



Department of Pharmacy
2016 YEAR IN REVIEW

V I S I O N

To be the World Leader in pharmacy practice

M I S S I O N

To provide patient focused pharmacy practice
across the continuum of care through
innovation, education, and research



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I am honored to present the 2016 Cleveland Clinic Pharmacy Enterprise Annual Report. Every year I am amazed and inspired by the tremendous amount of high quality patient focused work that our Caregivers deliver over the course of twelve months. This year is no exception and in fact, it is arguably the most prolific year of accomplishment in the history of Pharmacy at the Clinic.

From an international perspective 2016 was an impactful year. In March of last year our Cleveland Clinic Abu Dhabi team opened a state of the art hospital with the same advanced pharmacy services, automation and technology that we have on the Main Campus. This team significantly elevated the practice of pharmacy in the entire region, literally overnight.

Our decisions today greatly impact our ability to care for patients tomorrow. 2016 resulted in agreement on and the development of a medication use model for Cleveland Clinic London that will dramatically improve safety across that country and across the European continent. Today, hospital pharmacists in the United Kingdom (UK) only compound chemotherapy and TPNs while nurses mix all other infusions on the patient care units. By creating the first centralized IV admixture service in the UK, we will significantly improve safety and allow our nurses to spend more time providing direct patient care.

We also decided to and have begun development of the first fully integrated Electronic Health Record (EHR) with Bedside Barcoding Administration in England. While these systems won't be realized until the hospital opens in 2020, this initial strategy had to be created and accepted by all stakeholders, which was a noteworthy achievement.

Back in the U.S., 2016 was a paradigm shifting year related to our focus on Population Health Management (PHM). While we have treated the sickest of the sick in Cleveland since 1921, it is only recently that we have focused on keeping our patients out of the hospital and improving the overall health of the populations we serve. Medication is the thread that is with patients throughout their lives. In order to effectively manage patients across the care continuum and keep them healthy, it is essential to optimize their drug therapy at each transition of care.

In 2016 we made essential strides in our ability to improve population health. We did this through adding pharmacists to our ambulatory clinics, establishing a pharmacy based refill authorization center, implementing distance health initiatives, expanding our bedside delivery program, and optimizing students in medication reconciliation efforts.

Our success in PHM in 2016 couldn't have happened if we hadn't laid the groundwork previously. In 2015 the Cleveland Clinic lobbied hard to improve the Ohio Pharmacy Collaborative Practice Act. This work was rewarded with the passage of a liberal pharmacy law in late 2015 that allows pharmacists to initiate, modify and discontinue medications within a collaborative agreement with physicians.

We seized this opportunity in 2016 by developing and implementing a pharmacy based refill authorization center that provides safe, effective, efficient care to our patients. It also allows our doctors to practice at the top of their license by focusing on issues that they are uniquely qualified to perform. This frees them to spend more time with patients, improving physician engagement. In its first five months of service this program prevented 1,300 renewals for drugs that had been discontinued, stopped 357 refills for medications for patients with unsafe laboratory values, prevented 152 prescriptions for drugs with unnecessary therapeutic duplications, stopped 59 refills for medications with serious interactions with other drugs the patient was on and stopped refills for six patients with a documented allergy or intolerance to the medication.

On the innovation front, we continued our legacy of advancing safety and efficiency through creating new automation and technology. Our relentless pursuit of improvement on this front led us to two exceptional partnerships with outside companies. We continue to develop new robots in the sterile products world through our partner, Loccioni Human Care in Jesi, Italy. While we previously introduced their first chemotherapy robot in the U.S. six years ago, in 2016 we worked with them to develop the first sterile products robot in the world that compounds pediatric dilutions. This robot arrived on the Main Campus and became operational in July, 2016. We also continued our development partnership MedKeeper when they created a new program for us called MedKeeper Verifications, which provides workflow and visual/photographic/barcode safety checks for compounding both sterile and nonsterile products for our patients.

You can see from the breadth and depth of this report that our team excels at achieving the mission of the Cleveland Clinic: Care of the sick, investigation into their problems and further education of those who serve. Our patient care, research and teaching commitment is documented well within

these pages. The number of high quality: local, state, national and international presentations; publications in peer reviewed medical and pharmacy national and international journals; authored book chapters; student and resident rotations precepted; innovative technologies and services created and implemented; laws changed and influenced; references in the press about egregious drug price increases and resultant impact with congressional hearings; and patients served across the care continuum is truly amazing.

I am fortunate to lead a team of caregivers that has created one of the most technologically advanced, internationally impactful, highly skilled, influential pharmacy enterprises in the world. I proudly present the 2016 Cleveland Clinic Pharmacy Enterprise Annual Report.



Scott J. Knoer,
MS, PharmD, FASHP
Chief Pharmacy Officer
Cleveland Clinic



WORLD CLASS

TECHNOLOGY

STRATEGIC PARTNERS IN TECHNOLOGY

To provide care to the sickest of the sick, the Department of Pharmacy is committed to being at the forefront of technological advances in healthcare. Human error is unavoidable but, with the help of robotics and integrated technology systems, the aim of 100 percent accuracy 100 percent of the time is a goal we strive for and regularly attain. We could not do this without strategic partnerships with industry leaders. Our partnership collaborations are instrumental in breaking new ground and leading the field in technology integration.



LOCCIONI

Located near Ancona, Italy, Loccioni is a family owned company founded in 1968 that remains true to its mission of, “*integrate ideas, people, technologies to transform data into values*”. Cleveland Clinic Pharmacy has been fortunate to work with the healthcare division of this company, Loccioni Humancare, to implement a first-of-its-type compounding robot. The robot helps to ensure the pharmacy department is providing high-quality and highly-trackable sterile compounded products for patients while ensuring employee safety at all times. Robotic technology fully automates the complex, critical tasks related to the compounding of patient-specific and batch compounded intravenous admixtures while streamlining pharmacy operations.

PharmacyKeeper

We have been working with MedKeeper on a tracking application since 2008 and with its PharmacyKeeper division since 2014. Through our collaboration, we have developed electronic documentation systems that are flexible and robust to meet changing regulatory needs. The PharmacyKeeper suite of web-based applications has been fully integrated as a part of the Cleveland Clinic pharmacy care model since 2015. The PharmacyKeeper suite improves key pharmacy operational processes and documentation including detailed tracking of training activities, photographic documentation of compounded sterile and non-sterile products, required regulatory activities, and tracking of doses from order to arrival at the nursing unit.





WORLD CLASS

POPULATION
HEALTH

Today, patients need quality medication management across the continuum and health systems need to efficiently deploy resources. The population health focus at Cleveland Clinic leverages pharmacists and health data to focus services to patients in most need of extra attention. Our pharmacists integrate directly with the Medicine Institute physician leadership to ensure alignment of population health priorities now and in the future.

AMBULATORY

18 RETAIL PHARMACIES
MORE THAN 1 MILLION PRESCRIPTIONS FILLED
100% INCREASE IN MTM CONSULTATIONS

Cleveland Clinic Ambulatory Pharmacy

The ambulatory pharmacy team continues to provide World Class Care and Service to our patients as they transition their care from our hospitals and clinics to home. This dynamic team is comprised of a chain of 18 retail pharmacies, home delivery mail order pharmacy and the ambulatory pharmacy operations support team. Our pharmacists and technicians provide medications and direct patient care to thousands of patients each day across the enterprise. Our focus is on providing high-quality, cost-effective care of the individual patients while improving the overall health of the population and communities we serve.



The ambulatory pharmacies are centrally managed, not-for-profit, patient-centered service areas dedicated to providing care for patients, employees, and other guests of The Cleveland Clinic Enterprise. The emphasis is on providing timely, safe, and accurate prescription services while educating patients on the importance of their medication therapy. We provide prescription products, unique compounded items, over-the-counter (OTC) supplies, and drug information to patients and our medical colleagues. We are passionate about patient experience and our reputation for providing high-quality care. The team consistently produces a positive financial contribution while achieving greater than 90 percent patient satisfaction.

<p>MAIN CAMPUS</p> <ul style="list-style-type: none"> • Children’s Hospital and Surgical Center • Crile Medical Building • Euclid Avenue • Taussig Cancer Center <p>COMMUNITY/FAMILY HEALTH CENTERS</p> <ul style="list-style-type: none"> • Beachwood Family Health and Surgery Center • Independence Family Health Center • Mansfield Cancer Center • North Coast Cancer Center • Richard E. Jacobs Family Health Center and Surgery Center • Stephanie Tubbs Jones Community Health Center 	<ul style="list-style-type: none"> • Strongsville Family Health and Surgery Center • Twinsburg Family Health Center and Surgery Center • Willoughby Hills Family Health Center <p>COMMUNITY HOSPITALS</p> <ul style="list-style-type: none"> • Cleveland Clinic Florida • Fairview Hospital • Lutheran Hospital • Marymount Hospital • Medina Hospital <p>PRESCRIPTION MAIL SERVICE</p> <ul style="list-style-type: none"> • Home Delivery Pharmacy
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Patient Satisfaction

“Net Promoter” is a unique service tool for measuring the likelihood of patients recommending our services to their friends and/or family.

<p>2016 HIGHEST ACHIEVERS Net Promoter/Patient Satisfaction Top Five Stores</p> <ul style="list-style-type: none"> • Independence Family Health Center • North Cost Cancer Center • Medina Hospital • Mansfield Cancer Center • Richard E. Jacobs Family Health Center and Surgery Center 	<p>2016 MOST IMPROVED Highest Increase Net Promoter Patient Satisfaction Score</p> <ul style="list-style-type: none"> • Children’s Hospital and Surgical Center • Crile Pharmacy • Euclid Pharmacy
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Prescription Assistance Program

Our ambulatory pharmacy caregivers provide education to caregivers and support to patients in need of financial assistance with access to free or discounted prescription medications across the health system. Manufacturer sponsored drug voucher and co-pay assistance programs are available through Cleveland Clinic Virtual Vouchers in collaboration with MedSocketRx. Physicians and caregivers may obtain these tools online to use with patients in lieu of traditional sample medications. Vouchers and copay cards must be accompanied with a valid prescription.

Ambulatory Operations Support (AOS)

The Ambulatory Operations Support team assists Cleveland Clinic's more than 900 physician and outpatient clinic practice sites, procedural areas, ambulatory surgery centers, free standing emergency departments, and community health centers located throughout Northeast Ohio, Florida, and Nevada. The primary focus of the AOS team is to meet the medication needs of thousands of caregivers across the health system. This team is comprised of pharmacists and technicians dedicated to the safe and effective use of medications in all ambulatory areas as well as continued accreditation readiness at all times. Common activities we focus on include drug and vaccine distribution and storage, new site acquisition and start up, support activities of the Lerner Research Institute, medication billing, automated medication cabinet support, policy and procedure development, and committee participation.

2016 Accomplishments

- Filled more than one million prescriptions for patients and caregivers
- Participated in "RESPOND with Heart" training
- Continued optimization of Cerner Etreby pharmacy dispensing software systems to improve safety and efficiency
- Exceeded processing time metrics for urgent prescriptions
- Increased MTM consultations resulting in estimated healthcare cost avoidance of \$388K (100 percent increase vs 2015)
- Opened new Hillcrest Hospital Ambulatory Pharmacy
- Completed renovation of Fairview Ambulatory Pharmacy
- Completed redesign of pharmacy labels to enhance workflow and label clarity
- Implemented ScriptCenter 24/7 prescription pickup kiosks for Main Campus caregivers
- Increased bedside prescription volume by 25 percent via expansion of services at Main Campus and regional hospitals
- Recognition of Home Delivery in "State of the Clinic" for continued reduction in prescription turnaround time
- Developed Ambulatory Performance Scorecards
- Assisted local law enforcement in partnership with the DEA on numerous drug take back community events
- Precepted many APPE students, college interns, and high school science internships
- Completed more than 60 ambulatory pharmacy projects focused on improving patient and employee experience



 Cleveland Clinic
Pharmacy

COMMUNITY ONCOLOGY

12 SITES ACROSS NORTHEAST OHIO
OBTAINED MORE THAN \$400,000 IN CO-PAY
ASSISTANCE FOR PATIENTS

Regional Oncology Pharmacy Services

The pharmacy department is excited to be involved in both infusion and retail pharmacy operations across our cancer treatment centers. We believe in a collaborative approach with the medical team that results in high quality cancer care for oncology patients. We believe that each patient should have access to pharmacy services no matter where they are seen for care. This decentralized practice allows each patient to have access to quality and consistent pharmacy services regardless of where they receive care.



INFUSION SERVICES

The Department of Pharmacy provides oncology pharmacy services at 12 sites across northeast Ohio.

- Avon (pharmacist/technician)
- Beachwood (pharmacist/technician)
- Clyde (technician)
- Independence (pharmacist/technician)
- Lorain (technician)
- Mansfield (pharmacist/technician)
- Medina (pharmacist/technician)
- Sandusky (pharmacist/technician)
- Strongsville (pharmacist/technician)
- Twinsburg (pharmacist/technician)
- Willoughby Hills (technician)
- Wooster (pharmacist/technician)

The team includes a pharmacy manager, technician supervisor, eight pharmacists, and 12 technicians.

The pharmacy works with our team of physicians, nurses and mid-level providers to provide high quality cancer care for more than 75,000 patient visits every year. As more patients are being treated in these regional sites we are excited to be part of their care. The team is involved in many aspects of care including:

- Reviewed more than 100,000 doses of chemotherapy, biologic therapy, premedications and supportive care in EPIC/Beacon
- Compounded more than 70,000 doses of chemotherapy, biologic therapy and supportive care
- Educated patients, nurses, physicians and mid-level providers
- Compiled ordering and inventory management to meet patient demand
- Complied with hazardous drug compounding (USP 797)
- Managed and maintained Pyxis machines at each location
- Provided patient assistance programs for patients that cannot afford these medications

RETAIL SERVICES

Our Sandusky and Mansfield sites provide patients access to retail pharmacy care that is focused on oncology. We offer most oral oncology medications in an environment that supports high quality care and patient education.

The team includes a pharmacy manager, two pharmacists and two technicians.

- Reviewed 10,000 orders including more than 1300 oral chemotherapy prescriptions
- Provided robust patient education through one-on-one medication therapy management consultations
- Obtained more than \$400,000 in co-pay assistance for patients who would otherwise not be able to afford their medications

EMPLOYEE HEALTH PLAN

SERVES OVER 48,000 CAREGIVERS
MEMBER SATISFACTION OF 93%
OVER \$11 MILLION IN SAVINGS TO THE ENTERPRISE

Cleveland Clinic Employee Health Plan

The Employee Health Plan (EHP) provides support to Cleveland Clinic Caregivers in all aspects of health benefit administration. The staff of the pharmacy division of the EHP oversees claims management and resolution as well as formulary restrictions. The staff of the Cleveland Clinic Employee Health Plan provide outstanding customer service to their fellow Cleveland Clinic Caregivers.



The ongoing collaborative efforts of the Department of Pharmacy and the Employee Health Plan (EHP) resulted in the following notable achievements in 2016:

- Provided 91 percent of outpatient medications for EHP members
- Compared to national competitors, the EHP per member/per month cost was \$11.21 lower, an enterprise savings of \$11.4 million
- Realized \$6.46 million in cost avoidance as a direct result of keeping the majority of the EHP prescription volume in-house
- Obtained 93 percent overall member satisfaction
- Improved EHP member access to Pharmacy Specialty Services through the ongoing development of the Cleveland Clinic Specialty Pharmacy, which has driven the internal specialty volume capture to 80 percent of all EHP Specialty Pharmacy prescriptions
- Participated in the PGY-1 as a longitudinal rotation site for the PGY-1 Community Pharmacy Residency and the PGY-2 Ambulatory Care Pharmacy Residency Programs

COMING IN 2017

As we move forward, the expenses related to specialty medications will continue to consume a greater percentage of the total costs for the EHP Prescription Drug Benefit Program. We will continue to partner with our Cleveland Clinic outpatient pharmacies, including the Cleveland Clinic Specialty Pharmacy, to capture these prescriptions internally and drive significant value for the enterprise as a whole. Part of this partnership will revolve around the progression and advancement of the EHP Specialty Drug Copay Card Assistance Program, which maximizes the financial benefit offered by pharmaceutical manufacturers of various specialty medications, thereby keeping members' out of pocket expenses low while maximizing the benefit of these copay cards for the Cleveland Clinic Employee Health Plan.



INFUSION PHARMACY AT HOME

900 PATIENTS SERVICED PER MONTH
100% PATIENT SATISFACTION
EXPANSION OF TUBE FEEDING SERVICE LINE

Cleveland Clinic Infusion Pharmacy at Home

Infusion Pharmacy at Home services patients across seven states from the Independence, Ohio pharmacy. The team serves approximately 900 patients per month from Cleveland Clinic Main Campus, regional hospitals and family health centers. Infusion Pharmacy at Home provides nutrition support, antibiotics, pain management, injectables, comprehensive therapy management, supplies and infusion pumps to patients in their homes. The team has 48 members including pharmacists, pharmacy technicians, nurses, service representatives, and delivery and warehousing personnel.



KEY INTEGRATED SERVICE RELATIONSHIPS

Infusion Pharmacy at Home delivers value to patients and prescribers by developing service relationships integrated into medical practices. This approach drives patient satisfaction, volume growth, and employee engagement. The three components of Key Integrated Service Relationships are:

1. Education Specialized clinical training and professional development
2. Integrated Care Processes Development of unique patient care policies and procedures with mutually beneficial technological solutions
3. Structure and Accountability Ongoing meetings and information sharing with specific accountable clinicians

Examples of service relationships fully integrating the three components are the following:

- **Nutrition Support Team.** This team integrates the home infusion pharmacy with the Adult Nutrition Support Team, a nationally and internationally recognized resource and practice.
- **Community Parenteral Anti-Infective Team (CoPAT).** This team, active for more than 10 years, integrates the home infusion pharmacy with the Department of Infectious Diseases at Cleveland Clinic
- **Synagis.** This program integrates neonatal intensive care units, family practice, pediatrics, and the home infusion pharmacy. Improving adherence and reducing the risk of severe illness due to RSV is the goal of this group. They work collaboratively with our Medicare-certified home health agency, insurers and families.
- **Pediatric Nutrition Support.** This program works with pediatric gastrointestinal physicians and dietitians. Their work is focused on pediatric patients with serious gastrointestinal disorders treated with home parenteral and enteral nutrition. Many of these patients and caregivers require intensive personalized training.

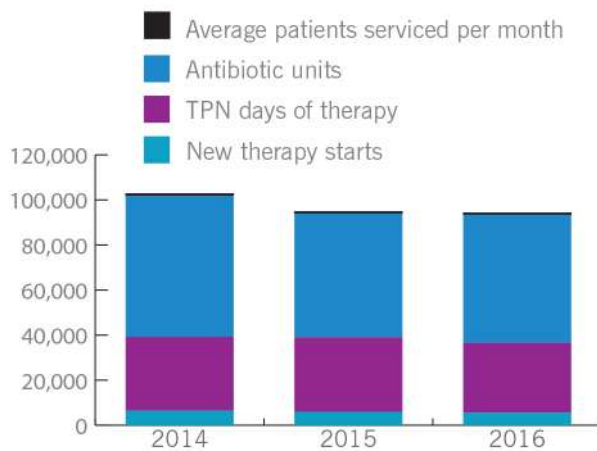
Pharmacy Practice Advancement

Cleveland Clinic Infusion Pharmacy at Home continues to support the ever-increasing needs of severely ill patients in their own homes by utilizing the talents of a multidisciplinary staff. Infusion pharmacists focus on therapeutic drug monitoring, drug utilization review and outcomes for patients receiving complex infusion regimens. By working directly with the home visit nurses, dietitians and physicians, the group strives to ensure an exceptional patient experience. The pharmacy technicians' role has been expanded to include data collection, order entry and assisting with the coordination required for these important transitions to home. Medication reconciliation is accomplished through the combined efforts of pharmacists and pharmacy technicians. Our teams are involved in data collection for the Community Outpatient Parenteral Antibiotic Therapy (CoPat) patients as well as infection control data collection for nutrition support patients.

2016 Accomplishments

- Implemented two winning bids for Medicare recipients of DME and home enteral products
- Participated in operational and clinical efforts to begin merging and integrating Akron General's Visiting Nurse Service of Akron and Advanced Infusion into Cleveland Clinic Home Care Service
- Expanded our team of certified nutrition support professionals
- Continued evolution of CoPAT dashboard, an interdisciplinary tracking tool developed with the Department of Infectious Disease focused on community-based parenteral anti-infective patients
- Expanded tube feeding program development to include a dietitian embedded with The Digestive Disease Institute inpatient team, allowing enteral teaching prior to hospital discharge
- Captured 75 percent of adult and pediatric enteral home infusion patients from Main Campus
- Staff accomplishments included podium and poster presentations at ASPEN, NHIA and AVA, professional groups supporting home patients
- Achieved 100 percent "would use again" patient satisfaction response rate with 98 percent of survey responders rating Infusion Pharmacy as "Excellent" or "Very Good" on a five-point scale

Key Volume Statistics Infusion Pharmacy at Home





SPECIALTY PHARMACY

27,000 PRESCRIPTIONS FILLED
76% GROWTH IN 2016
95% PATIENT SATISFACTION

Cleveland Clinic Specialty Pharmacy

Cleveland Clinic has several key advantages that are leveraged as part of our program design; Cleveland Clinic Specialty Pharmacy has full visibility into the patient's electronic medical record (EMR) with access to the prescribers and clinical support staff involved in the patient's continuum of care. We use this access to the full advantage of the patient in order to facilitate timely onboarding, improve adherence, maintain open and transparent communication with providers and, ultimately, achieve contemporaneously coordinated care.



Cleveland Clinic Specialty Pharmacy was proposed, approved and created to provide unique answers to the challenges patients, physicians and other stakeholders face. Within the industry, there are trends that must be addressed:

- Specialty drug spend is 30 percent of total pharmaceutical expenditure with continued growth expected
- Major therapeutic, high cost drug innovations create the need for a comprehensive specialty pharmacy – including providing drugs and full clinical support – that works for all stakeholders
- Lack of concierge level patient service
- High labor burden has been placed on the provider community with regards to authorizations and insurance communications

Our documentation is recorded in the EMR from onboarding to therapy discontinuation. This replaces an antiquated, inefficient model based on faxes and verbal messages with one designed for seamless transitions of care focused on operating in the same space as the prescriber and clinical team.

We promote efficiency throughout the organization by submitting and managing prior authorizations and appeals for specialty drugs, removing those tasks from physicians and their teams.

In conclusion, we have created a model that is patient-centered, total cost-focused, and clinically and financially integrated with the goals of Cleveland Clinic.

2016 Accomplishments

GROWTH

- 76 percent growth from 2015
- Continued to coordinate efforts with Pharmacy Supply Chain to obtain access to new drugs
- Filled 27,000 Specialty prescriptions

QUALITY

- Received URAC accreditation
- Initiated CPPA accreditation in process

SERVICE

- Achieved a yearly aggregate patient satisfaction score of 95 percent
- Maintained five second average response time to incoming calls
- Increased physician and provider efficiency with prior authorization and EMR programs
- Provided disease based teams (Pharmacists, Nurses, Technicians) provide consistent caregivers to all stakeholders



WORLD CLASS

INPATIENT
CARE

Our inpatient pharmacy teams have long been a pillar of excellence for the Cleveland Clinic enterprise. The Pharmacy Department's clinical services have been on the forefront of innovation as we collaborate with interdisciplinary teams to provide optimal patient care. We are proud of the rich history at the Main Campus and all of our regional hospitals and for their continued legacy of excellence.

AKRON GENERAL HOSPITAL

AKRON, OHIO / FOUNDED IN 1914
532-BED / LEVEL 1 TRAUMA AND ACADEMIC MEDICAL CENTER
JOINED THE HEALTH SYSTEM IN 2015

Akron General Pharmacy Department

At Akron General, the Pharmacy Department consists of 116 caregivers, including 73 pharmacists, 28 pharmacy technicians, 11 pharmacy interns, and four members of support staff. The main pharmacy operates 24 hours a day, seven days a week. Additionally, there are five additional satellite pharmacies operated with limited hours.

Pharmacy specialists at Akron General are integrated into the Medical, Surgical, Neurological, and Cardiovascular Intensive Care Units, Internal and Family Medicine, Endocrinology, Hematology/Oncology, Infectious Disease, Pain Management, Palliative Care, Emergency Medicine and Psychiatric Medicine patient care teams.



STRATEGIC CHANGE IN 2016

Akron General's Pharmacy Department obtained approval for three Lead Medication Historian Technicians. These technicians will serve patients seen in the Emergency Department, including those who will be admitted in order to reduce the number of discrepancies in the admission medication reconciliation process. In turn, this will drive the efficiency of order verification for patients being admitted and reduce the number of medication related adverse events currently seen as a result of inaccurate medication histories.

Board Certified Pharmacists

Eighteen total, 25 percent of the department's pharmacists

One newly certified in 2016

- Angela Righi: BCPS

Two with additional certifications added in 2016

- Melissa Fowler: BCPS
- Michaelia Cucci: BCCCP

2016 Highlights

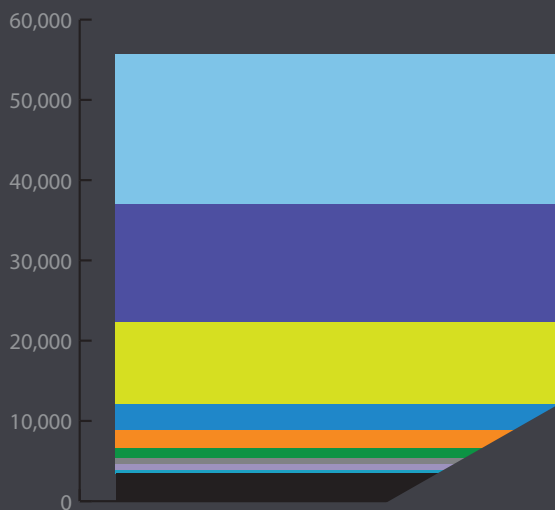
- Hired a Cardiovascular ICU pharmacist, expanding coverage to all of the ICUs
- Hired two additional pharmacists to expand service coverage in the Emergency Department
- Implemented staff huddles to facilitate improved communication and staff engagement
- Expanded PGY-2 Critical Care residency, allowing for increased weekend coverage of the ICUs
- Restructured workflows in the IV room to ensure compliance with upcoming USP requirements

COMING IN 2017

For the year of 2017, Akron General will be hiring another Emergency Medicine Pharmacy Specialist to allow full 24/7 pharmacist coverage in the Emergency Department. This together with the Medication Historian program approved this year will reduce inappropriate medication use and improve patient outcomes. The Akron General Pharmacy Department is also in the process of developing a PGY-2 Ambulatory Care residency to assist in eliminating gaps during transitions of care and expanding the pharmacist presence in the ambulatory care setting.

PGY2 CRITICAL CARE RESIDENCY EXPANDED

INCREASED
DECENTRALIZED
PHARMACIST COVERAGE
TO **100%**
OF HOSPITAL ICUs



**AKRON GENERAL
INTERVENTIONS TOTAL 55,985**

- Therapeutic Interchange, 18,682
- Ambulatory Care Encounter, 14,720
- Drug Therapy Recommendations, 10,287
- Pharmacy Dosing Consult Service, 3,273
- Medication History/Reconciliation, 2,213
- Prescriber Order Clarified, 1,298
- Patient Counseling/Education, 823
- Medication Monitoring, 748
- Patient Profile Review, 394
- Other, 3,547



AVON HOSPITAL

AVON, OHIO / FOUNDED IN 2016
126-BED / STATE-OF-THE-ART HOSPITAL
1ST REGIONAL HOSPITAL BUILT BY CLEVELAND CLINIC

Avon Hospital Pharmacy Department

Avon Hospital Department of Pharmacy provides 24/7 inpatient pharmacy services at a new, state-of-the-art Avon Hospital which opened on November 15, 2016. Pharmacy department employs the newest pharmacy technology including pharmacy carousel, Pyxis ES and IV room workflow software. Pharmacists have an opportunity to provide decentralized clinical patient-centered functions as well as distributive functions. Pharmacists are an integral part of the interdisciplinary team and assist with medication reconciliation, discharge planning and patient education. Technology at Avon Hospital, including Vocera, Tap-n-Go, and interactive patient TV enhances communication among caregivers and efficiencies to deliver comprehensive patient care.



STRATEGIC CHANGE IN 2016

Avon Hospital opened on November 15, 2016 and the entire pharmacy team participated in the opening preparation process starting with onboarding in early October. The pharmacy team was involved in onboarding, planning and implementation of workflows, development of policies and procedures, procurement of medications and stocking of patient care areas, training on new technology and learning new hospital operations while preparing for Avon Hospital opening. Opening of the hospital was an exciting opportunity for the pharmacy staff to develop new skills, train on new technology and build a team of dedicated caregivers to deliver safe, highly reliable patient care. From day one of opening the hospital, pharmacists provided decentralized services including medication reconciliation, dosing consults and patient education. In collaboration with the Outpatient Pharmacy at Richard E. Jacobs Health Center, bedside delivery of prescriptions to patients at discharge was available on the opening day. The entire pharmacy team was highly engaged in ensuring the hospital was prepared for Joint Commission accreditation and celebrated the successful survey within the first month of opening. Successful opening of Avon Hospital was a tremendous endeavor and beginning of a journey to delivering patient care for the community.

Board Certified Pharmacists

Six total pharmacists with board certification on staff

Two with additional certifications added in 2016

- Carl Buchwald: BCPS
- Kevin Omerza: BCPS

2016 Highlights

- Installed and implemented pharmacy automation in pharmacy and patient care areas in preparation for Avon Hospital opening in November of 2016
- Hired and onboarded of pharmacy staff
- Obtained Joint Commission Accreditation in 2016
- Achieved USP complaint Clean Room certification
- Conducted Antimicrobial Stewardship survey readiness

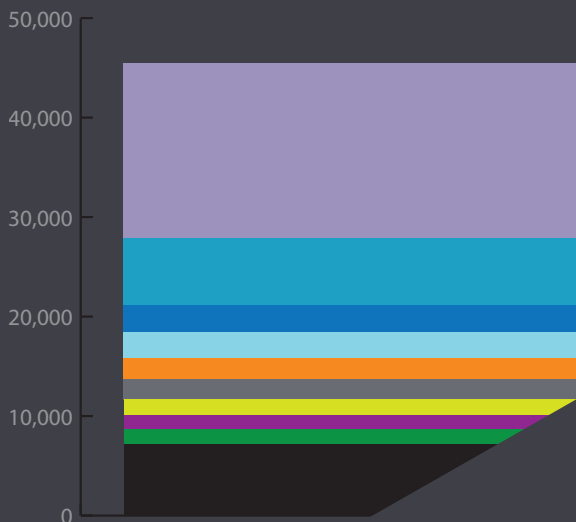
COMING IN 2017

On January 7, 2017, Richard E. Jacobs Emergency Department, located adjacent to the hospital became part of Avon Hospital post Joint Commission accreditation. At that time, Avon Hospital pharmacy began to provide medications and pharmacy services to emergency room patients including pharmacist order verification and medication distribution and automation restocking. In 2017, Avon Hospital Department of Pharmacy will expand services to the emergency department with the addition of full-time decentralized ED pharmacist. This pharmacist will participate in responding to medical emergencies, medication reconciliation, patient counseling, antimicrobial call back program and staff education. While in the ED, the pharmacist will assist with transitions of care for patients admitted to the hospital as well as providing services to patients being discharged.

FULLY INTEGRATED
FACILITY WITH
state-
of-the-
art TECHNOLOGY

Department Workload	
Inpatient Admissions	512
Orders Verified	20,636
Doses Dispensed	42,290

Median Turn Around Times	
STAT Verifications	3 minutes
ED Verifications	2 minutes
Overall Verifications	5 minutes



AVON INTERVENTIONS TOTAL 45,653

- Medication Monitoring, 17,551
- Patient Profile Review, 6,770
- Pharmacy Dosing Consult Service, 2,679
- Therapeutic Interchange, 2,658
- Medication History/Reconciliation, 2,129
- Patient Counseling/Education, 2,002
- Drug Therapy Recommendations, 1,685
- Nonformulary/Restricted Drug, 1,505
- Prescriber Order Clarified, 1,475
- Other, 7,199



SAFETY INSTRUCTIONS
BEFORE SERVICING MACHINE
If load is unbalanced
The Next Advance Service call

Lanclau

CLEVELAND CLINIC FLORIDA

WESTON, FLORIDA / FOUNDED IN 1988
155-BED / MULTISPECIALTY ACADEMIC MEDICAL CENTER
OPENED IN 2001

Cleveland Clinic Florida Pharmacy Department

At Cleveland Clinic Florida, the Pharmacy Department consists of 41 caregivers, including 23 pharmacists, 17 pharmacy technicians, and one member of support staff. The main pharmacy operates 24 hours a day, seven days a week. Additionally, there are two oncology infusion pharmacies that operate 8 a.m. to 5 p.m. Monday through Friday.

Pharmacy specialists at Cleveland Clinic Florida are integrated into the Medical/Surgical Intensive Care, Internal Medicine, Nutrition Support, Endocrinology, Solid Organ Transplant, Infectious Disease, and Oncology patient care teams.



STRATEGIC CHANGE IN 2016

The Cleveland Clinic Florida Pharmacy Department continued its development of a patient centered practice model in which a pharmacist sees every patient admitted. Use of a robust layered learner model, and leveraging the over 230 student rotation months completed at Cleveland Clinic Florida, has played a significant role in being able to ensure that pharmacy interacts with 100 percent of patients. Student pharmacists support obtaining medication histories, providing medication education to patients regarding drug indications and side effects, clinical monitoring for optimal medication use, and discharge counseling to CHF, COPD, AMI, and anticoagulation patients.

Board Certified Pharmacists

Nine total, 39 percent of the department's pharmacists

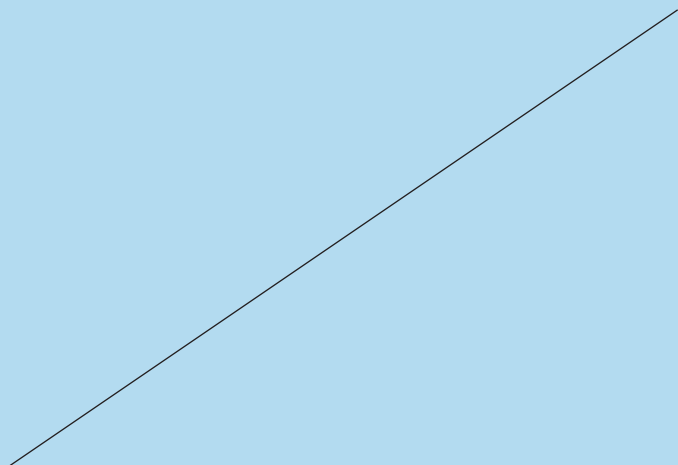
2016 Highlights

- Initiated 24/7 pharmacist coverage on all code blue, rapid response, and brain attack alerts
- Further leveraged student pharmacists to expand bedside medication delivery, improving service to patients, and facilitating smoother transitions of care
- Initiated continuous improvement huddles, resulting in a greater than \$50,000 in waste reduction
- Implemented a focus on medication safety which resulted in a reduction of IV admixture errors
- Achieved a greater than \$200,000 cost savings through initiatives that focused on albumin, liposomal bupivacaine, inhalers, neostigmine, and IV waste

COMING IN 2017

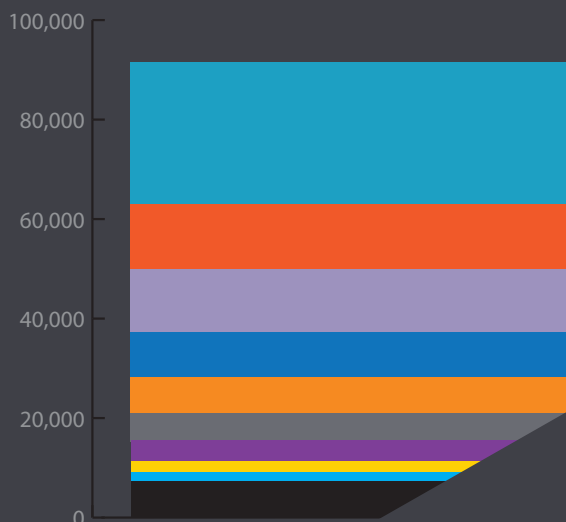
The department is looking forward to continued development of antimicrobial stewardship activities, in particular the implementation of ED culture review. As part of a pharmacy enterprise initiative starting in April 2017, the pharmacy will begin reviewing and managing all ED culture results. Patients will be contacted if changes to antibiotic therapy are warranted or if counseling is needed. Also coming in 2017 is a newly renovated and expanded outpatient pharmacy. To support continued growth of the Florida campus, a larger outpatient pharmacy will be complete in late 2017. The renovated outpatient pharmacy will continue growing bedside delivery service to all areas of the Florida hospital and clinic and will begin providing vaccine administration services.

FOCUS ON COST CONTROL
 RESULTING IN GREATER THAN
\$250,000
 IN SAVINGS



Department Workload	
Inpatient Admissions	10,577
Orders Verified	546,564
Doses Dispensed	1,380,045

Median Turn Around Times	
STAT Verifications	2 minutes
ED Verifications	3 minutes
Overall Verifications	4 minutes



FLORIDA INTERVENTIONS TOTAL 91,901

- Patient Profile Review, 28,526
- Chemotherapy Order Review, 13,000
- Medication Monitoring, 12,570
- Pharmacy Dosing Consult Service, 9,172
- Medication History/Reconciliation, 7,226
- Patient Counseling/Education, 5,701
- Nonformulary/Restricted Drug, 4,114
- Patient Care Rounds, 2,345
- IV to PO, 1,888
- Other, 7,359



EUCLID HOSPITAL

EUCLID, OHIO / FOUNDED IN 1907
371-BED / LEADING REHAB AND ORTHOPAEDIC CENTER
JOINED THE HEALTH SYSTEM IN 1997

Euclid Hospital Pharmacy Department

At Euclid Hospital, the Pharmacy Department consists of 20 caregivers, including 10 pharmacists, nine pharmacy technicians, and one member of support staff. The main pharmacy operates 24 hours a day, seven days a week.

Pharmacy specialists at Euclid Hospital are integrated into the Medical/Surgical Intensive Care, Internal Medicine, and Emergency Medicine patient care teams.



STRATEGIC CHANGE IN 2016

The Euclid Pharmacy Department found a way to expand the patient care services that are offered without an expansion in the size of the department. In 2016, a strategic redistribution of pharmacist responsibilities and coverage allowed for a full-time position to be established in the Emergency Department. The addition of pharmacy support to the ED had an immediate impact as the pharmacist was rapidly integrated into the care team and able to facilitate accurate medication histories, participate in stroke and cardiac codes, provide prescriber and nursing education, and support other medication related issues.

Board Certified Pharmacists

- Two total, 20 percent of the department's pharmacists

2016 Highlights

- Implemented Pyxis ES and PharmacyKeeper systems to improve patient safety
- Improved medication access by installing additional Pyxis machines in dialysis, respiratory therapy, and the outpatients clinics, ensuring there is no delay in care for patients
- Expanded Medication Therapy Management services to ensure that the most complex patients are receiving appropriate and effective drug therapy
- Expanded the presence of student pharmacists to extend the reach of the department and further the mission of Cleveland Clinic to educate those who serve

COMING IN 2017

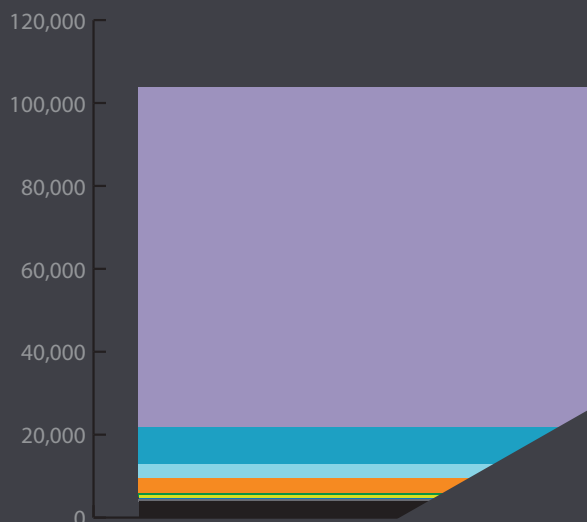
The Euclid Pharmacy Department is currently working to establish a PGY1 Pharmacy Residency Program and will be the 10th site within the Cleveland Clinic Enterprise to offer postgraduate pharmacy training. The pharmacists and technicians are excited to integrate the resident into the team focused group at Euclid that really knows how to work together to accomplish goals disproportionate to the size of the department.

DISPENSED
MORE THAN
1,000,000
PATIENT DOSES

3 MINUTE
OVERALL TURN
AROUND TIME

Department Workload	
Inpatient Admissions	6,872
Orders Verified	341,200
Doses Dispensed	1,098,025

Median Turn Around Times	
STAT Verifications	2 minutes
ED Verifications	2 minutes
Overall Verifications	3 minutes



EUCLID INTERVENTIONS TOTAL 104,354

- Medication Monitoring, 82,170
- Patient Profile Review, 8,760
- Therapeutic Interchange, 3,367
- Medication History/Reconciliation, 2,436
- Medication Identification, 1,082
- Order Clarified, 893
- Drug Therapy Recommendations, 682
- Pharmacy Dosing Consult Service, 567
- Patient Counseling/Education, 565
- Other, 3,832

FAIRVIEW HOSPITAL

CLEVELAND, OHIO / FOUNDED IN 1892
488-BED HOSPITAL / LEVEL II TRAUMA CENTER
JOINED THE HEALTH SYSTEM IN 1996

Fairview Hospital Pharmacy Department

At Fairview Hospital, the Pharmacy Department consists of 74 caregivers, including 34 pharmacists, 33 pharmacy technicians, two pharmacy interns, and five members of support staff. The main pharmacy operates 24 hours a day, seven days a week. Additionally, the critical care satellite operates Monday through Friday from 7 a.m. to 3 p.m.

Pharmacy specialists at Fairview are integrated into the Critical Care, Internal Medicine, Stroke, Infectious Diseases, Oncology, and Neonatal and Maternal Medicine patient care teams.



STRATEGIC CHANGE IN 2016

The Fairview Pharmacy Department felt empowered by the ability to provide more individual pharmaceutical care services to more patients in 2016. This occurred via two strategies: expansion of the staff and floor-based pharmacists thereby increasing the number of patients served per shift. Our floor-based pharmacists increased the number of patients seen in our “High Risk Model” from five to more than eight per day, a greater than 60 percent increase. This increase in patients was in addition to other patients served through the expanded pharmacy consults program. The “High Risk Model” adopted at Fairview Hospital has four components: admission reconciliation & education, daily review and education, discharge reconciliation and education and a 48-72 hour post-discharge phone call. The goal of this program is to decrease readmission rates for high risk patients. As a representative month, in December 2016, those high risk patients who were covered by the pharmacy program were readmitted less than 29 percent of the time versus those high risk patients who were not covered being readmitted greater than 42 percent of the time. This is but one example of the significant impact that the Fairview Pharmacy Department is having on patient care.

Board Certified Pharmacists

Thirteen total, 38 percent of the department’s pharmacists

Two newly certified in 2016

- Sarah Milkovich: BCACP
- Alexa Petrarca: BCPS

2016 Highlights

Expanded the number of Clinical Specialists serving the patients at Fairview by hiring one new PGY2-trained pharmacist each in Oncology and Infectious Diseases

- The Oncology Specialist at our Moll Cancer Center works directly with the cancer patients to provide education about the medications that will be used and strategies to manage the side effects seen with these therapies
- The Infectious Diseases Specialist supports hospital efforts in antimicrobial stewardship, ensuring the appropriate use of antibiotics and the optimal care of patients
- Increased utilization of pharmacy based dosing services, including antibiotics and anticoagulants
- Surpassed department business metrics for inventory, Pyxis inventory optimization, drug cost per patient day and pharmacy turnaround times
- Established a phone triage technician during second shift and on the weekends to allow pharmacists to spend more time practicing at the top of their license and to minimize interruptions which has been shown to improve patient safety

COMING IN 2017

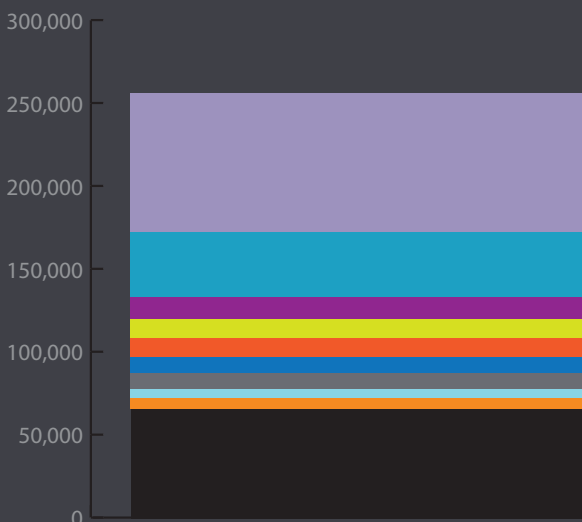
The Fairview Pharmacy Department is focused on expanding pharmaceutical care initiatives to better support patients in 2017. These efforts will enable patients to be more successful in achieving the goal of optimized pharmaceutical care. Expanded efforts being launched in 2017 involve the following:

- Assisting the nursing care team members in improving medication communication scores
- Assisting the medical care team in completing admission and discharge reconciliation for patients at highest risk for readmission
- Assisting the enterprise with the roll out of pharmacists conducted Emergency Department (ED) culture review post-ED visit
- Assisting the CFM physician team in helping patients to meet or exceed accountable care organization goal metrics for chronic diseases
- Adopting a new high risk scoring tool that is uniform for all caregivers on the team

These new programs, combined with the department's current indicatives, will help to ensure that all patients at Fairview Hospital are receiving world-class pharmaceutical care.

Department Workload	
Inpatient Admissions	29,835
Orders Verified	1,208,082
Doses Dispensed	2,512,650

Median Turn Around Times	
STAT Verifications	2 minutes
ED Verifications	2 minutes
Overall Verifications	6 minutes



FAIRVIEW INTERVENTIONS TOTAL 256,839

- Medication Monitoring, 83,884
- Patient Profile Review, 38,850
- Nonformulary/Restricted Drug, 13,022
- Drug Therapy Recommendations, 11,638
- Chemotherapy Order Review, 11,502
- Pharmacy Dosing Consult Service, 10,497
- Patient Counseling/Education, 9,662
- Therapeutic Interchange, 6,055
- Medication History/Reconciliation, 5,889
- Other, 65,840



HILLCREST HOSPITAL

MAYFIELD HEIGHTS, OHIO / FOUNDED IN 1968
500-BED HOSPITAL / LEVEL II TRAUMA CENTER
JOINED THE HEALTH SYSTEM IN 1997

Hillcrest Hospital Pharmacy Department

At Hillcrest Hospital, the Pharmacy Department consists of 78 caregivers, including 39 pharmacists, 33 pharmacy technicians, five pharmacy interns, and one member of support staff. The main pharmacy operates 24 hours a day, seven days a week. Additionally, the ICU satellite operates seven days a week with four additional satellite pharmacies open on weekdays.

Pharmacy specialists at Hillcrest are integrated into the Medical/Surgical Intensive Care, Cardiovascular Intensive Care, Internal Medicine, Pediatrics, Neonatology, Obstetrics, Labor and Delivery, Emergency Medicine, Infectious Disease, and Oncology patient care teams.



STRATEGIC CHANGE IN 2016

The Hillcrest Pharmacy Department has struggled with a technician staffing shortage over the past four years. The constant turnover and frequent openings led to issues with scheduling and increased stress on the rest of the pharmacy caregivers. In 2016, this challenge was embraced as an opportunity and led to the creation of a new role in the pharmacy team, the Pharmacy Courier.

Couriers now handle some of the tasks that were traditionally done by technicians, such as delivery of medications to the 20 nursing units throughout Hillcrest Hospital, processing patient credits, and entering billing information into EPIC. The couriers have been well received and have made a significant impact on workload within the department. Many of the couriers have come from other departments within the hospital; bringing a positive attitude, strong work ethic, and relentless drive to improve patient care.

Board Certified Pharmacists

Fourteen total, 36 percent of the department's pharmacists

Two newly certified in 2016

- Julia Kuroski: BCCCP
- Kimberly Migal: BCPS

2016 Highlights

- Implemented Pyxis ES and PharmacyKeeper systems to improve patient safety
- Installed Pyxis Anesthesia System to support the 24 operating rooms at Hillcrest
- Hired a 2nd Emergency Medicine Pharmacist to expand ED coverage to seven days a week
- Hired a 2nd shift supervisor
- Graduated 11th class of pharmacy residents, furthering the mission of Cleveland Clinic

COMING IN 2017

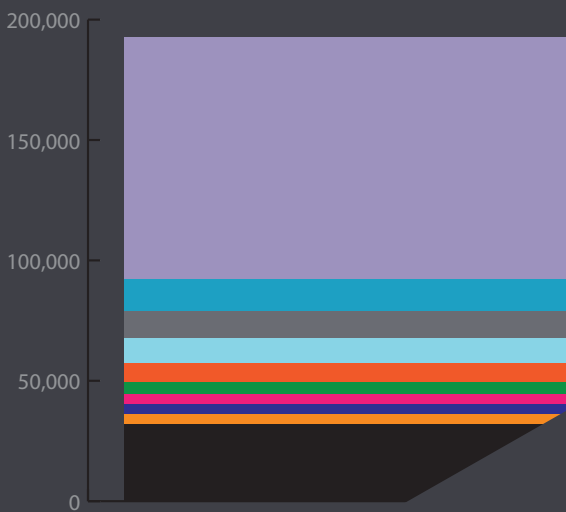
The Hillcrest Pharmacy Department is currently completing a \$650,000 renovation of the oncology satellite pharmacy. It will be completed in April 2017 and will include both positive and negative pressure environments to facilitate compounding in compliance with new USP standards. The satellite will quadruple in size from 200 to 800 square feet, allowing for an increase in the staffing and services provided by the satellite. The Hillcrest oncology center has seen a consistent increase in patient volume and this expansion will ensure that all patients continue to receive world-class pharmacy services.

IMPROVED PATIENT SAFETY WITH IMPLEMENTATION OF PYXIS ES AND PHARMACYKEEPER SOFTWARE

MORE THAN
2.5 MILLION
DOSES DISPENSED

Department Workload	
Inpatient Admissions	26,562
Orders Verified	1,061,660
Doses Dispensed	2,500,576


Median Turn Around Times	
STAT Verifications	3 minutes
ED Verifications	3 minutes
Overall Verifications	5 minutes



HILLCREST INTERVENTIONS TOTAL 193,547

- Medication Monitoring, 100,422
- Patient Profile Review, 13,367
- Patient Counseling/Education, 11,329
- Therapeutic Interchange, 10,147
- Chemotherapy Order Review, 7,821
- Prescriber Order Clarified, 5,552
- Medication Identification, 4,511
- Pharmacy Order System/MAR Discrepancy, 4,343
- Medication History/Reconciliation, 3,885
- Other, 32,170



 Cleveland Clinic

LUTHERAN HOSPITAL

CLEVELAND, OHIO / FOUNDED IN 1896
203-BED HOSPITAL / INPATIENT BEHAVIORAL HEALTH SERVICES
JOINED THE HEALTH SYSTEM IN 1996

Lutheran Hospital Pharmacy Department

At Lutheran Hospital, the Pharmacy Department consists of 23 caregivers, including nine pharmacists, 11 pharmacy technicians, one pharmacy intern, and two members of support staff. The main pharmacy operates 24 hours a day, seven days a week.

A pharmacy specialist and a PGY2 resident at Lutheran are integrated into the Psychiatry patient care teams.



STRATEGIC CHANGE IN 2016

The Lutheran Pharmacy Department focused on the expansion of patient services in 2016. This consisted of three primary initiatives. Firstly, the implementation of a Medication Discharge class for Orthopaedic patients that focuses on medication education, including the purpose of specific medications and their potential side-effects. Secondly, the expansion of Complete Medication Review for Caresource patients which includes both admission and discharge medication reconciliation along with daily medication education. Finally, the adoption of a High Risk Pharmaceutical Care Model. This service model entails four main components: admission medication reconciliation, daily medication education, discharge medication reconciliation, and a 48-72 hour post-discharge call to ensure a successful transition out of the hospital. Pharmacists at Lutheran Hospital are now providing comprehensive medication services across the continuum of care in an effort to lower the readmission rate of these high risk patients.

Board Certified Pharmacists

Two total, 22 percent of the department's pharmacists

2016 Highlights

- Launched a PGY2 residency in Psychiatric Pharmacy, enabling the expansion of services at Lutheran and aiding in the education of future specialists to care for this underserved patient population
- Facilitated the creation of a pharmacy auto-consult service for the dosing of all vancomycin orders
- Expanded antimicrobial stewardship efforts to include rapid diagnostic testing and clinical decision support to ensure antibiotics are being utilized appropriately throughout the hospital
- Implemented PharmacyKeeper software to bring the safety of barcode verification and photo capture to the production of compounded sterile products
- Embraced the challenge of maintaining the highest level of service to patients and nursing in the face of a significant increase in volume of more than 20 percent

COMING IN 2017

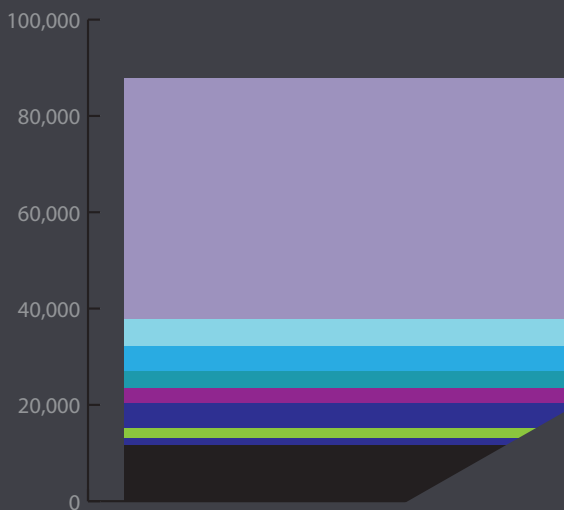
The Lutheran Pharmacy Department is energized by the promise of extending high-level pharmacist care to more patients via new initiatives and services. Specifically, the implementation of a pharmacist-led Emergency Department Culture Callback program will ensure that patients who have already left the emergency department are prescribed and educated about the optimal therapy for them. Additionally, the launching of a new high risk scoring tool will ensure that pharmacy resources are being strategically allocated to those patients with the highest need.

LAUNCHED A
PGY2 RESIDENCY
IN PSYCHIATRIC
PHARMACY

IMPROVED PATIENT
SAFETY WITH
IMPLEMENTATION OF
PHARMACYKEEPER
SOFTWARE

Department Workload	
Inpatient Admissions	9,039
Orders Verified	390,650
Doses Dispensed	837,937

Median Turn Around Times	
STAT Verifications	2 minutes
ED Verifications	2 minutes
Overall Verifications	4 minutes



**LUTHERAN
INTERVENTIONS TOTAL 97,230**

- Medication Monitoring, 59,044
- Patient Profile Review, 5,510
- Therapeutic Interchange, 5,222
- IV to PO, 3,584
- Nonformulary/Restricted Drug, 2,965
- Pharmacy Order System/MAR Discrepancy, 2,846
- Patient Counseling/Education, 2,710
- Duplicate Therapy, 2,269
- Medication History/Reconciliation, 1,364
- Other, 32,170



MAIN CAMPUS

CLEVELAND, OHIO / FOUNDED IN 1921
1440-BED HOSPITAL
MULTISPECIALTY ACADEMIC MEDICAL CENTER

Main Campus Pharmacy Department

At Cleveland Clinic Main Campus, the Pharmacy Department consists of 409 caregivers including: 131 pharmacists, 160 pharmacy technicians, 17 pharmacy interns, and 101 member of support staff. The main pharmacy and Children's Hospital satellite operate 24 hours a day, seven days a week. Additionally, the Heart and Vascular Institute and Taussig Cancer Center satellites operate seven days a week during day and evening hours. Pharmacy specialists at Main Campus are integrated into almost all patient care teams.



This year, Cleveland Clinic moved up three spots to earn the #2 ranking of “2016-17 Best Hospitals” by *U.S. News & World Report*. For the 22nd consecutive year, Cleveland Clinic’s Heart Surgery and Cardiology program has ranked as the best in the nation, while thirteen specialties ranked in the national top 10, with nine placing in the top three nationally. In addition, our Children’s Hospital ranked in 10 of 10 specialties.

STRATEGIC CHANGE IN 2016

Expansion of critical care pharmacy services to the evening and weekends has brought advanced trained pharmacy specialists to the bedside for more hours throughout the week to support therapeutic decision making for the most acutely ill patients at Cleveland Clinic. Response from Caregivers in the intensive care units has been positive with a 20 percent increase in perception of clinical services on second shift.

Board Certified Pharmacists

Seventy five total, 57 percent of the department’s pharmacists

Thirteen newly certified in 2016

- Kelly M. Adamcek: BCPS
- Abdalla A. Ammar: BCCCP
- Mahmoud A. Ammar: BCCCP
- Alison Carulli: BCOP
- Nicole Palm: BCCCP
- Cortney L. Paster: BCPS
- Kaitlyn Rivard: BCPS
- Pavithra Srinivas: BCPS
- David Tietz: BCPS
- Heath Torbic: BCCCP
- Sarah C. Welch: BCCCP
- Elizabeth J. Wells: BCPS
- Xin Zou: BCPS

2016 Highlights

- Implemented Apoteca Robot for non-hazardous compounding
- Implemented PharmacyKeeper Verifications for oral syringes
- Completed continuous improvements projects to decrease medication waste, costs, and improve customer service
- Expanded pharmacist services on evenings and weekends
- Expanded ambulatory care clinic coverage

COMING IN 2017

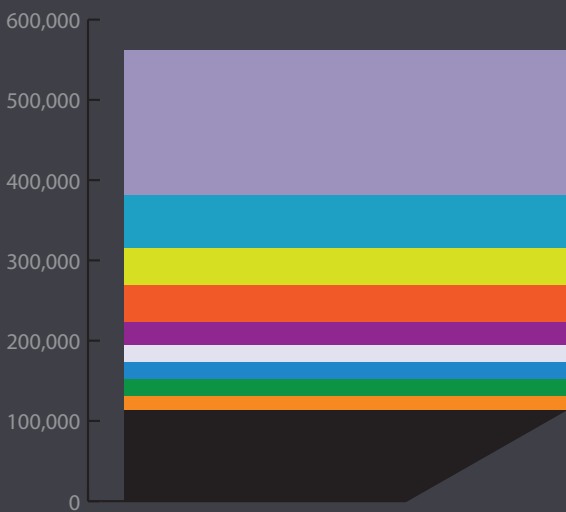
In our mission to advance Population Health Management (PHM) and effectively manage patients across the care continuum we have developed and are beginning the planning stages of utilizing a patient scoring tool. Utilization of this real-time, predictive scoring tool will help pharmacists identify patients at highest risk for readmission. This initiative will allow the department to assist in safe patient care transitions by completing both admission and discharge medication reconciliation. Additionally we will be moving forward with Advanced Pharmacy Practitioner status (privileging) for our pharmacists to improve patient care and expand clinical practice.

#2

RANKED
BEST HOSPITAL
IN 2016-2017 BY
U.S. NEWS
& WORLD REPORT

Department Workload	
Inpatient Admissions	52,419
Orders Verified	3,260,809
Doses Dispensed	9,819,867

Median Turn Around Times	
STAT Verifications	3 minutes
ED Verifications	4 minutes
Overall Verifications	5 minutes



**MAIN CAMPUS
INTERVENTIONS TOTAL 564,863**

- Medication Monitoring, 180,775
- Patient Profile Review, 66,050
- Drug Therapy Recommendations, 47,174
- Chemotherapy Order Review, 44,929
- Nonformulary/Restricted Drug, 29,256
- Duplicate Therapy, 22,354
- Pharmacy Dosing Consult Service, 22,078
- Prescriber Order Clarified, 21,710
- Medication History/Reconciliation, 15,930
- Other, 114,607



Nursing Unit
H80

Kelly L. ...
Caregiver

Pharmacist

H80
PHARMACIST

MARYMOUNT HOSPITAL

GARFIELD HEIGHTS, OHIO / FOUNDED IN 1949
315-BED HOSPITAL
JOINED THE HEALTH SYSTEM IN 1995

Marymount Hospital Pharmacy Department

At Marymount Hospital, the Pharmacy Department consists of 43 caregivers, including 17 pharmacists, 18 pharmacy technicians, six pharmacy interns, and two members of support staff. The pharmacy operates 24 hours a day, seven days a week.

Pharmacy specialists at Marymount are integrated into the Medical/Surgical Intensive Care, Internal Medicine, Behavioral Medicine, and Emergency Medicine patient care teams.



STRATEGIC CHANGE IN 2016

In 2016, Marymount continues to meet the prioritized goal of obtaining a timely medication history for every patient, every admission, and regularly maintains 100 percent achievement of this lofty target. The strategic utilization of student pharmacists, both on APPE rotations and employed as interns has helped to enable this success. Additionally, during this era of ever increasing drug expense, Marymount was able to actively manage drug use in the intensive care unit, resulting in only a nine percent increase in cost in the face of ever-increasing purchase costs and despite an increase in volume, reflected in the seven percent increase in patient ICU days.

Board Certified Pharmacists

Eight total, 47 percent of the department's pharmacists

Two newly certified in 2016

- Matthew Hoover: BCCCP
- Nicole McCorkindale: BCPS

2016 Highlights

- Hired two PGY2 trained behavioral medicine pharmacists to cover the 67 behavioral health beds at Marymount
- Increased the pharmacy presence in the Emergency Department, now available 7 a.m. – 10 p.m. Monday through Friday
- Completed 162 Medication Therapy Management Visits for Caresource covered patients which resulted in \$13,000 in additional revenue and decreased readmissions for this population
- Provided a pharmacy continuum of care with an expansion into the ambulatory Internal Medicine Clinic
- Sustained a high capture rate in bedside delivery with greater than 13,000 prescriptions filled and greater than \$500,000 in revenue generated

COMING IN 2017

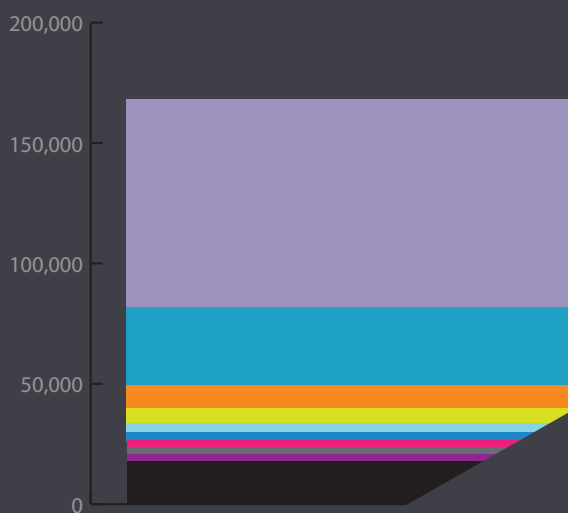
The Marymount Hospital Pharmacy Department is thrilled that a \$1.83 million dollar capital expense was approved in 2017 to completely renovate the existing clean room space utilized to make sterile products. This much needed investment will incorporate the latest technology and elements of design to improve the workflow efficiency for the pharmacy caregivers while providing the highest level of safety for Marymount's patients.

FOUNDED BY
THE SISTERS OF ST. JOSEPH
OF THE THIRD ORDER
OF ST. FRANCIS

GREATER THAN **13M**
PRESCRIPTIONS FILLED
BY BEDSIDE DELIVERY

Department Workload	
Inpatient Admissions	8,712
Orders Verified	377,368
Doses Dispensed	1,193,811

Median Turn Around Times	
STAT Verifications	2 minutes
ED Verifications	2 minutes
Overall Verifications	4 minutes



MARYMOUNT INTERVENTIONS TOTAL 169,008

- Medication Monitoring, 86,609
- Patient Profile Review, 32,287
- Medication History/Reconciliation, 9,313
- Drug Therapy Recommendations, 6,425
- Therapeutic Interchange, 3,776
- Pharmacy Dosing Consult Service, 3,753
- Medication Identification, 3,126
- Patient Counseling Education, 2,912
- Nonformulary/Restricted Drug, 2,657
- Other, 18,150



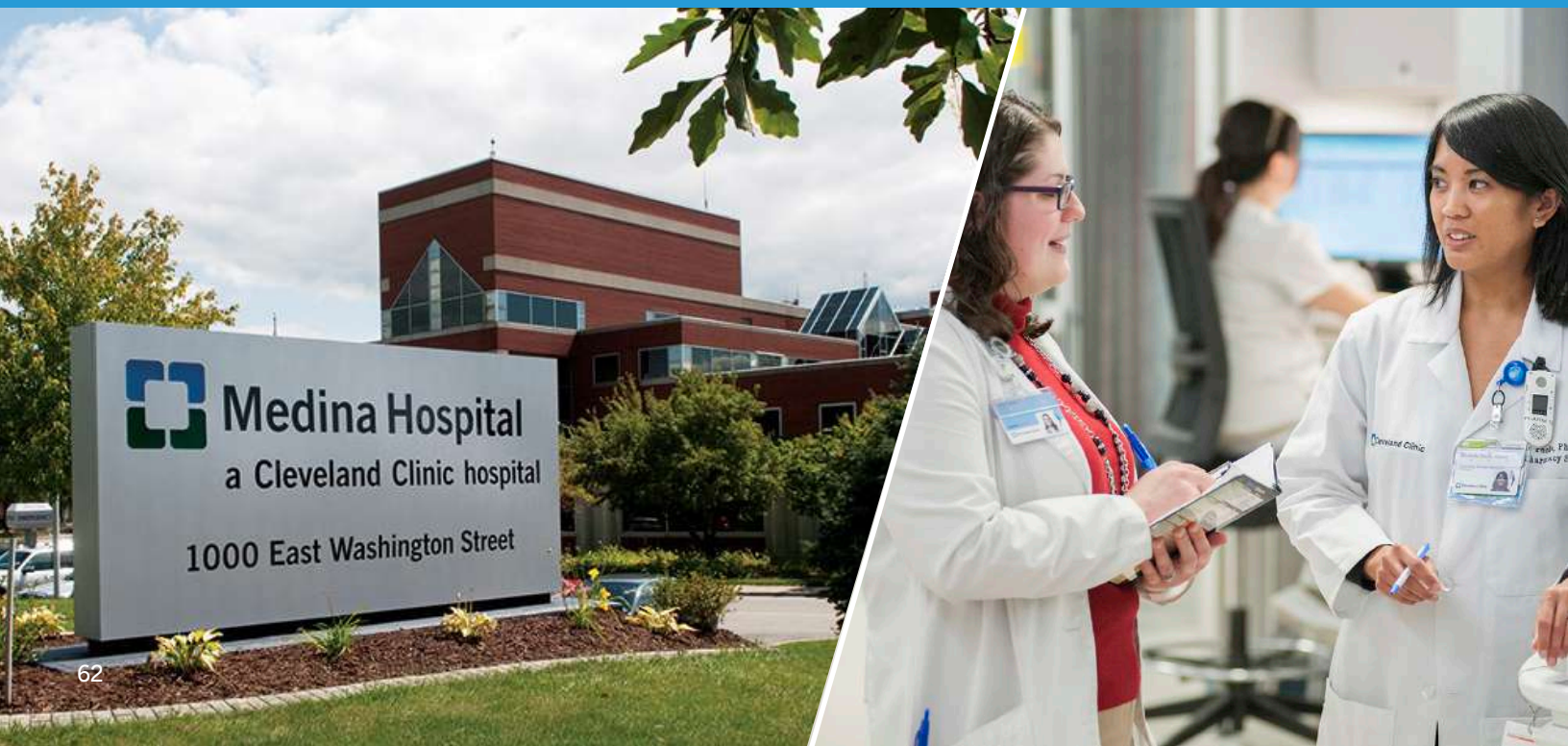
MEDINA HOSPITAL

MEDINA, OHIO / FOUNDED IN 1944
171-BED HOSPITAL
JOINED THE HEALTH SYSTEM IN 2009

Medina Hospital Pharmacy Department

At Medina Hospital, the Pharmacy Department consists of 28 caregivers, including 14 pharmacists, 13 pharmacy technicians, and one pharmacy intern. The main pharmacy operates 24 hours a day, seven days a week.

Pharmacy specialists at Medina are integrated into the Medical/Surgical Intensive Care, Internal Medicine, Emergency Medicine, and Infectious Disease patient care teams.



STRATEGIC CHANGE IN 2016

The Medina Pharmacy Department has initiated a robust and impactful Antibiotic Stewardship program. This program consists of interprofessional rounds three times a week with a focus on optimizing the utilization of antibiotics. Given the constant threat of resistant organisms, the Medina Antibiotic Stewardship program has targeted clinically important agents, including ceftriaxone, fluoroquinolones, piperacillin-tazobactam, vancomycin, linezolid, and daptomycin to ensure that these therapies will maintain their effectiveness for future patients.

The Antibiotic Stewardship program was able to make an immediate impact, with the pharmacist making an intervention on 40 percent of all patients under the care of the program. Additionally, the physician response has been positive, with over 80 percent of recommendations being accepted.

Board Certified Pharmacists

Six total, 43 percent of the department's pharmacists

Two newly certified in 2016

- Julia Kuroski: BCCCP
- Kimberly Migal: BCPS

2016 Highlights

- Assisted with testing the regional implementation of PharmacyKeeper systems
- Hired an Emergency Medicine Pharmacist to expand ED coverage to 365 days a year
- Graduated 4th class of pharmacy residents, furthering the mission of Cleveland Clinic
- Participated in ten community outreach events in Medina County, having a positive impact on Medina County outside of the hospital

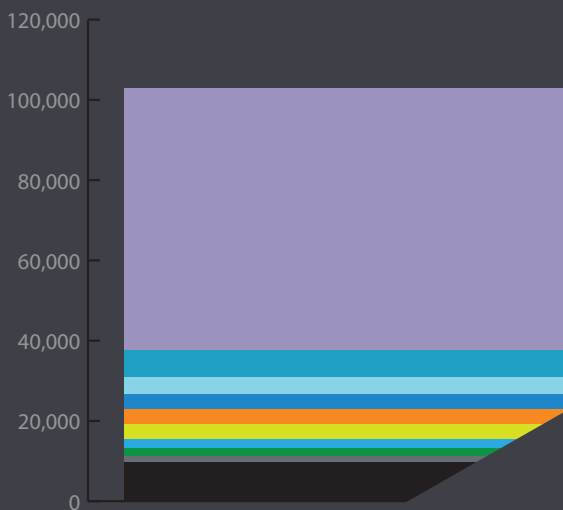
COMING IN 2017

The Medina Pharmacy Department is currently working to optimize medication reconciliation services. This optimization has the aim of ensuring that the most complex patients, who are at the highest risk for readmission are continued on all the appropriate medications as they come into the hospital and fully understand what they need to be taking when they leave. Additionally, the department has tasked the technician workgroup with tracking, evaluating, and then minimizing pharmaceutical waste to enable more resources to be spent taking care of patients.

EXPANDED
EMERGENCY DEPARTMENT
COVERAGE TO
365
DAYS PER YEAR

Department Workload	
Inpatient Admissions	7,162
Orders Verified	319,428
Doses Dispensed	696,986

Median Turn Around Times	
STAT Verifications	2 minutes
ED Verifications	2 minutes
Overall Verifications	3 minutes



MEDINA
INTERVENTIONS TOTAL 103,469

- Medication Monitoring, 65,457
- Patient Profile Review, 6,728
- Therapeutic Interchange, 4,064
- Pharmacy Dosing Consult Service, 3,864
- Medication History/Reconciliation, 3,811
- Drug Therapy Recommendations, 3,752
- IV to PO, 2,563
- Prescriber Order Clarified, 1,796
- Patient Counseling/Education, 1,487
- Other, 9,947



SOUTH POINTE HOSPITAL

WARRENSVILLE HEIGHTS, OHIO / FOUNDED IN 1957
173-BED HOSPITAL / COMMUNITY TEACHING HOSPITAL
JOINED THE HEALTH SYSTEM IN 1997

South Pointe Pharmacy Department

At South Pointe Hospital, the Pharmacy Department consists of 20 caregivers, including eight pharmacists, seven pharmacy technicians, three pharmacy interns, and two members of support staff. The main pharmacy operates 24 hours a day, seven days a week. Additionally, South Pointe has an oncology satellite that operates from 7:30 a.m. to 4:00 p.m. daily.

Pharmacy specialists at South Pointe are integrated into the Medical Intensive Care, Infectious Diseases, and Oncology patient care teams.



STRATEGIC CHANGE IN 2016

In 2016, South Pointe Pharmacy led a solutions for value enhancement (SoVE) team to improve admission medication reconciliation rates within 24 hours. Through collaboration with nursing, physicians, nurse practitioners, and other caregivers, admission medication reconciliation rates within 24 hours improved from 39 percent to 85 percent within four months and have been sustained at this level. This effort ensures that providers are utilizing the most up-to-date and accurate information when making decisions on how to care for patients at South Pointe.

Board Certified Pharmacists

Five total, 63 percent of the department's pharmacists

One newly certified in 2016

- Katy Carlson: BCCCP

2016 Highlights

- Implemented Pyxis ES and PharmacyKeeper systems to improve patient safety
- Reconfigured Anesthesia Pyxis layouts to reduce the risk of look-alike, sound-alike medication errors occurring in the 10 operating rooms at South Pointe
- Redesigned the cartfill medication delivery workflow to reduce missing medications thereby improving service to nursing and patients
- Restructured workflows in the IV room to ensure compliance with current and upcoming USP requirements

COMING IN 2017

In 2017, South Pointe pharmacy will be implementing the 340B drug pricing program. This is an exciting opportunity to achieve drug cost savings – passing these savings on to our patients through development of new quality initiatives and services. These programs include medication education for oncology patients, chairside delivery of outpatient prescriptions, and expanded pharmacy services in the emergency department.

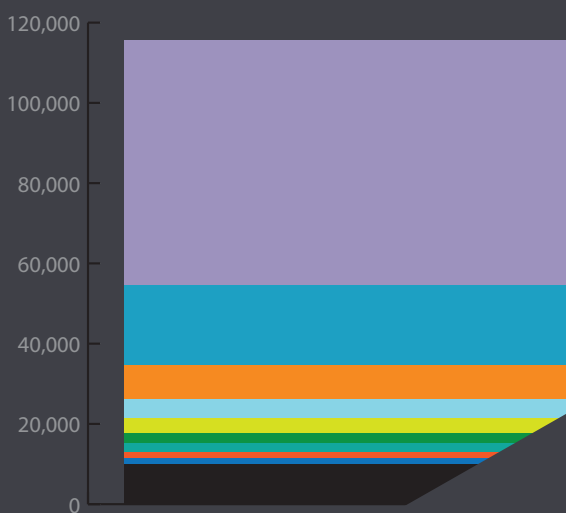
SOUTH POINTE PHARMACY FULLY EMBRACES THE “PATIENTS FIRST” PHILOSOPHY. THE PHARMACY TEAM CONSISTENTLY COLLABORATES WITHIN AND OUTSIDE THE DEPARTMENT TO PROVIDE OPTIMAL PATIENT CARE IN ALL ASPECTS.

Garrett Eggers,
South Pointe Director of Pharmacy



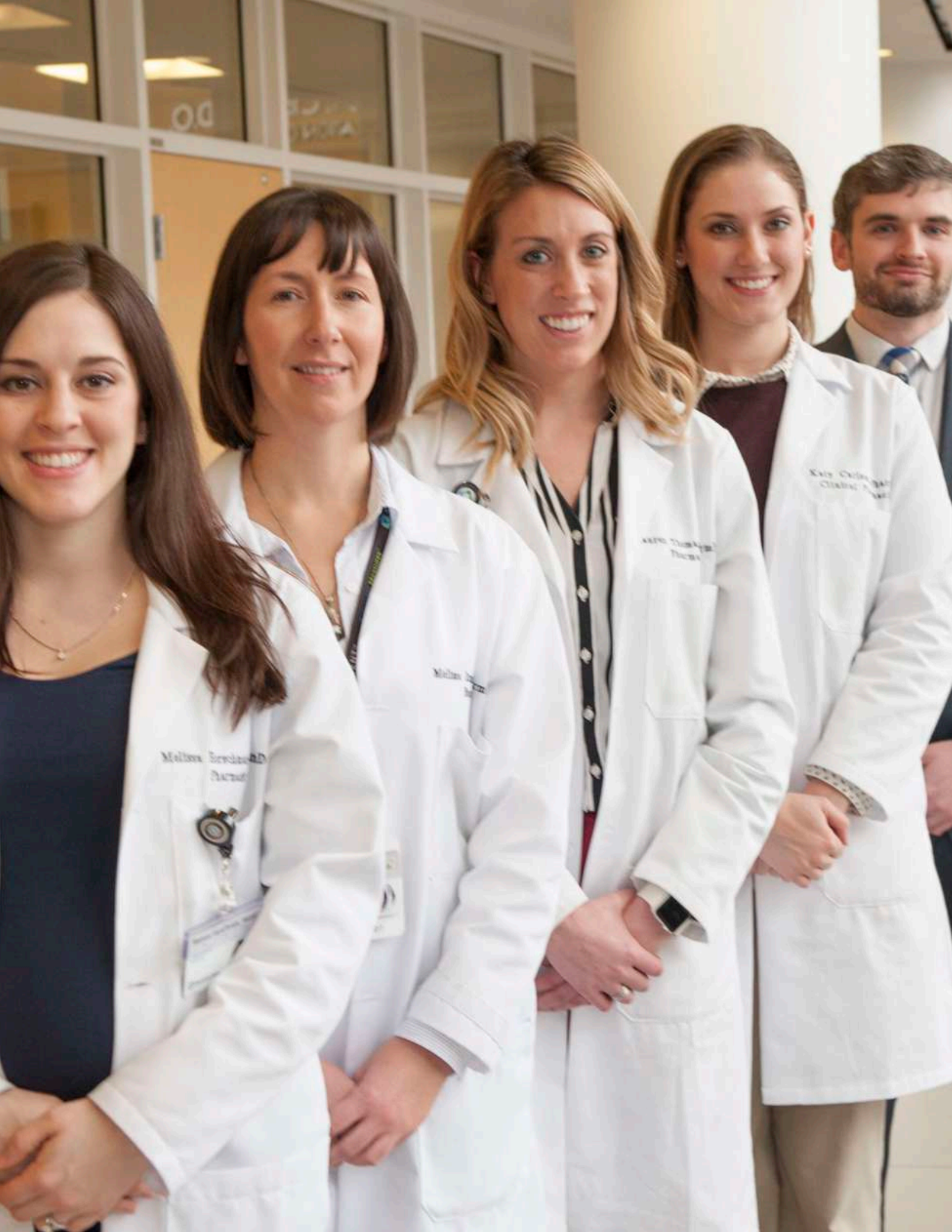
Department Workload	
Inpatient Admissions	6,346
Orders Verified	303,928
Doses Dispensed	862,462

Median Turn Around Times	
STAT Verifications	2 minutes
ED Verifications	2 minutes
Overall Verifications	3 minutes



SOUTH POINTE INTERVENTIONS TOTAL 116,062

- Medication Monitoring, 60,966
- Patient Profile Review, 19,938
- Medication History/Reconciliation, 8,655
- Therapeutic Interchange, 4,474
- Drug Therapy Recommendations, 3,830
- Prescriber Order Clarified, 2,706
- Drug Interaction Identified, 2,366
- Chemotherapy Order Review, 1,657
- Pharmacy Dosing Consult Service, 1,323
- Other, 9,947



Melissa Servino, MD
PharmD

Melissa Servino, MD
PharmD

Kate Thompson, PharmD
PharmD

Kate Thompson, PharmD
PharmD

CLEVELAND CLINIC ABU DHABI

ABU DHABI, UNITED ARAB EMIRATES / FOUNDED IN 2015
364-BED HOSPITAL
IN PARTNERSHIP WITH MUBADALA

Cleveland Clinic Abu Dhabi Pharmacy Department

At Cleveland Clinic Abu Dhabi, the Pharmacy Department consists of 84 Caregivers including, 18 pharmacists, 36 pharmacy technicians, three pharmacy interns, and 27 members of support staff. The main pharmacy operates 24 hours a day, seven days a week.

Pharmacy specialists at Cleveland Clinic Abu Dhabi are integrated into the Anticoagulation and Emergency Medicine patient care teams.



STRATEGIC CHANGE IN 2016

The Cleveland Clinic Abu Dhabi Department of Pharmacy expanded the range of clinical services offered to patients in 2016 to include a discharge pharmacy in the emergency department and discharge counseling by pharmacists at the bedside. Additionally, the department piloted a unit-based pharmacist model on two of the thirteen inpatient floors; getting pharmacists out of the central pharmacy and onto the floor to aid in the interprofessional care of patients.

The Cleveland Clinic Abu Dhabi Department of Pharmacy has continued to advance the profession of pharmacy in 2016 by becoming the first accredited provider of pharmacy continuing education by the Accreditation Council for Pharmacy Education (ACPE) in the United Arab Emirates.

Board Certified Pharmacists

Five total, 28 percent of the department's pharmacists

- Rami Ismail: BCCCP
- Farah Kablaoui: BCCCP
- Oussama Kalagieh: BCPP
- Esra Najji: BCACP
- Yasmine Zahr: BCPS

2016 Highlights

- Granted pre-candidate status for a PGY-1 pharmacy residency by ASHP
- Launched a Health Authority of Abu Dhabi (HAAD) approved pharmacy internship
- Co-Chaired the first Abu Dhabi Pharmacy Conference in collaboration with Abu Dhabi Health Services Company (SEHA)
- Chaired the second Intravenous and Parenteral Nutrition (IVPN) Conference in Abu Dhabi
- Continued professional development with pharmacy caregivers earning advanced degrees or certifications and completing specialized training

COMING IN 2017

The department is looking forward to expanding the range of clinical services offered to include coverage of the chemotherapy service and chest pain service. Cleveland Clinic Abu Dhabi pharmacists possess the knowledge and skills to make impactful interventions on these teams and will improve patient outcomes while controlling costs and reducing adverse medication events.

SHEIKH KHALIFA MEDICAL CITY

ABU DHABI CITY, UNITED ARAB EMIRATES
586-BED HOSPITAL
MANAGED BY CLEVELAND CLINIC SINCE 2007

Sheikh Khalifa Medical City Pharmacy Department

At Sheikh Khalifa Medical City, the Pharmacy Department consists of 145 caregivers, including 90 pharmacists, 38 pharmacy technicians, and 17 members of support staff. The main pharmacy operates 24 hours a day, seven days a week. An additional eight satellites are operated daily during select morning and evening hours.

Pharmacy specialists at Sheikh Khalifa Medical City are integrated into the Adult Critical Care, Pediatric Critical Care, Internal Medicine, General Pediatrics, Hematology/Oncology, and Solid Organ Transplant patient care teams.



STRATEGIC CHANGE IN 2016

The Sheikh Khalifa Medical City Department of Pharmacy significantly expanded the use of IV smart pump technology in 2016. The changes entailed considerably increasing the total number of medications included in the smart pump library, adding more restrictions for high-risk medications, and a brand new drug library just for chemotherapeutic infusions. Although IV smart pumps have been in use at Sheikh Khalifa Medical City for the last few years, the drug library had fallen out of date and did not include many of the highest-risk infusions including chemotherapy. The modifications made in 2016 bring practice into alignment with ISMP best practices and will greatly reduce the likelihood of patients receiving inappropriate doses. These changes were made with the vision of Sheikh Khalifa Medical City in mind; leading integrated outstanding healthcare services with the highest international quality and safety standards.

2016 Highlights

- Established a new expired medication management system, significantly improving patient safety by preventing the dispensing of expired doses
- Modified processes to ensure that high risk medications are appropriately flagged to prevent possible medication safety events
- Developed a framework for therapeutic drug monitoring of select medications to optimize therapeutic outcomes and avoid possible adverse drug events
- Added default PRN reasons for all analgesics in order sets to assist nursing in choosing the right medication for a patient based on reported pain score
- Implemented a new pharmacy benefits management module to reduce denials and improve revenue capture

COMING IN 2017

The department is looking forward to starting an ASHP Accredited PGY1 residency program. In February 2016, ASHP surveyors visited Sheikh Khalifa Medical City and determined the site was ready for the program to be launched. Final details of the program are in development with expected completion in 2017.

Additionally in 2017, Sheikh Khalifa Medical City will be launching a new pharmacy benefit management program that will take over the administration of the prior authorization process. This will foster our ability to ensure that more patients are able to get the lifesaving therapies that they need further helping to deliver on the mission of Sheikh Khalifa Medical City – to transform our healthcare system services to the highest medical quality and customer care international standards.



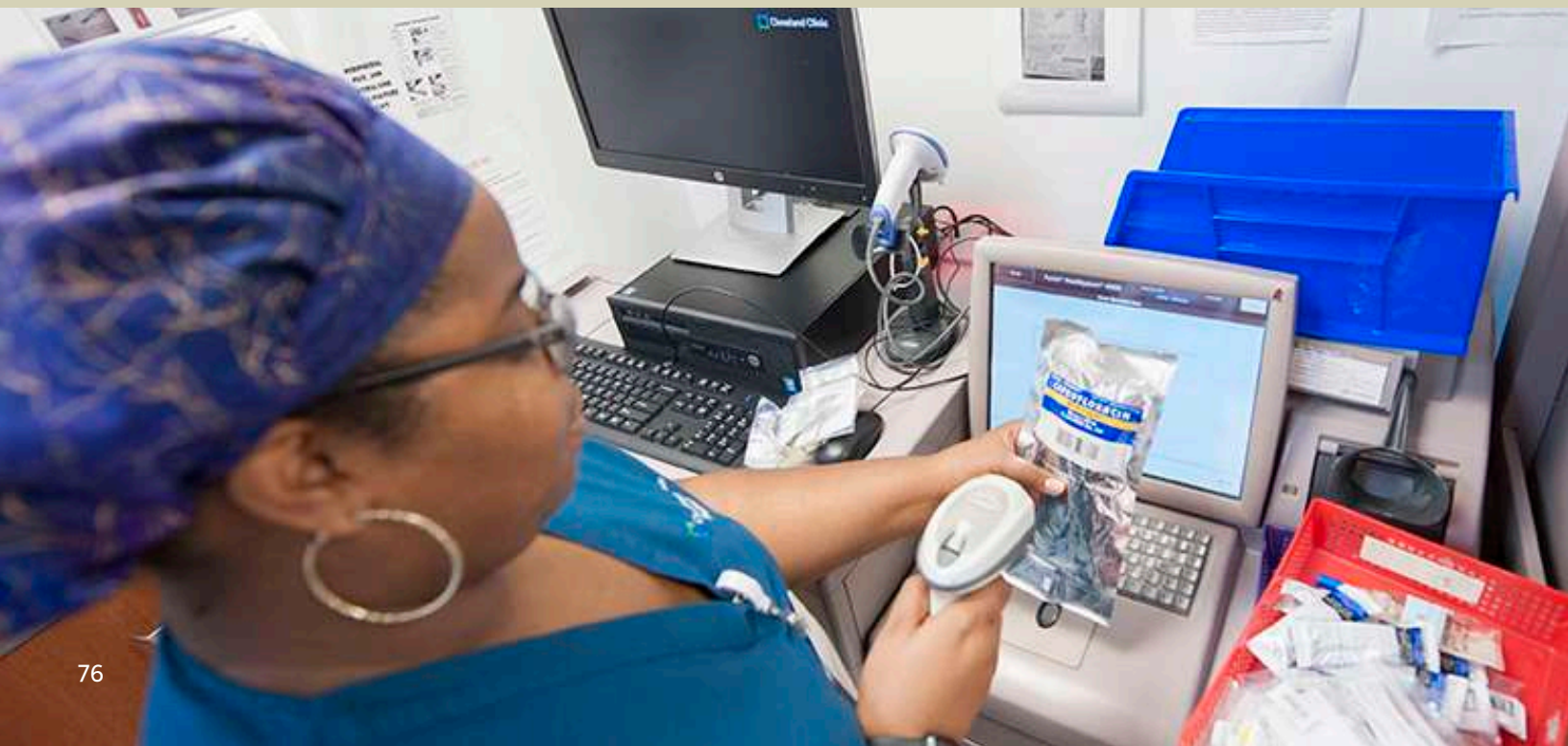
TABLE 1	
Year	Value
2011	10.00
2012	12.00
2013	15.00
2014	18.00
2015	22.00
2016	28.00
2017	35.00
2018	45.00
2019	55.00
2020	65.00
2021	75.00
2022	85.00
2023	95.00
2024	105.00
2025	115.00
2026	125.00
2027	135.00
2028	145.00
2029	155.00
2030	165.00
2031	175.00
2032	185.00
2033	195.00
2034	205.00
2035	215.00
2036	225.00
2037	235.00
2038	245.00
2039	255.00
2040	265.00
2041	275.00
2042	285.00
2043	295.00
2044	305.00
2045	315.00
2046	325.00
2047	335.00
2048	345.00
2049	355.00
2050	365.00
2051	375.00
2052	385.00
2053	395.00
2054	405.00
2055	415.00
2056	425.00
2057	435.00
2058	445.00
2059	455.00
2060	465.00
2061	475.00
2062	485.00
2063	495.00
2064	505.00
2065	515.00
2066	525.00
2067	535.00
2068	545.00
2069	555.00
2070	565.00
2071	575.00
2072	585.00
2073	595.00
2074	605.00
2075	615.00
2076	625.00
2077	635.00
2078	645.00
2079	655.00
2080	665.00
2081	675.00
2082	685.00
2083	695.00
2084	705.00
2085	715.00
2086	725.00
2087	735.00
2088	745.00
2089	755.00
2090	765.00
2091	775.00
2092	785.00
2093	795.00
2094	805.00
2095	815.00
2096	825.00
2097	835.00
2098	845.00
2099	855.00
2100	865.00

WORLD CLASS

ANCILLARY
SERVICES

PHARMACY INFORMATION SYSTEMS

Pharmacy has a dedicated group of pharmacists, technicians, and clinical analysts that provide clinical informatics, automation, and information systems support. With a pharmacy department that is on the forefront of technology, our Pharmacy Information Systems staff are an invaluable part of our patient care team. The team supports the enterprise with services that include: employee education, downtime support and ongoing oversight of currently implemented technology. We are fortunate to have a dedicated group of employees ensuring our technology remains online and up-to-date.



The clinical informatics team provides system build, system maintenance and troubleshooting support for the Epic Willow application for all Cleveland Clinic facilities. The team is responsible for formulary maintenance across all medication distribution systems utilized by Cleveland Clinic Health System pharmacies. They collaborate with the Information Technology (IT) Department on all MyPractice Epic projects whenever medications or pharmacy are involved.

The operational support and automation team supports the implementation, training, and trouble-shooting of both the centralized and decentralized automated dispensing technologies. They also support the inpatient pharmacies through support and maintenance of pharmacy functions within Epic including but not limited to dispensing, labels, charging, and cart fill management.

The pharmacy information systems group maintains all computers, printers, and interfaces between our systems and creates all web-based applications and SharePoint sites for both inpatient and outpatient pharmacies. They also provide support and maintenance to the retail pharmacy information systems and automation.

All three groups provide 24-hour support to keep pharmacy systems running smoothly. Like the clinical informatics team, both the operational support and pharmacy information systems groups provide enterprise-wide expertise and implementation management of new technologies and systems.

Automated dispensing cabinets, Pyxis MedStation 4000 and Pyxis ES, are used across Cleveland Clinic to distribute the majority of medications based on pharmacist-verified orders. The Cleveland Clinic Pharmacy operational support and automation team works closely with BD personnel to keep the systems in optimal condition to ensure minimum downtime.

With a centralized support model for the Pharmacy Information System – Epic Willow, all Cleveland Clinic hospitals submit non-urgent requests using a SharePoint site. The issue is automatically assigned to an analyst or pharmacist who troubleshoots and resolves and obtains a pharmacist quality assurance check for all clinical changes.

2016 Accomplishments

- Deployed clean room workflow management software (Medkeeper Verifications) to regional hospitals
- Upgraded to Pyxis ES platform at Hillcrest, Marymount, Euclid, South Pointe, and Avon
- Implemented technology at Avon Hospital: Epic Willow, Pharmogisitics, Medkeeper Verifications, Tracking, Pyxis ES
- Implemented Asteres Scriptcenter for retail pharmacies
- Participated in numerous enterprise care path and order set development projects
- Implemented inpatient Epic Beacon at Cleveland Clinic Florida
- Supported install of Apoteca IV compounding robot at Main Campus cleanroom
- Supported Epic 2015 version upgrade enterprise-wide
- Supported EAPM go-live at Main Campus

FINANCE, BILLING, AND REIMBURSEMENT

Striving to achieve the Triple Aim, Cleveland Clinic Pharmacy is working to improve quality of patient care and the lives of our patients across the continuum of care in a fiscally responsible manner. With budgetary support and reporting the finance department ensures that pharmacy is utilizing its resources in the most efficient way to meet its financial goals. The pharmacy department is fortunate to have this team to ensure quality care that is fiscally responsible.



FINANCE, BILLING, AND REIMBURSEMENT

Pharmacy Finance

Pharmacy Finance is responsible for the management of the department's financial systems and operations, financial planning and development, and implementation of business plans for current and future ventures. In 2016, Pharmacy operating revenue totaled \$787 million. Drug expense was \$555 million for 158 thousand admissions and 705 thousand prescriptions across 11 hospitals and 25 ambulatory pharmacies. This service area is also responsible for capital and operating budgets, reimbursement and budget variance analysis, pharmacy invoice processing and reconciliation, leading the Pharmacy corporate compliance program, and other finance related matters.

Additionally, the Pharmacy Finance team provides financial support to all 25 Cleveland Clinic ambulatory pharmacies in the areas of financial reporting, cost and revenue analysis, online and manual billing processes, account reconciliation and aging, cash management, and reporting

Billing and Reimbursement

For Main Campus, Pharmacy is responsible for an average of 5.3 million technical charges totaling \$100 million of gross revenue each month. These charges flow through Cleveland Clinic billing systems for inpatient and hospital outpatient services. Pharmacy processes 35 percent of all technical charges at Cleveland Clinic, totaling 12 percent of technical gross revenue dollars. Billing and reimbursement supports all pharmacy inpatient and outpatient services throughout the health system and is responsible for:

- Timely and accurate charge entry
- Error tank maintenance
- Customer service
- Chargemaster and coding updates
- Interdepartmental cost transfers
- Drug pricing inquiries
- Insurance prior authorizations
- Denial management

For all Cleveland Clinic ambulatory pharmacies, pharmacy billing and reimbursement supports all revenue cycle functions from insurance pre-certification and decentralized pharmacy billing services through accounts receivables management.

2016 Accomplishments

- Expanded a billing education and training program for our outpatient pharmacies
- Expanded a centralized process related to prior authorizations and denials management for chemo therapy infusions
- Expanded patient assistance program
- Exceeded \$5.5 million in drug savings across six Health System locations
- Enrolled patients in co-pay assistance programs totaling \$5.9 million

MEDICATION SAFETY SERVICES

Medication Safety Services coordinates a comprehensive program dedicated to assuring excellence in medication safety and quality. Medication Safety Services facilitates the continuous evaluation of the medication management system to implement strategies that reflect medication safety best practices and mitigate or eliminate actual and potential system vulnerabilities. Medication Safety Services also ensures compliance with all applicable medication management accreditation and regulatory standards.



Staff are responsible for the review, collation, and analysis of all medication-related events. The staff provides continual follow-up and monitoring of medication error trends and interventions. Medication Safety Services staff are also responsible for reporting significant medication safety findings and trends to the Medication Systems Subcommittee, P&T Committee, Patient Safety Committee and the Department of Pharmacy Quality Council.

Medication Safety Services staff also play an integral role in identifying and defining priorities for quality improvement activities. This includes structuring and coordinating planned interventions to correct procedural deficiencies and to enhance or implement safety systems. Medication Safety Services staff assists with assuring appropriate follow-up and system application of specific process

improvements related to internal and external improvement concepts. Medication Safety Services staff is also responsible for identification and mitigation of accreditation and regulatory risk points and leading improvement efforts to ensure compliance.

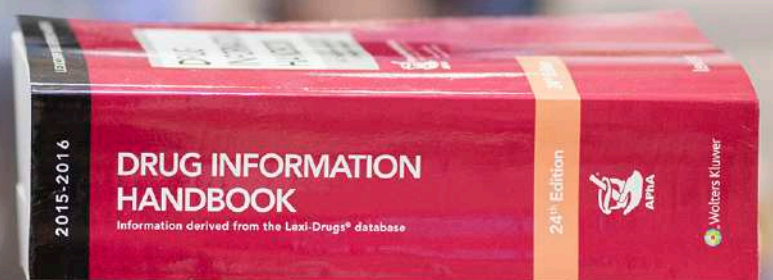
2016 Accomplishments

- Created a single drug library for implementation of smart PCA and PCEA pumps across the health system
- Implemented six ISMP 2016-2017 Targeted Medication Safety Best Practices
- Obtained URAC Specialty Pharmacy Accreditation
- Integrated 13 new physician practices
- Joined the Pharmacy Quality Alliance
- Successfully completed the Joint Commission Comprehensive Stroke Program Recertification and Joint Commission LVAD Program Recertification with no medication managements findings
- Achieved full accreditation status in the Joint Commission Triennial Hospital Survey with minimal medication management findings

2016 Medication Safety Services	
Reported Adverse Drug Events Reviewed	1,980
Total Audits Completed	1,850
Ambulatory Practice Sites Audited	865
Inpatient Nursing Units Audited	60
Physician Practice Sites Integrated	13

DRUG INFORMATION FORMULARY MANAGEMENT SERVICES

Drug Information, Drug Use Policy, and Formulary Management Services provide expertise and support for health care professionals across the enterprise. These services coordinate the Cleveland Clinic Health System Drug Information Call Center, Cleveland Clinic Health System Formulary, drug use policy, medication evaluations, guideline development, drug shortages and recalls management, and risk evaluation and mitigation strategies standardization. All these services support caregivers in taking care of patients.



DRUG INFORMATION (DI) CENTER

The DI Center is a reliable source of objective information on medication and medication-related topics. The services of the DI Center are available to healthcare professionals at all Cleveland Clinic facilities. In 2016, the DI Center responded to more than 3200 drug information requests. The DI Center is also responsible for the Cleveland Clinic Formulary, *Clinical Rx Forum* newsletter, adverse drug reaction monitoring and reporting, and the Adult IV Medication Guidelines. The DI Center also coordinates all of the contracts for drug information references and resources used throughout Cleveland Clinic. The DI Center manages all drug shortages and recalls as well as standardization and implementation of any Risk Evaluation and Mitigation Strategies (REMS) from the U.S. Food and Drug Administration (FDA). Finally, the center coordinates all of the Formulary Specialty Panel and Medical Staff Pharmacy and Therapeutics (P&T) Committee meetings and decision implementation for the enterprise.

Pharmacy Clinical Integration Committee

The Pharmacy Clinical Integration Committee (CIC) met monthly in 2016 and conducted the following activities and projects for the health system: Epic drug file standardization and review, intravenous medication concentration standardization, smart pump medication drug library standardization and review, medication order set review, clinical guideline implementation, and other drug use policy. The Pharmacy CIC includes a pharmacist representative from each Cleveland Clinic hospital.

Total Number of Drug Shortages Processed in 2016:	435
Designated as High-priority	115
Designated as Medium-priority	106
Designated as Low-priority	214

Total Number of Recalls Processed in 2016:	384
Designated as Having Impact	200

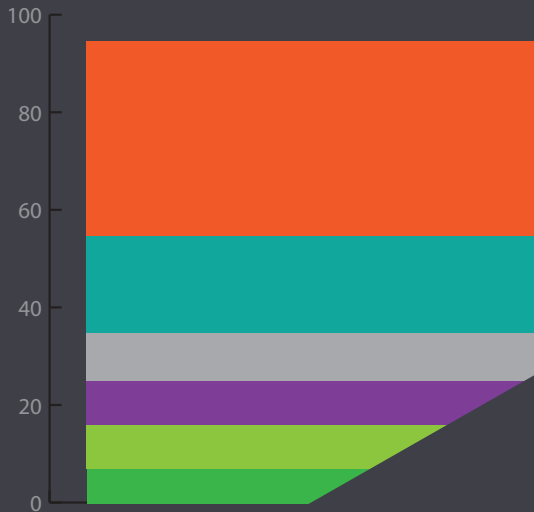
Formulary Management

The Cleveland Clinic Pharmacy and Therapeutics (P&T) Committee consists of the parent committee and nine formulary Specialty Panels (cardiovascular/thrombosis, neurosciences, hematology/oncology, critical care/surgery/anesthesia, internal medicine, transplant, antimicrobial review, Children's Hospital, medication-related policy and procedures). The formulary Specialty Panels are responsible for evaluating formulary requests, developing guidelines and restrictions, reviewing cost and utilization issues, adverse drug reaction monitoring, and developing and reviewing outcomes projects and drug use evaluations. Each Specialty Panel meets quarterly, jointly chaired by a member of the medical staff from Main Campus and a regional hospital with a lead clinical pharmacy specialist serving as Secretary. These Formulary Specialty Panels present recommendations to the Cleveland Clinic Medical Staff P&T Committee for final review and decision. The Cleveland Clinic Medical Staff P&T Committee is comprised of P&T chairs from each Cleveland Clinic hospital as well as select Pharmacy and Nursing representatives.

2016 Accomplishments

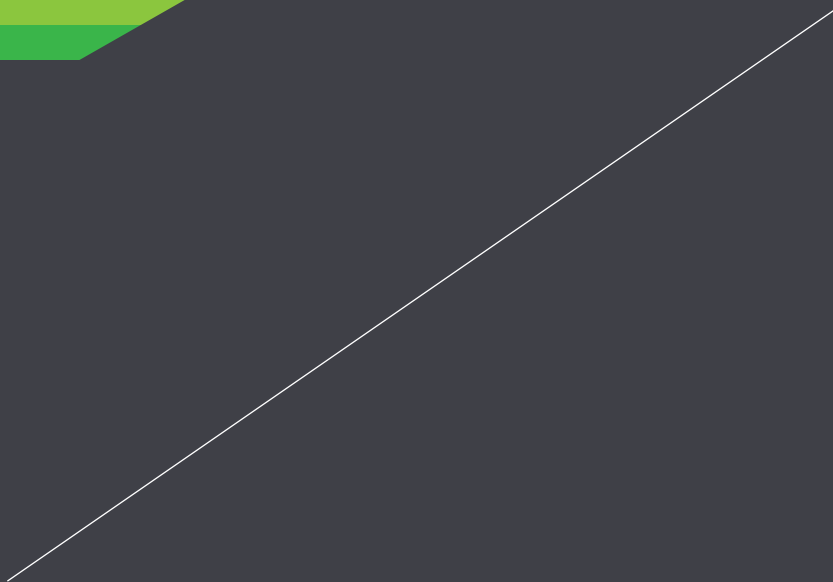
- Published six issues of the pharmacy newsletter (*Clinical Rx Forum*) that contains relevant articles about current clinical pharmacy topics as well as a Formulary Update section outlining changes to the Cleveland Clinic Health System's Formulary
- Updated Frequently Asked Questions (FAQs) database and added 10 new FAQs to the FAQ database which contains answers to commonly asked questions covering various topics
- Provided a quarterly update of the "Do Not Tube" list which provides a compilation of medications that cannot be sent through the pneumatic tube system
- Updated more than 150 adult IV guidelines
- Coordinated drug shortages and recalls for all Cleveland Clinic hospitals, including integrating Akron General Medical Center into enterprise drug shortage and recall processes
- Reviewed approximately 300 drug files in the pharmacy computer system to enhance patient safety, improve efficiency, ensure clinical appropriateness and assist with cost savings
- Assisted in reviewing Medication Order Sets for Cleveland Clinic hospitals, including Medication Order Sets for the Children's Hospital.
- Created and maintained Pediatric Extemporaneous Compounding Recipes in PharmacyKeeper
- Managed a total of 78 REMS programs for Cleveland Clinic Health System and 44 (56 percent) had Elements to Assure Safe Use (ETASUs)

2016 FORMULARY ACTIVITY



Cleveland Clinic Medical Staff P&T Committee Actions (n=90)

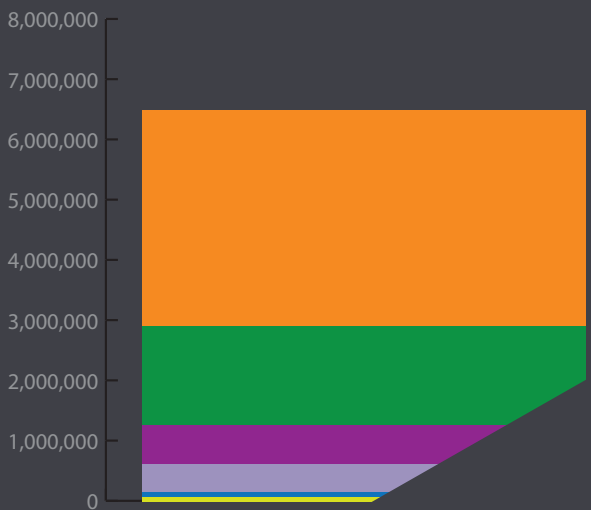
- Declined to Review, 40%
- Added with Restriction, 20%
- Deleted, 10%
- Did Not Add, 9%
- Change in Restriction, 9%
- Added, 7%



COST SAVINGS

COST AVOIDANCE

TOTAL \$6.5 MILLION



- Conversion to Generic, \$3,578,000, 55%
- Conversions (Alternative Therapies), \$1,660,000, 26%
- Removals from Formulary, \$660,000, 10%
- Changes in Formulations, \$467,000, 7%
- Cleveland Clinic Health System Standardization, \$80,000, 1%
- Formulary Restrictions, \$70,000, 1%

PHARMACY SOURCING AND PURCHASING

Pharmacy Sourcing and Purchasing closely supports operations and financial reporting throughout the health system. In 2016, the Sourcing and Purchasing team was responsible for negotiating and maintaining pharmaceutical expenditures of approximately \$817 million from close to 800 manufacturers and suppliers. The team also coordinates pharmacy's cost savings improvement and physical inventory processes and is responsible for replenishment buying and pharmaceutical requisition fulfillment for Main Campus and the Family Health Centers.



2016 Accomplishments

- Obtained \$23 million in pharmaceutical sourcing and purchasing performance improvements, exceeding year-end targets
- Negotiated and processed \$8.6 million in pharmaceutical rebates
- Implemented a pharmacy distribution agreement for ExcelerateSM LLC, the group purchasing organization co-owned by Cleveland Clinic and Vizient
- Collaborated with Ambulatory Services to negotiate, procure and distribute approximately 280,000 doses of flu vaccine for Cleveland Clinic employees and patients
- Collaborated with Pharmacy, Government and Media Relations to foster awareness of egregious pharmaceutical price increases





WORLD CLASS

TRAINING

The goals of pharmaceutical education for health professionals are to ensure that efficacious, safe and cost-effective drug therapy is selected for our patients; medication is prepared, dispensed and stored according to all requirements; patients understand how to use their medications appropriately and that patients are monitored appropriately. Educational programming has been developed for pharmacy staff members (including pharmacists, technicians, students and residents), medical staff, medical students, medical residents, nursing staff, allied health professionals, and patients.

PHARMACY RESIDENCIES

Cleveland Clinic residency programs provide education and training with a primary emphasis on the development of practice skills in a number of specialized pharmacy practice areas. Throughout the year, residents are involved in a variety of service, education, and research activities. During this training, residents learn to conduct patient care activities using a consistent approach that reflects the philosophy of patient-centered pharmaceutical care.

In 2016-2017, the Cleveland Clinic Pharmacy Enterprise trained 28 PGY1, seven PGY1/2, and nine PGY2 pharmacy residents within 12 distinct specialties of pharmacy practice.



CLEVELAND CLINIC HEALTH-SYSTEM 2016-2017

Residents with Corresponding Residency Program Directors (RPDs)

Cleveland Clinic Main Campus

PGY-1 PHARMACY
PRACTICE

**Sarah Adie, Jaclyn Hawn,
Christine Hwang,
Ashley Kasper, Emily Limberg,
Steven Richardson,
Marina Stepanski**
RPD: Jennifer Sekeres, PharmD,
BCPS (AQ-ID)

PGY-1 PHARMACY
PRACTICE – PEDIATRICS

Lindsey Glaze
RPD: Kay Kyllonen, PharmD,
FPPAG

PGY-1 COMMUNITY
PHARMACY

Rebekah Krupski
RPD: Amy Gustafson,
PharmD, BCACP

PGY-1/2 HEALTH-SYSTEM
PHARMACY
ADMINISTRATION

**Thomas Achey (Year 2),
Adam Heiermann (Year 1),
Ashley Ramp (Year 1)**
RPD: Scott Knoer, MS,
PharmD, FASHP

PGY-1/2
PHARMACOTHERAPY

**Jamie Eckardt (Year 2),
Kelly Gaffney (Year 1)**
RPD: Anthony Zembillas,
PharmD, BCPS

PGY-2 AMBULATORY CARE

Stephanie Yager
RPD: Giavanna Russo-Alvarez,
PharmD, BCACP

PGY-2 CARDIOLOGY

Courtney Montepara
RPD: Katie Greenlee, PharmD,
BCPS (AQ-Cardiology)

PGY-2 CRITICAL CARE

Jason Yerke
RPD: Matthew Wanek,
PharmD, BCPS, BCCCP

PGY-2 INFECTIOUS DISEASES

Nan Wang
RPD: Elizabeth Neuner,
PharmD, BCPS (AQ-ID)

PGY-2 INFORMATICS

Simon Bae
RPD: Jeffrey Chalmers, PharmD

PGY-2 ONCOLOGY

Madeline Waldron
RPD: Erika Gallagher, PharmD,
BCOP

Cleveland Clinic Akron General

PGY-1 PHARMACY
PRACTICE

**Justin Andras, Colleen
Duncan, Leah Dunnells,
Tricia Glaspell, Kevin
Krivanek, Leborah Smith**
RPD: Kathleen Donley, RPh,
MBA, FASHP

PGY-1/2 HEALTH-SYSTEM
PHARMACY ADMINISTRATION

**Evan Kuyrkendall (Year 2),
Tina Do (Year 1)**
RPD: Kathleen Donley, RPh,
MBA, FASHP

PGY-2 CRITICAL CARE

**Emily Brown,
Jennifer Jankovsky**
RPD: Jodi Dreiling, PharmD,
BCPS, BCCCP

Cleveland Clinic Florida

PGY-1 PHARMACY PRACTICE

**Andrew Beyer, Alexandra
Lobitz, Carly Duncan**
RPD: Khusbu Patel,
PharmD, MBA

Fairview Hospital

PGY-1 PHARMACY
PRACTICE

**Elisa Baddour,
Michael Czupryn**
RPD: Michael R. Hoying,
RPh, MS

Hillcrest Hospital

PGY-1 PHARMACY
PRACTICE

Matt Delisle, Kim Walker
RPD: Mary E. Temple-Cooper,
MS, PharmD, BCPS, FCCP

Lutheran Hospital

PGY-2 PSYCHIATRIC
PHARMACY

Tuan Trinh
RPD: Ashley Tewksbury,
PharmD, BCPP

Marymount Hospital

PGY-1 PHARMACY
PRACTICE

**James Moran Jr,
Samuel Boateng**
RPD: Julie Michael, PharmD,
BCPS

Medina Hospital

PGY-1 PHARMACY
PRACTICE

**Meredith Martin,
Melody Smith**
RPD: Brandon Mottice,
PharmD, BCPS

South Pointe Hospital

PGY-1 PHARMACY
PRACTICE

**Saba Mohiuddin,
Erika Mooney**
RPD: Katy Carlson, PharmD,
BCCCP

PHARMACY INTERNSHIPS

The pharmacy intern program was established to further Cleveland Clinic's mission of, "better care of the sick, investigation into their problems, and further education of those who serve." Pharmacy interns are employed throughout the health system to support the functions of the departments in which they are employed while gaining valuable practical experience. Pharmacy interns participate in medication reconciliation, patient counseling, clinical rotations and supportive technical functions. The program works to provide the knowledge and practical experiences necessary to prepare student pharmacists for residency training or a career in health-system pharmacy after graduation. Our interns have a rich history of success in obtaining post-graduate training programs of their choice. The department is proud to train the next generation of pharmacy care providers.



PHARMACISTS' CONTINUING EDUCATION

Continuing education for employees has long been a tradition of the pharmacy department. Continuing education sessions are offered year round on a wide variety of clinical, managerial and pedagogical topics. Pharmacy education conference occurs twice weekly and is open to any member of the pharmacy department. Generally, pharmacy residents provide 20 – 60 minute sessions on contemporary topics in pharmacotherapy. Additionally, the pharmacy staff is afforded the opportunity to attend various pharmacy and specialty conferences throughout the calendar year.



PHARMACY STUDENTS

The Cleveland Clinic Health System offers over 850 advance pharmacy practice experience (APPE) rotations to multiple pharmacy schools in Ohio, Pennsylvania, and Florida. There are also community and institution introductory pharmacy practice experiences offered to students. Students work alongside our pharmacists to learn operational and clinical components of pharmacy practice. They participate in activities such as dispensing medications, taking medication histories, answering drug information questions, and participating in clinical rounding.



CLEVELAND CLINIC HEALTH-SYSTEM 2016-2017 PHARMACY STUDENTS

Euclid Hospital precepted 14 APPE students. Rotations were offered in:

- Advanced Hospital Practice
- Internal Medicine

Fairview Hospital provided rotations to 88 APPE students. Rotations were offered in:

- Advanced Hospital Practice
- Cardiology
- Critical Care
- Emergency Medicine
- Internal Medicine
- Leadership
- Oncology
- Pediatrics, including Neonatal Intensive Care

Hillcrest Hospital provided rotations to 43 APPE students. Rotations were offered in:

- Advanced Hospital Practice
- Cardiology
- Critical Care
- Infectious Diseases
- Internal Medicine
- Oncology
- Pediatrics

Lutheran Hospital provided rotations to 17 APPE students. Rotations were offered in:

- Advanced Hospital Practice
- Psychiatry

Main Campus provided rotations to 270 APPE students. Rotations were offered in the following:

- Academia/Education
- Advanced Community Pharmacy
- Advanced Hospital Practice
 - Advanced Hospital Practice (Pediatrics)
- Advanced Hospital Practice (Critical Care)
- Cardiology
- Critical Care (Cardiology)
- Critical Care (Medical)
- Critical Care (Neurology)
- Critical Care (Surgical)
- Drug Information
- Emergency Medicine
- Infectious Diseases
- Informatics
- Internal Medicine
- Investigational Drugs
- Leadership
- Medication Safety
- Neurology
- NICU/Pediatric Transplant
- Oncology
- Pediatrics
- Pharmacy Outcomes Research
- Transplant

Marymount Hospital provided rotations to 52 APPE students. Rotations were offered in:

- Advanced Hospital Practice
- Critical Care
- Emergency Medicine
- Internal Medicine
- Leadership

Medina Hospital provided rotations to 29 APPE students. Rotations were offered in:

- Advanced Hospital Practice
- Emergency Medicine
- Internal Medicine

South Pointe Hospital provided rotations to 31 APPE students. Rotations were offered in:

- Advanced Hospital Practice
- Critical Care
- Internal Medicine

Cleveland Clinic Florida provided rotations to 229 APPE students. Rotations were offered in:

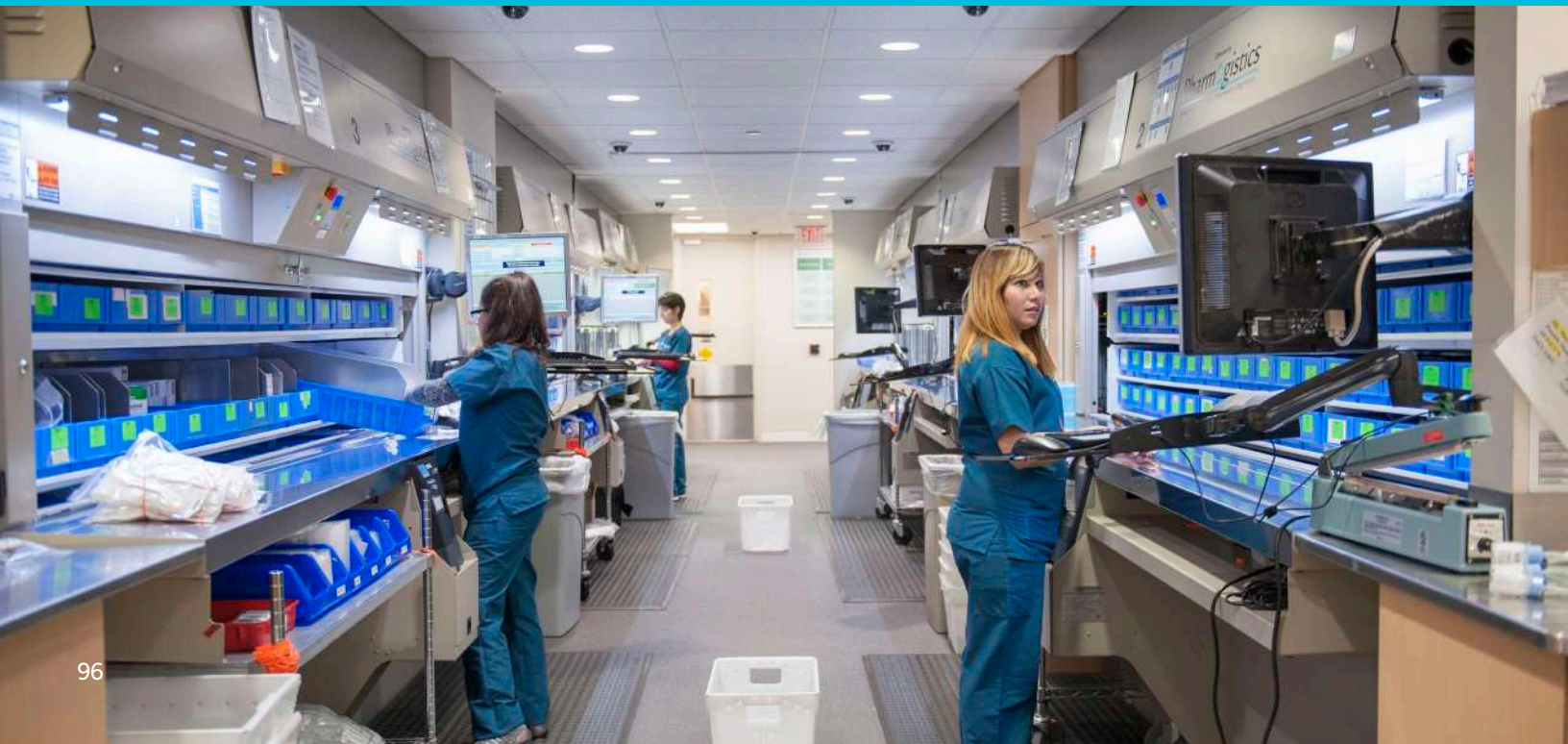
- Administration
- Critical Care
- Anticoagulation
- Internal Medicine
- Infectious Disease
- Nutrition Support
- Ambulatory Care
- Advanced Community Pharmacy
- Oncology

The Ambulatory Pharmacy Service, Home Infusion Pharmacy, and Specialty Pharmacy provided a combined 77 APPE Student Rotations across regional hospitals, outpatient pharmacies, family health centers, and other locations. Rotations were offered in:

- Anticoagulation
- Community Pharmacy
- Home Delivery
- Home Infusion
- Leadership
- Outpatient Oncology
- Primary Care

PHARMACY TECHNICIAN SCHOOL

Students at the School of Pharmacy Technology study in a state-of-the-art learning environment with instruction from some of the top industry professionals in the country. Students obtain the skills necessary to pass the Pharmacy Technician Certification Exam and work in a pharmacy. Graduates of Cleveland Clinic's School of Pharmacy Technology are well-prepared to meet the needs of an expanding pharmacy practice. Students graduating from the Cleveland Clinic School of Pharmacy Technology may be considered for employment within the Cleveland Clinic Health System.







WORLD CLASS

EMPLOYEES

HUMAN RESOURCES

Our Human Resources Team plays an integral role in supporting Pharmacy Caregivers and Leaders to provide world-class care. The team not only aids in hiring excellent caregivers but also ensures that those employees are protected and have a safe and supportive work environment.





Stephanie Peric
Human Resources
Business Partner

Stephanie Peric, Human Resources Business Partner, and Kristine Conces, Human Resources Generalist, support strategic human resources initiatives for the Pharmacy Enterprise and provide consultation for workforce planning initiatives that promote a positive work environment.

- Identified and facilitated training sessions to strengthen leadership onboarding and development including Lead Training and HR Boot Camp for new managers
- Provided coaching to leaders and teams focused on improving engagement, team effectiveness and communication
- Led the pharmacy technician engagement task force that provides leaders an opportunity to share best practices and coordinate efforts on common challenges across the Pharmacy Enterprise
- Aligned and standardized system-wide pharmacy technician job descriptions and pay practices (i.e. step structure)
- Supported the closing of Lakewood Hospital by serving as the HR point of contact for Lakewood Pharmacy to coordinate matching pharmacy caregivers with another position within Cleveland Clinic
- Assisted caregivers during the roll-out of a new HRIS platform, ONE HR Workday and Portal which provides on-demand access to human resource information



Kristine Conces
Human Resources
Generalist

Caregivers in the Office of Physician Recruitment and Talent Acquisition department provide comprehensive recruitment support to effectively deliver the best talent to the Pharmacy Enterprise, including:

- Sourced and attracted candidates through multiple recruitment media
- Prepared recruitment materials and job posting through job boards and professional organizations
- Proactively developed a pool of qualified candidates to efficiently and effectively fill open Pharmacy positions
- Conducted on-going follow-up with managers to determine the effectiveness of recruiting plans and implementation



Angela Rossi
Physician Recruiter

In 2016, Angela Rossi, Physician Recruiter, was recognized with Pharmacy's Distinguished Partner Award in appreciation and dedication of her recruitment efforts for the Cleveland Clinic Pharmacy Enterprise. A big part of our recruitment success has been the communication and general responsiveness of everyone involved in the hiring efforts. She strives to provide information and support every step of the way for both the department and the candidate. Her goal is to provide a positive and welcoming experience for the candidates interested in opportunities at Cleveland Clinic.

LEADERSHIP

The Cleveland Clinic Pharmacy Enterprise is fortunate to have a robust leadership team to support all of the department's activities. With Directors of Pharmacy at each regional hospital and also embedded in the Main Campus team there is consistent oversight of the department to ensure collaborative and distinguished care is provided to our patients regardless of where they enter the health system. The leadership team is constantly advocating on their employees behalf to ensure they have the resources and support necessary to provide the excellent patient care that the Cleveland Clinic is known for.





Health-System Directors of Pharmacy



Gus P. Karos
Grand Lobby

Main Campus Leadership

DEPARTMENT AWARD WINNERS

2016 National Hospital and Health-System Pharmacy Week

The Department of Pharmacy celebrated National Hospital and Health-System Pharmacy Week during the week of October 17. The staff enjoyed many special activities, and Pharmacy Week information was posted on the Cleveland Clinic intranet. At Main Campus, the annual Pharmacy Awards winners were announced.



Ambulatory Pharmacy

Allison Miller
The Ohio State University
Preceptor of the Year

Akron General

Chris Paxos
OSHP Health System
Pharmacist of the Year

Kathleen Donley
OSHP Residency Program
Director of the Year

Avon

**Margaret Morgenstern and
Department of Pharmacy**
Cleveland Clinic Excellence
Award, Q3 2016

Fairview

Employees created a thanking
environment through the
awarding of 1,000 Caregiver
Celebrations

Hillcrest

Nathan Wirick
Preceptor of the Year for the
Regional Hospitals

Main Campus

Britany Walls
Student Preceptor
Excellence Award

Michael Spinner
Research and Education
Award

Vasilios Athans
Residency Preceptor
Excellence Award

Mark Hamm
Department Mission Award
Support

Elizabeth Neuner
Department Mission Award
Pharmacist

Ashley Fries
Department Mission Award
Technician

Jennifer Luxenburg
Department Mission Award
Pharmacist

Gia Russo-Alvarez
Promoting the Profession
of Pharmacy Award

Stuart Deal
Ambulatory Pharmacist

Alisha Boyce
Ambulatory Technician

Marymount

Sneha Shah completed an
ASHP Critical Care Traineeship
at Texas Tech in April 2016

Marymount Pharmacy was
selected for the Ohio Society
of Health-Systems Pharmacists
(OSHP) Best Practice Award
for our innovative transition
of care programs including
bedside delivery

Matthew Hoover was selected
for the OSHP Emerging Leader
Award

**Pamela Ong & Rebecca
Taylor** completed the SoIVE
Process Improvement Program
to improve physician and
pharmacist communication
and teamwork

Medina

Christine Schmitt
Individual Caregiver Excellence
Award, Q1, 2016

South Pointe

Tyler Tomasek
Tier 4 team caregiver
celebration award. This award
was for an interdisciplinary
team including surgery nurses,
pharmacy, and support
personnel for a project to reduce
risk of infection associated with
intraocular administration of
medications in the OR.

Florida

**Lori Milicevic, PharmD,
BCPNS** was preceptor of
the year at Nova College of
Pharmacy

**Martha Espinoza, PharmD,
BCPS** was preceptor of the
year at Florida A&M College
of Pharmacy

Abu Dhabi

Antoine Cherfan
Q1, 2016 Caregivers
Excellence Awards

**Ambulatory Pharmacy
Technicians**
Q2, 2016 Caregivers
Excellence Awards

Mohammad Hisham awarded
by the Indian Society of
Toxicology, December 2016

Pictured bottom row,
left to right: Britany Walls,
Jennifer Luxenburg,
Elizabeth Neuner,
Gia Russo-Alvarez

Top row: Vasilios Athans,
Stuart Deal, Ashley Fries,
Michael Spinner

COMMUNITY SERVICE

Akron General

Chris Paxos
Volunteer Pharmacist

Timothy Brown
Judge

Timothy Brown
Emcee for Project Learn Annual
Black Tie Event

Timothy Brown
Community Volunteer

Amy Rybarczyk
Nursery Volunteer

Larry Frazee
Community Volunteer

Patrick Gallegos
EDGE Core Member

Bhavin Mistry
Advisory Board Member

Avon Hospital

Margaret Morgenstern
Rotary Club of Lakewood and
Rocky River Sunrise

**Margaret Morgenstern, Carl
Buchwald, Brian Rose**
Avon Hospital and Richard E.
Jacobs Health Center 5k/1 Mile
Run/Walk to benefit Community
Resource Services

Fairview Hospital

Anthony Kitchen
Basketball Coach

Hillcrest Hospital

Frank Rigelsky
YMCA Jr Cavs Basketball Coach

Frank Rigelsky
Baseball Coach

Frank Rigelsky
Fish Fry Volunteer

Mary Temple-Cooper
Food Collection

Mary Temple-Cooper
Publicist

Rich Levine
Lt. Governor Kwianis Division
22 Ohio District

Rich Levine
West Geauga (STEM) Science,
Technology, Engineering,
Math Fair

Lutheran Hospital

Ashley Tewksbury
Ask a Pharmacist: Mental
Health Medication Tips
presentation for the Depression
and Bipolar Wellness Alliance
(DBWA) at St. John's Medical
Center

Ashley Tewksbury
Pre-Med Health Fair

Main Campus

Brad Williams
Transplant Games of American
5K

Cari Cristiani
Cleveland Clinic Community
Health Talk: Pre-Diabetes

Karissa Kusick Dominick
CureSearch Walk

**Karissa Kusick Dominick,
Erika Gallagher, Libby Dahl,
Alison Carulli**
Light the Night Walk

Kay Kyllonen
Backpacks for Kids (Chair)

Kay Kyllonen
Meals for the Needy (Chair)

Lee Steindl

Firelands Elementary
Playground Build

Lee Steindl

Food Bank Volunteer

Main Campus Pharmacy Residents

Ronald McDonald House Meal
Preparation and Serving

**Marcia White,
Andrea Zuckerman**
Heart Camp

Nicole Palm

Men's Minority Health Fair - CV
Center Stroke Awareness Table

Rebekah Krupski
Light the Night Fundraiser

Rebekah Krupski
MedWish International Donation
Sorting

Tom Achey
Free Medical Clinic and
Outreach

Ashley Ramp
Youth Mentor

Ashley Ramp
Construction Volunteer

South Pointe Hospital

**Katy Carlson,
Hadassha Battiste**
Heart Walk

South Pointe Pharmacy
Adopt a Family for Christmas

LOCAL, STATE AND NATIONAL ORGANIZATIONS

American College of Clinical Pharmacy (ACCP)

Kathleen Faulkenberg
Member, Cardiology PRN
Membership Committee

Brittany Florczykowski
Member, Cardiology PRN
Programming Committee
Member

American Society of Blood and Marrow Transplantation (ASBMT)

Kelley Carlstrom
Member, Program Planning
Committee

Member, Membership
Committee

American Society of Health-System Pharmacists (ASHP)

Jason Milner
Member, Section of Pharmacy
Practice Managers Advisory
Group on Innovation
Management

John Petrich
Member, Section of Inpatient
Care Practitioners Education
Steering Committee

Margaret Morgenstern
Member, Section of Pharmacy
Practice Managers Advisory
Group on Small and Rural
Hospitals

Sam Calabrese
Director-at-Large, Section of
Pharmacy Practice Managers

Scott Knoer
Chair, Section of Pharmacy
Practice Managers Advisory
Group on Multi-Hospital
Health-System Executives

Thomas Achey
Member, New Practitioners
Forum Professional Practice
Advisory Group

Timothy Brown
Member, Board of Directors

Board of Pharmacy: Specialties Sterile Compounding Petition Expert Advisor Group

Angela Yaniv
Member, ASHP
Content Matter Expert

Board of Pharmacy: Specialties Sterile Compounding Role Delineation Study Taskforce

Angela Yaniv
Member

Bureau of Healthcare Facilities Accreditation

Jason Milner
Member, Board of Directors

Cleveland Society of Health-System Pharmacists (CSHP)

Amanda Hansen
Local Affiliate Chapter
Representative

Jason Milner
Secretary

Council for Ohio Health Care Advocacy (COHCA)

Mary Temple-Cooper
Member, Board of Directors
Co-Chair, Health Policy
Committee

Florida Residency Conference

William Kernan
Chair, Steeriwe

Florida Society of Health-System Pharmacists (FSHP)

William Kernan
Member, Board of Directors

Ohio College of Clinical Pharmacy (OCCP)

Andrea Pallotta
Immediate Past-President
Chair, Membership Committee

Cristal Exline
Chair, Planning Committee

Mahmoud Ammar
Chair, Planning Committee

Maya Wai
Co-Chair, Communications
Committee

Michael Spinner
Secretary – Treasurer
Pediatric Pharmacy Advocacy
Group (PPAG)

Kay Kyllonen
Chair, Special Interest Groups
Chair-Elect, Fellows Committee
Immediate-Past President

Society of Clinical Research Associates (SOCRA)

John Petrich
Past-President
Member, Certification
Committee

Society of Critical Care Medicine (SCCM)

Mahmoud Ammar
Member, Clinical Pharmacy and
Pharmacology Communications
Committee

Seth Bauer
Member-At Large, Clinical
Pharmacy and Pharmacology
Section Steering Committee

Southeast Society of Health-System Pharmacy (SESHP)

William Kernan
President

Vizient University Health System Consortium

Thomas Achey
Member, Pharmacy Practice
Advancement Committee

SERVICE ANNIVERSARIES

Celebrating 40 Years

Janet Szucs

Celebrating 35 Years

Carolyn Brazzell
Deborah Hall
Cynthia Pallini

Celebrating 30 Years

Patricia Aaron
Michael Lane
Aaron Newson
John Petrich
Beth Vencl
Linda Vukmire
Cindy Wong

Celebrating 25 Years

Ilene Austin
Sara Hines
Michelle Rush

Celebrating 20 Years

Chester Barham
Marigel Constantiner
Amy Dunlay
Angela Fortkamp
Eileen Hendrickson
Bradley Main
Elizabeth Marcinko
Christopher Roth
Kara Sink
Elizabeth Sinko

Celebrating 15 Years

Michael Adams
Jacqueline Aleandri
Sandra Axtell
Angelo Benton
Camelia Berinde
Cynthia Causey
Katherine Greenlee
Jennifer Herder
Shante Huston
Sabrina Jones
Kathryn Keaney
Amy Martin
Blair Martin
John Mellon
Cari Mitchell
Cheryl Nenadal
Adriana Panciu
Marcie Parker
Sharon Patton
Megan Rice
Susan Walko
Jeffrey Weil

Celebrating 10 Years

Teresa Abrahamowicz
Julie Barnes
Seth Bauer
Matthew Britt
Tanya Brown
Keith Buie
Vanessa Cleveland
Michael Coffey
George Cook
Michael Damore
Dasean Ewing
Monique Forte
Arnell Garner
Amy Gustafson
Kevin Michael Haynes
Robert Wayne Henninger
Elizabeth Johnson
Stephanie Kirk
Andrew Korcsmar
Debra Lewis
Nicholas Link
Susan Mackay
Shawn Martin
Marcia Meeks
Zahava Ohana
Willette Pineiro
Tracy Queener
Leira Ramirez-Ruiz
Regina Ryan
Linda Thomas
Amber Underwood

Celebrating 5 Years

Curtis Avant
Stephanie Bass
Brandon Colaluca
Kay Coy
Megan Deal
Brian Doss
Garrett Eggers
Cristina Ellis
Whitney Feith
Glenn Fernandes
Linda Gareau
Janice Goerss
Nichelle Hall
Katie Hancheck
Michele Heller
Erin Hines
Raymond Jenkins
Anthony Kitchen
Jacquelyn Loehrke
Kathleen Mackin
Stacy Major
Mary McManamon
Brianna Miller
Matthew Nagar
Amanuel Negass
Courtney Paster
Alexander Perz
Tracey Pirinelli
Cecelia Price
David Reamensnyder
George Renner
Sonya Robson
Christine Rohrer
Chelsea Roschel
Latoya Ross
Dujna Ross
Susan Seiti
Roxan Shokrollahi
Ashley Sigg
Allison Smith
Jay Strawser
Timothy Weaver
Amanda Whitmore
Jessica Zebrowski
Anthony Zembillas

NEW HIRES

Avon Hospital

Leann Carr
Kevin Omerza
Cristina Raducanu

Center For Connected Care

Shyann Brooks
Dayna Dukles
Jonathan Knight
Erick Cabrera

Cleveland Clinic Florida

Cassandra Cacioppo
Daisy Cano
Anna Pozdnyakova

Euclid Hospital

Heba Abuzahieh
Sharonda Dotson
Alexis Luckey
Pratik Patel
Shavaunte Taylor

Fairview Hospital

William Barbour
Kaitlin Gerski
Schuyler Kibler
Asha Lopez
Kristin Martinez
Matthew Martinsek
Alexa Petrarca
Hooshang Sheikhi

Hillcrest Hospital

Charles Baldwin
Jennifer Dudley
Anna Fedoros
Derrick Grant
John Hromulak
Julia Kuroski
Tamika Tucker
Tyshana Valentine
Thomas Kahle

Lutheran Hospital

Lyudmyla Lutsik

Main Campus

Amy Altomare
John Beba
Elizabeth Belcher
Jessica Biedny
Monika Brodman
Myresha Buckingham
Ashley Byrne
Cintia Cabrera
Violefel Cruz
Ashley Czaplicki
Krystyna Czarniecki
Asia Davis
Latina Dillard
Ilham Douma
Maria Duarte
Julia Farber
Lina Farchoukh
Nataly Galvez
Bonnie Gedeon
Christopher Gilmore
Jeanette Glinski
Kacie Golden
David Goll
Lance Gomez
Mollie Gowan
Andrea Hernandez
Kayla Hetrick
Rachel Hipp
Benjamin Hohlfelder
Ashley Hoover
Jessica Hoover
Ariel House
Diana Isaacs
Bianka Jarvis
Christal Johnson
Morgan Jones
Erin Koepf
Sarah Krebs
Sanela Lekic
Sheena Lofton
Navjot Mahal
Callie Maynard
Joseph Mccartney
Jillian Mccarty
Ashley Mcclure
Loreale Mcknight
Jonathan Meli
Brian Miller
James Montgomery
Manar Nemeh
Blossom Parkinson
Steven Petrolewicz
Bridgette Pettit
Erin Powell
Katelyn Powell
Paige Procter

Laura Randel
Ana Rasic
Rebecca Rimback
Gennie Rodriguez
Amanda Rose
Jo Ruby
Crystal Sau
Michael Serra
Britney Smith
Zippora Smith
Joanne Smith
Alyssa Sneed
Taylor Soha
Pavithra Srinivas
Michael Stanton
Romelda Stone
Traci Susong
Sarah Sweet
Desiree Torres
Alisa Tucker
Nakeitha Washington
Jessica Wesolek
Jill Wesolowski
Brigid Whelan
Deyandra Williams
Lauren Wolfe
Dijana Zivic

Marymount Hospital

Jessica Brennan
Jessica Chan
Jean Chandler
Leslie Fardink
Arnetta Garner-Nettles
Lauren Kohley

Medina Hospital

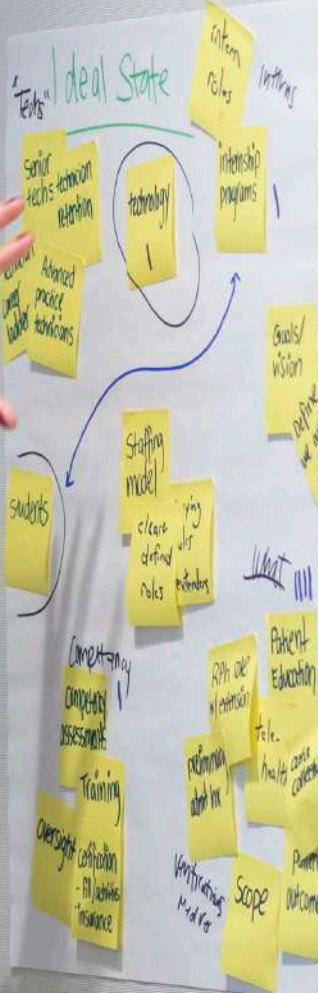
Eric Phillips

South Pointe Hospital

Alexandra Brant
Jiejing Zhang



Coastal Clinic
Allison Eck
Executive Director
404 394 1111



quality metrics
offline hours
balanced
preparation
service
layered learning

PUBLICATIONS, PRESENTATIONS AND POSTERS

Publications

BOOK CHAPTERS

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PLATFORM PRESENTATIONS

Achey TS, Maroyka E. Practice Advancement: Maximize your Role in Patient Care. Presentation at the American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Achey TS. Development of an Interdisciplinary Drug Diversion Response Team. Pearl presentation as component of the Management Pearls educational session at the American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Achey TS. Moving Beyond the Template: Transforming your CV as a New Practitioner. Recorded webinar as component of ASHP New Practitioners Forum Resources series; February 2016: Bethesda, MD.

Achey TS. Pharmacist-managed Refill Authorizations. Pearl presentation as component of the Pharmacy Innovation Exchange session at the Pharmacy Administration Resident Exchange. August 2016: Cleveland, OH.

Achey TS. Practices in Action: Your Student is Doing What!?! 77th Ohio Society of Health-System Pharmacists Annual Meeting; April 2016: Columbus, OH.

Achey TS. Pre-exposure prophylaxis in HIV. Pearl presentation as component of the Clinical Pearls for Students session at the American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Achey TS. The Paradigm Shift for Pharmacy Students: a Health-System Approach. Recorded live webinar for Vizient Academic Medical Center Pharmacy Network Continuing Education series; May 2016: Irving, TX.

Bauer SR. Hepatic Failure/GI/Endocrine Emergencies. Presented as part of the American College of Clinical Pharmacy / Society of Critical Care Medicine Critical Care Pharmacy Preparatory Review and Recertification Course, Orlando, FL.

Bauer SR. Shock Syndromes and Sepsis. Presented as part of the American College of Clinical Pharmacy / Society of Critical Care Medicine Critical Care Pharmacy Preparatory Review and Recertification Course, Orlando, FL.

Bauer SR. Training Models for Critical Care Pharmacy in 2020. Presented as part of the Clinical Pharmacy and Pharmacology Section Pre-Congress Update at the Society of Critical Care Medicine's 45th Critical Care Congress, Orlando, FL.

Boss J Medication use in the older adult. Advanced Practice Professional Conference, Cleveland Clinic Akron General. September 2016.

Brown T Moderator for LGBTQ Issues in Healthcare. Sponsored by Northeast Ohio Medical University. November 2016.

Brown T New Drugs of 2015. Presented to Physicians. Sponsored by 9th District DO Conference. October 2016.

Brown T Pharmacologic Intervention for Weight Loss. Presented to Physicians. Sponsored by American Academy of Family Physicians. June 2016.

Brown T Pharmacologic Intervention for Weight Loss. Presented to Physicians. Sponsored by 9th District DO conference. October 2016.

Calabrese S. Build for success: Trying to avoid repeating history with major technology implementation errors. Presentation at the American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Calabrese S. Elevator Pitch: Small message big impact. Presented at The Society of Hospital Pharmacists of Australia Annual Meeting. Perth, Australia. November 2016.

Calabrese S. Population Health Management, Data and Technology. Presented at The Health Systems Leadership Summit. Ohio Northern University, Ada, OH. February 2016.

Calabrese S. Team Dynamics: Navigating Transitions, Engagement and Conversations for Managers. Presented at The Society of Hospital Pharmacists of Australia Leadership Boot camp. Perth, Australia. November 2016.

Calabrese S. Using Structural Tension to Have Impactful Discussions. Presented at Pharmacy Administrative Resident Exchange. Cleveland, OH. August 2016.

Fraze L Update on biostatistics: non-inferiority trial design. Student College of Clinical Pharmacy, NEOMED. January 2016.

Fraze L Update on non-vitamin K oral anticoagulants. Advanced Practice Professional Conference, Cleveland Clinic Akron General. September 2016.

Gallegos PJ Case Based Teaching "Take not the easy Path", Yoda, Star Wars Jedi. Fellowship in Academic Medicine: Teaching Track. Medicine and Pharmacy Fellows. Rootstown, OH, February 2016.

Hansen A. Innovative Critical Care Practice Model. OSHP Annual Meeting. Columbus, OH. April 2016.

Hansen A. What to Expect in Your First 90 Days and How to Prepare. Vizient Webinar. June 2016.

Hohlfelder B. Development of a Predictive Nomogram for the Change in PT/INR Upon Discontinuation of Bivalirudin as a Bridge to Warfarin. SCCM Congress 2016, Orlando, FL.

Isaacs D. Beyond Metformin: A Practical Guide to Drug Selection in Older Patients with Type 2 Diabetes. American Society of Consultant Pharmacists Annual Meeting, November, 2016.

Isaacs D. Beyond the Pillbox: Improving Medication Adherence and Health Outcomes. American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Isaacs D. Obesity in the Elderly: To Treat or Not to Treat? ASCP Annual Meeting, November 2016.

Jakubecz M. Using Your Entire Pharmacy Staff to Facilitate Change in Departmental Operations. OSHP Annual Meeting Columbus, OH. April 2016.

Knoer S. Development of Key Performance Indicators and Leveraging Technology for Population Health Management. American Society of Health System Pharmacists Leadership Conference. Chicago, IL, October 2016.

Knoer S. Drug Price Increases: Reasons and Solutions. Presented at the Vizient Annual Meeting. Dallas, TX. September 2016.

Knoer S. Implementing HB188 in a Health-System. Presented at the Cleveland Society of Health-System Pharmacists Meeting, Cleveland, OH, March, 2016.

- Knoer S.** Leadership as a Professional Journey. Presented at the 1st Abu Dhabi Pharmacy Conference. Abu Dhabi, United Arab Emirates, February, 2016.
- Knoer S.** Leadership as a Professional Journey. Presented at The Florida Pharmacy Residency Conference. Tampa, FL. May 2016.
- Knoer S.** Leadership Communication for the New Healthcare Environment. American Society of Health System Pharmacists Leadership Conference. Chicago, IL, October 2016.
- Knoer S.** Operationalizing the Ohio Pharmacy Collaboration Act. Presented at the Ohio Pharmacist Association Annual Meeting. Columbus, OH, April, 2016.
- Knoer S.** Pharmacy Forecast. Presentation and panel discussion. American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.
- Knoer S.** Risky Business: The Pharmacist's Role in Population Health Management. Presentation at the American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.
- Knoer S.** Specialty Pharmacy: A Key to Organizational Success in Population Health Management. Presented at Becker's CEO / CFO Roundtable. Chicago, IL, November, 2016.
- Knoer S.** The Rising Cost of Drugs: Impact and Implication. Speaker and panelist at the American Hospital Association (AHA) Annual Meeting, Washington, D.C., May 3, 2016.
- Kyllonen K.** Roll Up Your Sleeve- This Won't Hurt A Bit- A Vaccine Update. CC APN Conference, Summer 2016.
- Kyllonen K.** Bugs and Drugs presented to Cleveland Clinic APNs Spring 2016.
- Kyllonen K.** The Road to Happiness is Paved with Good Intestines- Pharmacology for Common GI Disorders. Cleveland Clinic APN Conference.
- Kyllonen K.** Use of Gabapentin in the NICU. PPAG Annual Meeting, April 2016.
- Lam SW.** ACCP / SCCM Critical Care Pharmacy Preparatory Review and Recertification Course. Infectious Diseases II. Society of Critical Care Medicine Annual Congress. February 2016.
- Lam SW.** Critical Care PRN Focus Session -- We're Bringing Sepsis Back: Update in Policy and Practice Measures to Improve Sepsis Outcomes. Early Goal Directed Therapy: Where are We Now? ACCP Annual Meeting. October 2016.
- Lam SW.** ESBL and KPC and MDRs! Oh My! Contemporary Forums: Advanced Critical Care and Emergency Nursing. November 2016.
- Lam SW.** Every Patient Has a Story: Individualizing the Management of Invasive Fungal Infections in the Critical Care Setting: Identifying and Overcoming Diagnostic Challenges. Society of Critical Care Medicine Annual Congress. February 2016.
- Lam SW.** Management of the Acute Care Surgical Patient. When to Stop the Antibiotics: The Feces are Everywhere. Society of Critical Care Medicine Annual Congress. February 2016.
- Lam SW.** Pharmacologic Management of Severe Sepsis and Septic Shock. Contemporary Forums: Advanced Critical Care and Emergency Nursing. November 2016.
- Leonard M.** 'Biosimilars: Clinical and Formulary Considerations and Implementation 'A CE-accredited session presented to physicians and pharmacists at the Florida Society of Clinical Oncology Fall Meeting, Orlando, FL, November 2016.
- Leonard M.** Formulary Hot Topics. Ohio Society of Health-System Pharmacists Annual Meeting, Columbus, OH. April 2016.
- Leonard M.** 'What You Need to Know: Blood Factors for Hemophilia 'An ACPE-accredited seminar presented to pharmacists and pharmacy technicians at the Ohio Society of Health-System Pharmacists Annual Meeting, Columbus, OH. April 2016.
- Milner J.** Developing Your Staff into Tomorrow's Leaders. OSHP Annual Meeting, April 2016.
- Milner J.** Fun Ways to Get Your Pharmacy Team Involved in Community Outreach. OSHP Annual Meeting, April 2016.
- Mistry BK.** Antibiotics in an era of antimicrobial resistance. Advanced Practice Professional Conference, Cleveland Clinic Akron General. September 2016.
- Mistry BK.** Bugs n' Drugs. 5th Annual APRN Pharmacology Workshop, Summa Health System, Akron, OH. March 2016.
- Mistry BK.** Welcome to the wonderful world of VIRUSES!!! Advance Practice Nurse Symposia, Cleveland, OH. May 2016.
- Pallotta A.** Updates in Adult Immunization Recommendations. OSHP Annual Meeting, April 2016.
- Palm N.** Pharmacologic Stress Ulcer Prophylaxis May Not be Necessary in ICU Patients Tolerating Enteral Nutrition. Academic Surgical Congress, February 2016.
- Paxos C.** Surveying the dementia pharmacotherapy landscape. Advanced Practice Professional Conference, Cleveland Clinic Akron General. September 2016.
- Paxos C.** Psychiatric pharmacology: antidepressants, antipsychotics, and sedative/hypnotics. University of Akron College of Nursing. Akron, OH. December 2016.
- Paxos C.** Psychopharmacology: primary care refresher. Ohio Association of Advanced Practice Nurses - Cleveland Chapter. Warrensville Heights, OH. September 2016.
- Paxos C.** Surveying the dementia pharmacotherapy landscape. Advanced Practice Provider Symposium. Akron, OH. September 2016.
- Paxos C.** Mental health pharmacy 101. NEOMED - Pathways to Pharmacy. Rootstown, OH. July 2016.
- Paxos C.** Pharmacists: the medication experts. Trumbull Career and Technical Center. Warren, OH. April 2016.
- Petrich J.** Investigational Drug Service Orientation, Quarterly presentation - Orientation for Cleveland Clinic Employees New to Research. March, June, September and December 2016.
- Petrich J.** Presenting Clinical Research Evidence, Society of Clinical Research Associates Annual Meeting, Montreal Canada, September 28, 2016.
- Petrich J.** Investigational Drugs in the ICU, Four Things We Need to Get Right. American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Ramp A, Hiznay A. A whole new world: The transition from student to resident. OSHP Annual Meeting 2016.

Rivard K. Treatment options for Carbapenem-Resistant Enterobacteriaceae bloodstream infections. OSHP Annual Meeting 2016.

Rivard KR, Athans V, Lam SW, Gordon SM, Procop G, Richter SS, Neuner EA. Impact of antimicrobial stewardship and rapid microarray testing on patients with gram-negative bacteremia. ID Week 2016. New Orleans, LA. Oral Abstract Presentation #76.

Vogan E. Data Warehousing for Robust Medication Reporting and Analytics Capabilities. Vizient AMC Pharmacy Network Meeting.

Wanek MR, Persaud R, Bauer SR, Udeh CI, Nowacki SA, Gillinov M. Impact of Intravenous Acetaminophen in Cardiothoracic Surgery Patients. Research Snapshot Presentation at Society of Critical Care Medicine 44th Critical Care Congress; Orlando, FL. February 2016.

Willner MA, Chalmers J. Medication Decision Support Using Renal Function Contexts. Presented at 2016 Epic User Group Meeting, Verona, WI. September 21, 2016.

Yaniv A, Gustafson CM. Hazardous Drug Handling Safety: United States Pharmacopeia Chapter <800>. Presented at Vizient University Health System Consortium Pharmacy Network Meeting, Dallas, TX; September 28, 2016.

Zabriskie D. Anticoagulation: Newest Recommendations. Ohio Chapter American College of Cardiology, Spring Summit, Cleveland Ohio, April 13, 2016.

Zabriskie D. Drug Therapy for Diabetes at Ohio Association of Physician Assistants Spring Pharmacology Seminar April 16, 2016.

POSTER PRESENTATIONS

Achey TS, Rose R, Eck A, Earl M. Developing an operational productivity tool within an academic cancer treatment center. Poster presentation at the 51st ASHP Midyear Clinical Meeting and Exhibition; December 2016: Las Vegas, NV.

Andras J, Boss JL, McMullen N, Paxos C, Imani J. Assessment of select components of CMS core measure compliance in patients with malignancy and neutropenic sepsis. American Society of Health-System Pharmacists Midyear Clinical Meeting. Las Vegas, NV. December 2016.

Athans V, Neuner EA, Pallotta A, Chalmers J, Vogan E, Jiang X, Fraser TG, Gordon S. Internally-developed antimicrobial use benchmarking at a large academic medical center and integrated health system. (Poster #975). ID Week Conference. New Orleans, LA. October 2016.

Brown E, Fowler M, Dreiling J. Interventions and Cost Savings Associated with Pharmacy Resident Rounding on Weekends in a Medical Intensive Care Unit. American Society of Health-System Pharmacists Midyear Meeting. December 2016.

Carlstrom KD, Sobecks R, Lang DM, Gerds A, Serafino S, Curtis J, Bernhard L, Majhail NS. Value based project to evaluate the incidence and management of antibiotic allergies in hematopoietic cell transplantation recipients. Poster presented at Blood and Marrow Transplantation Tandem Meeting (749), Honolulu, HI. February 18-22, 2016.

Cole L, Garlock J, Cucci, M. Evaluating the empiric treatment of suspected sexually transmitted disease and the utilization of antibiotics. American Society of Health-System Pharmacists Midyear Clinical Meeting. Las Vegas, NV. December 2016.

Curtis J, Bernhard L, **Carlstrom KD**, Gerds A, Hudson V, McLellan L, Serafino S, Sobecks R, Majhail NS. A process for identifying and implementing BMT value-based care initiatives: Cleveland Clinic experience. Poster presented Blood and Marrow Transplantation Tandem Meeting (651), Honolulu, HI. February 18-22, 2016.

Dahl D, Cheng C, Carlstrom KD, Lam SW, Greenlee K, Majhail N. Evaluation of cryotherapy with high dose melphalan and autologous stem cell transplantation [Abstract]. Programs and abstracts of HOPA 2016 Annual Conference.

Dunnells L, Mistry B, Frazee L. The impact of offering a urinalysis with reflex culture on antibiotic usage. American Society of Health-System Pharmacists Midyear Clinical Meeting. Las Vegas, NV. December 2016.

Faulkenberg KD, Williams JB, Militello MA, Perez AL, Starling RC, Tang WH. 'Preliminary Observations of the Initiation and Tolerability of Sacubitril/Valsartan in Hospitalized Patients with Chronic Heart Failure.' [Abstract No. 89] J Card Failure 2016; 22: S34.

Faulkenberg KM, Williams JB, Militello M, Perez AL, Staring RC, Tang WH. Preliminary Observations of the Initiation and Tolerability of Sacubitril/Valsartan in Hospitalized Patients with Chronic Heart Failure. Poster presented at: HFSA Annual Meeting; September 2016; Kissimmee, FL.

Garasimchuk I, Paulic N, **Gallegos PJ**, Soric M. "Pharmacist's knowledge and awareness of the current and new consult agreement laws in Ohio" ACCP annual meeting poster presentation. Hollywood, FL. October 2016.

Glaspell T, Boros ML, Frazee LA, Brown T, Moorman JM, Laktash A Potential for pharmacist intervention in the management of medication regimens in bariatric surgery patients American Society of Health-System Pharmacists Midyear Clinical Meeting. Las Vegas, NV. December 2016.

Hacker C, Deal JS, Achey TS. Standardization of a medication reconciliation workflow in an adherence packaging home delivery program.

Hansen K, Temple-Cooper M, Saker F. Comparative Safety of High Dose Clonidine vs. morphine for NAS. Pediatric Academic Society, Baltimore, MD. May 2016.

Jankovsky J, Dreiling J, Fowler M. Incidence of potassium abnormalities during cooling, maintenance, and rewarming phases of therapeutic hypothermia in patients after return of spontaneous circulation. American Society of Health-System Pharmacists Midyear Meeting. December 2016.

Jankovsky J, Zimmerman J, Garlock J. Evaluation of Atropine Efficacy for Bradycardia in the Emergency Department. Ohio College of Clinical Pharmacy Spring Meeting. Rootstown, OH. May 2016.

Kramer EB, Achey TS, Leonard MC. Evaluation of plasma-derived C1 esterase inhibitor use and patient outcomes throughout an academic health system. American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Krivanek K, Rybarczyk A, Reissig J, Gallegos P. The clinical and economic impact of extended versus intermittent-infusion piperacillin-tazobactam for selected gram-negative infections at a community medical center. American Society of Health-System Pharmacists Midyear Clinical Meeting. Las Vegas, NV. December 2016.

Legros E, Garlock J, Cucci M, Rybarczyk A. Patient characteristics associated with avoidance of hospital admission in adults receiving intravenous magnesium sulfate for an asthma exacerbation in the emergency department. Ohio College of Clinical Pharmacy Spring Meeting. Rootstown, OH. May 2016.

Link NA, Clark BA, Earl M. Development of a novel oxaliplatin desensitization protocol with smart pump compatibility. American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Loutzenheiser S, Rybarczyk A, Fowler M. Retrospective cohort analysis of patients prescribed statin therapy with or without diagnosis of hepatitis C after myocardial infarction, ischemic stroke, or transient ischemic attack. Ohio College of Clinical Pharmacy Spring Meeting, Rootstown, OH. May 2016.

Pallotta A, Miranda C, Teixeira L. Evaluation of directly observed therapy with three months of once-weekly isoniazid and rifapentine for latent tuberculosis infection at an outpatient infectious diseases clinic in an academic medical center. [Abstract 198133] Presented at the American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Pallotta A, Neuner E, Athans V, Chalmers J, Vogan E, Jiang X, Wesolowski J, Fraser T, Gordon S. Internally-Developed Antifungal Use Benchmarking at a Large Academic Medical Center and Integrated Health System. [Abstract 198176] Presented at the American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Palm N, Floroff C, Hassig T et al. Low-dose Ketamine Infusion for Adjunct Management during Vaso-Occlusive Episodes in Adults with Sickle-Cell Disease: a Case Series. Poster. American College of Clinical Pharmacy Annual Meeting Scientific Poster Session. October 2016.

Paxos C, Dugan SE, Spalding J, Munetz MR. An interdisciplinary case conference focused on integrated care of patients with severe and persistent mental illness. College of Psychiatric and Neurologic Pharmacists Annual Meeting. Colorado Springs, CO. April 2016.

Raich M, Rigelsky F. Rebound elevation of INR 48 hours after administration of prothrombin complex concentrate: a case report. American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Rigelsky F. Evaluation of a Comprehensive Pharmacist Education. American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Rivard KR, Neuner EA, Athans V, Pallotta A, Bauer S, Bass S, Cober E. Early experience with ceftazidime/avibactam at an academic medical center and affiliated health system. ID Week 2016. New Orleans, LA. Poster #2046.

Roman D, Mistry BK, Reissig J. Assessment of antibiotic prescribing practices in patients with penicillin allergy at a community teaching hospital. Ohio College of Clinical Pharmacy Spring Meeting. Rootstown, OH. May 2016.

Sikkenga T, **Rivard K,** Brandt K, Draper H, Axford K, Egwuatu N, Whalen D, Dumkow L. Point of care testing for chlamydia and gonorrhea with audit and feedback in the Emergency Department. ID Week 2016. New Orleans, LA.

Smith M, Poole M, Pallotta A. Evaluation of an electrolyte replacement protocol in critically ill patients at a community hospital. American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Tomasek T, Lewis D, Milner J. Outcomes of a prescription Bedside Delivery Program on Hospital Readmission in a Community Teaching Hospital at American Society of Health System Pharmacists 51st Midyear Clinical Meeting, December 2016.

Townley C, McMullen N, Porter C. Comparison of grade IV neutropenia with pegfilgrastim administered by two delivery methods: on-body injector and manual injection with a prefilled syringe. Ohio College of Clinical Pharmacy Spring Meeting. Rootstown, OH. May 2016.

Vicarel LA, Boros ML, Frazee LA. Peri-procedural international normalized ratio (INR) control in patients receiving continuous warfarin therapy for catheter ablation of atrial fibrillation Ohio College of Clinical Pharmacy Spring Meeting. Rootstown, OH. May 2016.

Wilaj C, Zimmerman J, Benedetti A, Ambroziak, R. A comparison of total cumulative doses of intranasal versus intravenous naloxone in patients with opioid overdose. American Society of Health-System Pharmacists Midyear Clinical Meeting. Las Vegas, NV. December 2016.

Wilkosv S, Poole M, Vo K. Comparison of piperacillin/tazobactam de-escalation after implementation of a pharmacist-driven antimicrobial stewardship program in a community hospital. Akron Area Society of Health-System Pharmacists Jurisprudence Meeting and Poster Session; Nov 2016; Rootstown, OH.

Zhou K, Williams M, Esquivel MA, Song A, Rahman F, Bena J, **Lam SW,** Rathz D, Lansang MC Insulin Doses and Glycemic Control during Transition from Intravenous to Subcutaneous Insulin in the Medical ICU [Abstract]. Program and abstracts of the 2016 International Congress of Endocrinology. Poster presentation. ICE / ENDO 2016, June 2016.

DIDACTIC LECTURES

Carlstrom K. Pharmacology of Antineoplastic Agents for Lymphomas, Plasma Cell Dyscrasia, and blood and marrow transplantation. Cleveland Clinic Lerner College of Medicine of Case Western University Guest Lecture.

Faulkenberg K. Pharmacotherapy in Chronic Heart Failure. Cleveland Clinic Lerner College of Medicine of Case Western University Guest Lecture.

Kyllonen K, Sellas M. Pediatric Pharmacokinetics and Pharmacodynamics. Cleveland Clinic Lerner College of Medicine of Case Western University Standing Lecture.

Lam SW. Pharmacology of Vascular and Pulmonary Vasodilators. Cleveland Clinic Lerner College of Medicine of Case Western University Standing Lecture.

Leonard M. Drug Metabolism, Interactions, and Pharmacogenomics 'A CE-accredited seminar presented to physicians, nurses, and pharmacists at Cleveland Clinic Children's Hospital for Rehabilitation, Cleveland, OH, January 2016.

Link, NA. Pharmacology. The Breen School of Nursing at Ursuline College. 2016.

Martin CY, **Achey TS.** Advocating for the Profession. Presentation to Student Society of Health-System Pharmacy members at Northeast Ohio Medical University College of Pharmacy; November 2016; Rootstown, OH.

Perez AL, Albert NM, Gorodeski EZ, Tang WH, **Williams JB.** Advances in Heart Failure Pharmacotherapy. Presented at: Heart and Vascular Institute Tall Rounds; November 2016; Cleveland Clinic Foundation.

Yaniv A. Advanced Sterile Product Preparation Training and Certificate Program. American Society of Health System Pharmacists. Released November 7, 2016.

Yaniv A. Sterile Product Preparation Training and Certificate Program. American Society of Health System Pharmacists. Released May 16, 2016.

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Chief Pharmacy Officer
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