintain an education committee,
- To support the educational needs of department of pharmacy staff (including residency programs offered by Duke University Hospital) and learners from affiliated schools/colleges of pharmacy through sub-committees charged with specific responsibilities and accountabilities

Subcommittees

Subcommittees for the following areas will assume accountability and responsibility for assigned educational needs:

- Residency Program Noon Conference: Grand Rounds and Case Conferences
- Annual Winter/Spring Symposium
- Preceptor Development
- UNC ESOP APPE Student Learning Experience Scheduling and Support
- UNC ESOP 4th Year Student Clerkship Research Projects
- UNC ESOP 4th Year Seminar Class: Fall and Spring Semester activities
- UNC ESOP Early Immersion Clerkships
- Campbell University COP IPPE Student Clerkships
- Campbell University COP 4th Year Student Learning Experience Scheduling and Support
- Pharmacy Internship Program
- Teaching Certificate Program
- Technician Training Program
- Technician Professional Development Committee

Membership

Jenny Mando-Vandrick, PharmD, BCPS
Clinical Pharmacist – Emergency Services
Chair – Residency Noon Conference Subcommittee

Doug Raiff, PharmD, BCPS
Clinical Pharmacist – Medication Policy
Chair - Annual Winter/Spring Symposium Subcommittee

Dustin Wilson, PharmD, BCPS
Clinical Pharmacist – Medicine
Assistant Professor, Campbell University College of Pharmacy and Health Sciences
Chair – Preceptor Development Subcommittee

Kristen Bova Campbell, PharmD, BCPS, AQ-Cardiology, CPP
Clinical Pharmacist - Cardiology
Chair - UNC ESOP APPE Student Learning Experience Scheduling and Support Subcommittee

Ann McGee, PharmD
Director, Center for Medication Policy
Chair - UNC ESOP 4th Year Student Clerkship Research Projects Subcommittee

Justin Geurink, PharmD, BCPS
Manager, Clinical and Patient Care Services
Chair - UNC ESOP 4th Year Seminar Class: Fall and Spring Semester activities

Kevin Helmlinger, PharmD, BCPS
Manager, Children's Hospital Pharmacy
Chair – UNC ESOP Early Immersion Clerkships

Mary Margaret Johnson, PharmD, MBA, MSCR
Clinical Pharmacist – Duke Compounding Pharmacy
Chair - UNC ESOP and CU COP IPPE Student Clerkships

Mary E. Durham, PharmD, MS, BCPS
PGY II Health System Pharmacy Administration Resident
Chair – Pharmacy Internship Program

Evan Frasure III, PharmD, BCPS
Manager, Administrative and Business Services
Chair – Teaching Certificate Program

Mathew Kelm, PharmD, MHA
Manager, Unit Dose Drug Distribution
Chair – Pharmacy Technician Training

Malphus Stroud, CPhT
Clinical Research Specialist, Investigational Drug Service
Chair – Technician Professional Development Committee

Paul Bush, PharmD, MBA, BCPS, FASHP - Chair
Chief Pharmacy Officer

VIII. Residency Programs

For over 40 years, our program has been training residents to become exceptional pharmacy practitioners and leaders. Residents who complete our program have experienced success in obtaining competitive specialty residencies, fellowships, academic, clinical and pharmacy leadership positions.

A testament to their success is the exemplary institutions that which Duke Pharmacy residents begin their post-residency careers.

We extend our gratitude to our residency program directors:

- | | |
|------------------------------|---|
| ▪ Beth McLendon-Arvik | Post Graduate Year (PGY) 1* |
| ▪ Paul W. Bush | PGY1-2 Health-System Pharmacy Administration* |
| ▪ Kimberly Hodulik | PGY2 Ambulatory Care* |
| ▪ Kristen B. Campbell | PGY2 Cardiology* |
| ▪ Jennifer Mando-Vandrick | PGY2 Critical Care* |
| ▪ Ann Scates-McGee | Drug Information (with Glaxo Smith Kline) |
| ▪ Richard Drew/Dustin Wilson | Internal Medicine/Infectious Diseases/Academia
(with Campbell University School of Pharmacy) |
| ▪ Sally Barbour | PGY2 Oncology* |
| ▪ Julia (Jill) Lawrence | PGY2 Pediatrics* |
| ▪ Matthew T. Harris | PGY2 Solid Organ Transplantation* |

*ASHP-Accredited

2016-2017 Residency Graduates and Current Positions

The 2016-2017 residents successfully completed all requirements for graduation from the Duke program. These graduates include:

PGY1:

Stephanie Dougherty	PGY2 Cardiology Resident, Duke University Hospital
Sebastian Cerdena	PGY2 Oncology Pharmacy Resident, Duke University Hospital
Shane Salimnejad	PGY2 Emergency Medicine Resident, Duke University Hospital

PGY1-2 Health-System Pharmacy Administration:

Andrew Wright (PGY1)	PGY2 Health-System Pharmacy Administration Resident – Duke University Hospital in Durham, NC
Mary Durham (PGY2)	Pharmacy Automation Manager – Truman Medical Center in Kansas City, KN

PGY2 Ambulatory Care:

Toree Reynolds	Clinical Pharmacy Specialist, Ambulatory Care – Raleigh Veterans Affairs Outpatient Clinic in Raleigh, NC
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PGY2 Cardiology:

Cody Carson	Clinical Pharmacist, Cardiology – Duke University Hospital in Durham, NC
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PGY2 Critical Care:

Andrew McRae	Clinical Pharmacist, Critical Care and Emergency Medicine – Vanderbilt Medical Center in Nashville, TN
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Drug Information:

Sandra Hanna

Medical Science Liaison, Rare Disease Fellow – Sanofi Genzyme in Cambridge, MA

Internal Medicine/Infectious Diseases/Academia:

Clara Ni

Clinical Staff Antimicrobial Stewardship Pharmacist – Winchester Medical Center in Winchester, VA

PGY2 Oncology:

Katie Lentz

Clinical Pharmacist: Medical Oncology – Barnes-Jewish Hospital in Saint Louis, MO

Ama Marfo

Clinical Pharmacist: Hematology/Oncology – Georgetown University Hospital in Washington DC

PGY2 Pediatrics:

Mallory Muller

Clinical Pharmacist Specialist, Pediatric Infectious Disease and Antimicrobial Stewardship - Arnold Palmer Hospital for Children in Orlando, FL

Katie Harsh

Clinical Pharmacist, Neonatal Intensive Care Unit – Duke University Hospital in Durham, NC

PGY2 Solid Organ Transplantation:

Amanda Szczpanik

Clinical Specialist, Solid Organ Transplant – Henry Ford Health System; Adjunct Faculty – Wayne State University College of Pharmacy in Detroit, MI

Chief Resident:

Mary Durham

Preceptor of the Year:

Travis Heath

Residency Advocate Award:

Bridgette Kram



Duke University Hospital Pharmacy Residency Class of 2016-2017
(Residents and Program Directors Pictured)

2017-2018 Resident Class

The 2017-2018 recruiting campaign successfully filled 16 residency positions offered at Duke. Listed below are the current residents and their College of Pharmacy or previous PGY1 residency program:

PGY1:

Carson Tester	University of North Carolina Eshelman School of Pharmacy
Marcus Kaplan	University of North Carolina Eshelman School of Pharmacy
Jason Funaro	University of Connecticut School of Pharmacy
Anne Rodino	University of Purdue School of Pharmacy

PGY2 Ambulatory Care:

Katherine Fuller	PGY1 Pharmacy Residency – University of New Mexico Hospital
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PGY2 Cardiology:

Stephanie Dougherty	PGY1 Pharmacy Residency – Duke University Hospital
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PGY2 Critical Care:

Benjamin Mancheril	PGY1 Pharmacy Residency – Blount Memorial Hospital
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Drug Information:

Randall Johnson	University of North Carolina Eshelman School of Pharmacy
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PGY2 Emergency Medicine:

Shane Salimnejad	PGY1 Pharmacy Residency – Duke University Hospital
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Internal Medicine/Infectious Diseases/Academia:

Brandon Hill	PGY1 Pharmacy Residency – Palmetto Health Richmond
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PGY1-2 Health-System Pharmacy Administration/M.S.:

Jordan DeAngelis (PGY1)	University of Connecticut School of Pharmacy
Andrew Wright (PGY2)	PGY1 Pharmacy Residency – Duke University Hospital

PGY2 Oncology:

Sebastian Cerdena	PGY1 Pharmacy Residency – Duke University Hospital
Caroline Mejías-De Jesus	PGY1 Pharmacy Residency – Massachusetts General Hospital

PGY2 Pediatrics:

Magen Cross	PGY1 Pharmacy Residency – Palmetto Health Richmond
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PGY2 Solid Organ Transplant:

Melissa Laub	PGY1 Pharmacy Residency – Mayo Clinic Hospital
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Chief Resident

Andrew T. Wright, PharmD, MSCR



Duke University Hospital Pharmacy Residency Class of 2017-2018

IX. Milton W. Skolaut Leadership Award

Overview

The Milton W. Skolaut Leadership Award is awarded to a past resident of the Duke University Hospital Pharmacy Residency Program. This award recognizes an individual for outstanding leadership and contributions to the profession of pharmacy.

About Milton W. Skolaut

Milton W. Skolaut was born in San Antonio, Texas and earned a bachelor's degree in 1941 from the University of Texas College of Pharmacy. In 1952, Skolaut became Director of Pharmacy Services at the National Institutes of Health (NIH) Clinical Center in Bethesda, Maryland. While at the clinical center, Skolaut established the pharmacy as the central supply point for drug distribution, a relatively new concept at the time but one that quickly became the norm for hospitals nationwide.



Skolaut joined the staff of Duke Hospital in 1970, where he served for 17 years as Director of Pharmacy until his retirement in 1987. During Skolaut's tenure at Duke, the pharmacy established services that included the preparation of unit dose medication packages, intravenous admixtures, and total parenteral nutrient solutions. He was also responsible for the expansion of a pharmacy within the operating room suites, supplying all materials and medications to the Anesthesia Department. The Department of Pharmacy also instituted clinical services and a residency program under his leadership.

Mr. Skolaut was an active member of ASHP for many years, including serving as president from 1963-64. In 1968, he was one of the three visionary leaders that started the ASHP Research and Education Foundation. In 1979, Skolaut earned hospital pharmacy's highest honor, ASHP's Harvey A. K. Whitney Lecture Award.

Past Recipients

2014: Jill S. Bates, PharmD, MS, BCOP

2015: James C. McAllister III, MS, FASHP

2016: Elizabeth Dodds Ashley, PharmD, MHS, FCCP, BCPS

2017 Recipient:

Nancy Allen LaPointe, PharmD, MHS, AACC



Dr. Allen LaPointe is a Principal at Premier, Inc. within the Applied Research group, leading several teams of researchers and analysts. Prior to joining Premier in June of 2015, she was Associate Professor of Medicine at Duke University and the Duke Clinical Research Institute, Chair of the Duke Health System Institutional Review Board, and Director of the Duke Heart Center Distinguished Research Center Program. During her 27 years at Duke she held numerous clinical and research positions including Cardiovascular Clinical Pharmacist for the Duke Medical Center Cardiology/Electrophysiology services, Program Director for the AHRQ funded Duke Center for Education and Research on Therapeutics (CERTS), and Scholar for an NIH funded comparative effectiveness research methodologies training program.

Dr. Allen LaPointe received her BS Pharmacy and PharmD from Purdue University and then completed a Clinical Pharmacy Residency and Cardiovascular Pharmacy Fellowship at Duke University Medical Center. In 2013, she received a Master's in Health Sciences from Duke University with a focus on comparative effectiveness research. She currently holds two faculty appointments – Adjunct Associate Professor in Medicine at Duke University and Adjunct Professor of Pharmacy Practice at Campbell University.

X. Preceptor Awards

Student Preceptor of the Year – Brianna Alexander, PharmD, BCPS



Presented by: Drs. Paul Bush and Kristen Campbell

Resident Preceptor of the Year – Travis Heath, PharmD, BCPS, BCPPS



Presented by: Chief Resident Dr. Mary Durham

Resident Advocate of the Year – Bridgette Kram, PharmD, BCPS



Presented by Chief Resident Dr. Mary Durham

XI. Grants and Publications

Grants:

CD Hornik. NIH-HHSN-275201000003I-Pediatric Trials Network. PI: Benjamin
Task Orders 6—Opportunistic Study
Task Order 19—Lorazepam Study
Task Order 25—Antibiotic Safety in Infants with Complicated Intra-Abdominal Infections (SCAMP) Study
Task Order 27 and 43-- Pharmacokinetics of Understudied Drugs Administered to Children per Standard of Care (POPS III and IV)
Task Order 34—Program Management Support
Task Order 40—Pharmacokinetics of Anti-Epileptic Drugs in Obese Children

CD Hornik. Cempra-SOLI Phase II/III (HHSO-100201300009C). PI: Cohen-Wolkowicz

Publications:

Knoer SJ, Luder DD, Hill JM, **Achey TS**, Ciaccia A. Lessons learned in updating and improving a state collaborative practice act. *Am J Health-Syst Pharm.* September 2016; 73(18):1462-1466.

Allen B, Kram B, Schultheis J, Kram S, Gilstrap D, Shapiro M. Predictors of vasopressin responsiveness in critically ill adults. *Ann Pharmacother.* [in press]

Bush PW, Daniels R. Health Care Systems and Transitions of Care: Implication of Interdisciplinary Pharmacy Services. *North Carolina Medical Journal* 2017: 78:177-180.

Ajayi T, Ward R, Summers B, **Byrns J,** Kappus M, Choi S, Wilder J. Pathophysiology, pharmacology, and treatment of acute intermittent porphyria: a patient case description and recommendations from the current literature. *J of Explor Research in Pharm* 2017;2:49-53

Kappus M, Wilder J, **Byrns J,** Summers B, Berg C. Liver transplantation for Acute Intermittent Porphyria: A Case Report. *J Hepatol Gastroint* 2017;3:141

Casciello N, Hulbert A, Snyder L, **Byrns J.** Incidence of acute cellular rejection following granulocyte colony-stimulating factor administration in lung transplantation: a retrospective case-cohort analysis. *Clinical Transplantation* 2017;00:e12965

Vacha M, Chery G, Hulbert A, **Byrns J,** Benedetti C, Finlen-Copeland A, Snyder L. Antibody depletion strategy for the treatment of suspected antibody mediated rejection in lung transplant recipients: Does it work? *Clinical Transplantation* 2017;31:e12886

Maldonado AQ, Summers B, Szempruch KR, Hall J, and **Harris M.** Early Outcomes from de Novo Weight-Based Dosing Compared With Conservative Dosing of Tacrolimus in Kidney Transplant Recipients: A Multisite Perspective. *Ann Pharmacother* 2017; 51(6):518-519.

Vacha M, Gommer J, Rege A, Sanoff, S, Sudan D, and **Harris M.** Effects of Ideal Versus Total Body Weight Dosage of Rabbit Anti-thymocyte Globulin on Outcomes of Kidney Transplant Patients With High Immunologic Risk. *Exp Clin Transplant* 2016 Oct; 14(5):511-517.

Dallefield S, **Hornik CD,** Zimmerman K, Cohen-Wolkowicz M. Infectious Disease and Pharmacology: Neonatology Questions and Controversies. Smith PB, Benitz B, editors. USA: Elsevier; 2017. Antibiotic Dosing Considerations for Term and Preterm Infants.

Ku LC, Simmons C, Smith PB, Greenberg RG, **Hornik CD**, Cotten CM, Goldberg RN, Fisher K, Bidegain M. Intranasal Midazolam and Fentanyl for Analgesia and Sedation in Infants in the Neonatal Intensive Care Unit. AAP National Conference. San Francisco, CA; 2016.

Rowe S, Raynor E, **Hornik CD**, Fisher K, Tanaka D, Cotten CM, Bidegain M. The Use of Botulinum Toxin in the Neonatal Intensive Care Unit. Pediatric Academic Societies Meeting. San Francisco, California; 2017.

Edwards L, Edwards J, **Hornik CD**, Goldstein R, Bidegain M, Malcolm W. Inpatient Versus Outpatient Management of Infants with in Utero Opioid Withdrawal. Pediatric Academic Societies Meeting. San Francisco, California; 2017.

Edwards L, Edwards J, **Hornik CD**, Goldstein R, Bidegain M, Malcolm W. Outpatient Management of Iatrogenic Neonatal Abstinence Syndrome Supported by a Medical Home Program. Pediatric Academic Societies Meeting. San Francisco, California; 2017.

Parker W, **Hornik CD**, Bilbo S, Holzknecht ZE, Gentry L, Rao R, Lin SS, Nevison CD. The Role of Oxidative Stress, Inflammation and Acetaminophen Exposure from Birth to Early Childhood in the Induction of Autism. Journal of International Medical Research. [Accepted January 20, 2017]

Edwards L, Hutchison L, **Hornik CD**, Smith PB, Cotten CM, Bidegain M. A Case of Infant Delirium in the Neonatal Intensive Care Unit. J Neonatal Perinatal Med. 2017 Mar 16. PMID: 28304319.

Jones TM, Drew RH, Wilson DT, Sarubbi C, Anderson DJ. (in press). Impact of automatic infectious diseases consultation on the management of fungemia at a large academic medical center. American Journal of Health-System Pharmacy

Kelm M. Maximizing the Value of Automated Dispensing Cabinets. Pharmacy Purchasing and Products 2017 Feb; 14(2):2-5.

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Wong A, **Kram B, Kram S**, et.al. Major publications in the critical care pharmacotherapy literature: January 2015 through December 2015. AJHP, 2017; 74:e78-94.

Reynolds V, Causey H, McKee J, Reinstein V, Muzyk A. The role of Pharmacists in the Opioid Epidemic: An Examination of Pharmacist-Focused Initiative Across the United States and North Carolina. NC MED J 2017;78: 202-205.

Yen DC, **Watson MH, Burgess LD**, Kuchibhatla M, Patel CB, Campbell KB, **Vora AK**. Positive Impact of Continuous-Flow Left Ventricular Assist Device Implantation on Glycemic Control in Patients with Type 2 Diabetes Mellitus and Advanced Chronic Systolic Heart Failure. Pharmacotherapy. 2016;36(12): 1210-1216.

Wrenn RH, Cluck D, Kennedy L, Ohl C, Williamson JC. Extended infusion compared to standard infusion cefepime as empiric treatment of febrile neutropenia. J Oncol Pharm Pract. 2017;:1078155216687151.

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