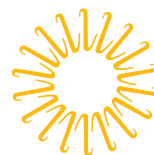
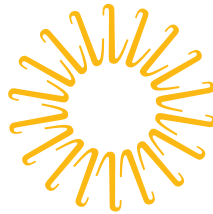




**PHARMACY SERVICE LINE
ANNUAL REPORT 2021**



Lifespan
Delivering health with care.®



Lifespan Pharmacy

Delivering health with care.®

**PHARMACY SERVICE LINE
ANNUAL REPORT **2021****

TABLE OF CONTENTS

Message from Chief Pharmacy Officer	1
Message from Chief Clinical Officer	3
Department Overview	4
Organizational Chart	5
Pharmacy Leadership Team	6
Inpatient Pharmacy	7
Rhode Island Hospital	9
The Miriam Hospital	9
Newport Hospital	10
Bradley Hospital	10
Clinical Pharmacy Care Services	11
Investigational Drug Services	14
Information Technology	17
Lifespan Ambulatory Care Pharmacy Network	19
Retail Pharmacy Services	19
Specialty Pharmacy Services	20
Ambulatory Care Clinical Pharmacy Services	21
Pharmacy Transitions of Care	23
Pharmacy Business Operations	24
Medication Safety	26
Research	28
Academic Programs	34
Residency Programs	35
Post-Graduate Year 1 (PGY1) Pharmacy Residency Program	35
Post-Graduate Year 2 (PGY2) Ambulatory Care Pharmacy Residency Program	36
Post-Graduate Year 1/2 (PGY1/PGY2) Health-System Pharmacy Administration and Leadership Pharmacy Residency Program	38
Post-Graduate Year 2 (PGY2) Oncology Pharmacy Residency Program	38
Preceptor Awards	39
Awards and Appointments	40
Certifications and Advanced Degrees	41



Message from Chief Pharmacy Officer

CHRISTINE M. COLLINS, MBA, RPH

VICE PRESIDENT AND CHIEF PHARMACY OFFICER, LIFESPAN

When gathering the data, information, and materials for our Pharmacy Service Line Annual Report FY 2021, the COVID-19 pandemic remained prominently in focus. But it was not the center of the picture. That was reserved for the Lifespan pharmacy team members. It is a pleasure and an honor to be part of such a high performing team. This report provides details of hours toiled, challenges faced, and achievements attained. I encourage you to take the time to review the stellar results.

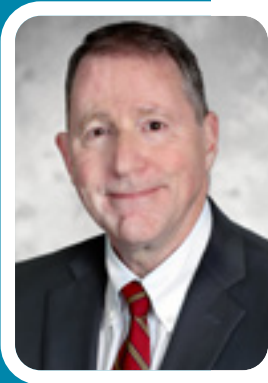
From my perspective, and as my colleagues at other academic medical centers have implied, we have one of the best pharmacy teams in the country. Our pharmacy leaders and team performed at the highest level despite the most demanding of times. Their caring, dedication, and positive outlook prevailed as we entered another year of what has become our new normal. What they accomplished collectively, even had it been the best of times, is incredible. Among the highlights:

- Our hospital-based **clinical pharmacists, residents, technicians, and students** not only ensured medications were safe and available for our patients; they rolled out medication history and reconciliation, which significantly enhanced patient safety, provider workflow, and satisfaction.
- Our **sterile compounding team** completed the conversion to the new USP 797/800 compounding facilities, adjusting to the new workflows, processes, and even inefficiencies that inherently accompany this heavy lift. Throughout, they ensured safe operations in this highly vulnerable area.
- Who builds three new retail and specialty pharmacies during a pandemic? Lifespan Pharmacy. Actually, it was five in 18 months. The results of the collaborative effort between the **retail and specialty pharmacy, pharmacy project management and pharmacy IT/informatics teams** realized exponential financial growth and exceeded budget projections.
- The **supply chain team** purchased and distributed more than \$250 million in drugs while managing pandemic-related supply needs and drug shortages, and joined the Northeast Purchasing Coalition (NPC), which will require additional support from the **formulary management team and clinical pharmacist specialists** but will generate great savings.
- Our **ambulatory care clinical pharmacy services** converted to telemedicine and remote work, and expanded the medication access program, consistently providing safe and comfortable services for our patients while maintaining an excellent level of care.
- We were one of the first pharmacy departments in the country to have a dedicated pharmacy IT team with data scientists and analytical/systems specialists. Their work on machine learning helped us earn the coveted ASHP (American Society of Health-System Pharmacists) Best Practices Award in December 2020 for controlled substances diversion prevention through prescribing monitoring.

- The **automation dispensing team** managed the challenges to ensure the same medication safeguards at Lifespan's Alternate Care Hospital as at all Lifespan affiliates.
- That Lifespan was the leading enroller of remdesivir studies worldwide is due to the support of the **pharmacy investigational drug services team**. We're still supporting these efforts for innovative Covid-19 treatments with patients from as far away as North Carolina seeking access to our clinical drug trials for COVID-19.
- The **YourVoice** results for the pharmacy team were quite good, and even very strong in several areas. Overall, we had a strong level of engagement, contentment, positiveness across our service line, and a great culture. Our work in this direction will continue.
- The accomplishments of our **business operations team** surpassed expectations. During the fiscal year, they supported what became a \$100 million retail business, in addition to our **340B team's progress towards reaching** a very aggressive revenue target for contract pharmacies.

These highlights are parallel with the ongoing work we're doing on business continuity, strategic planning, residency expansion, shared governance, supply chain 2.0, and anticoagulation stewardship. We remain focused on the future, developing a plan for the upcoming year that will include an aggressive recruitment component, a consolidated pharmacy service center and automation that will help us decompress the hospital pharmacy, and expand automation at all affiliates.

I'm excited about what we have planned for the year ahead and the opportunity to continue working with you all. Thank you for the focus and commitment that is at the center of Lifespan Pharmacy Services.



Message from Chief Clinical Officer

KEN WOOD, DO

EXECUTIVE VICE PRESIDENT AND CHIEF CLINICAL OFFICER
FOR LIFESPAN

The fortitude of Lifespan Pharmacy Services during the past year has been remarkable. Their contributions helped fuel Lifespan's mission of *Delivering health with care* during an unparalleled time in global healthcare.

When I joined Lifespan in June 2020, all cylinders had been launched to take on the fury of the pandemic. In addition, I assumed the role of incident commander for our coronavirus response team, relying upon team members across Lifespan. This included the pharmacy team, which consistently exhibited the skills, professionalism, camaraderie, and determination to ensure high performance and high-quality care in alignment with our CARE Values – Compassion, Accountability, Respect, Excellence. Throughout the unpredictable, their momentum was unwavering, even with the additional needs for monoclonal antibodies infusion centers, an alternate care hospital pharmacy, and our community vaccination clinics.

The performance of the pharmacy team, and the results they have all achieved, are to be commended. Also appreciated is the ongoing energy and drive of the pharmacy's leadership, which has motivated and retained your valuable team members and resulted in this success.

I am looking forward to continuing to work with Lifespan's Pharmacy Services team to develop programs, and enhance performance and quality care overall, as we work towards the goals of Lifespan's CREATE 2025 vision.

DEPARTMENT OVERVIEW

Mission:

To provide medication management for Lifespan's community to ensure care is safe, effective, efficient, timely, accessible, preventative, and affordable throughout the continuum.

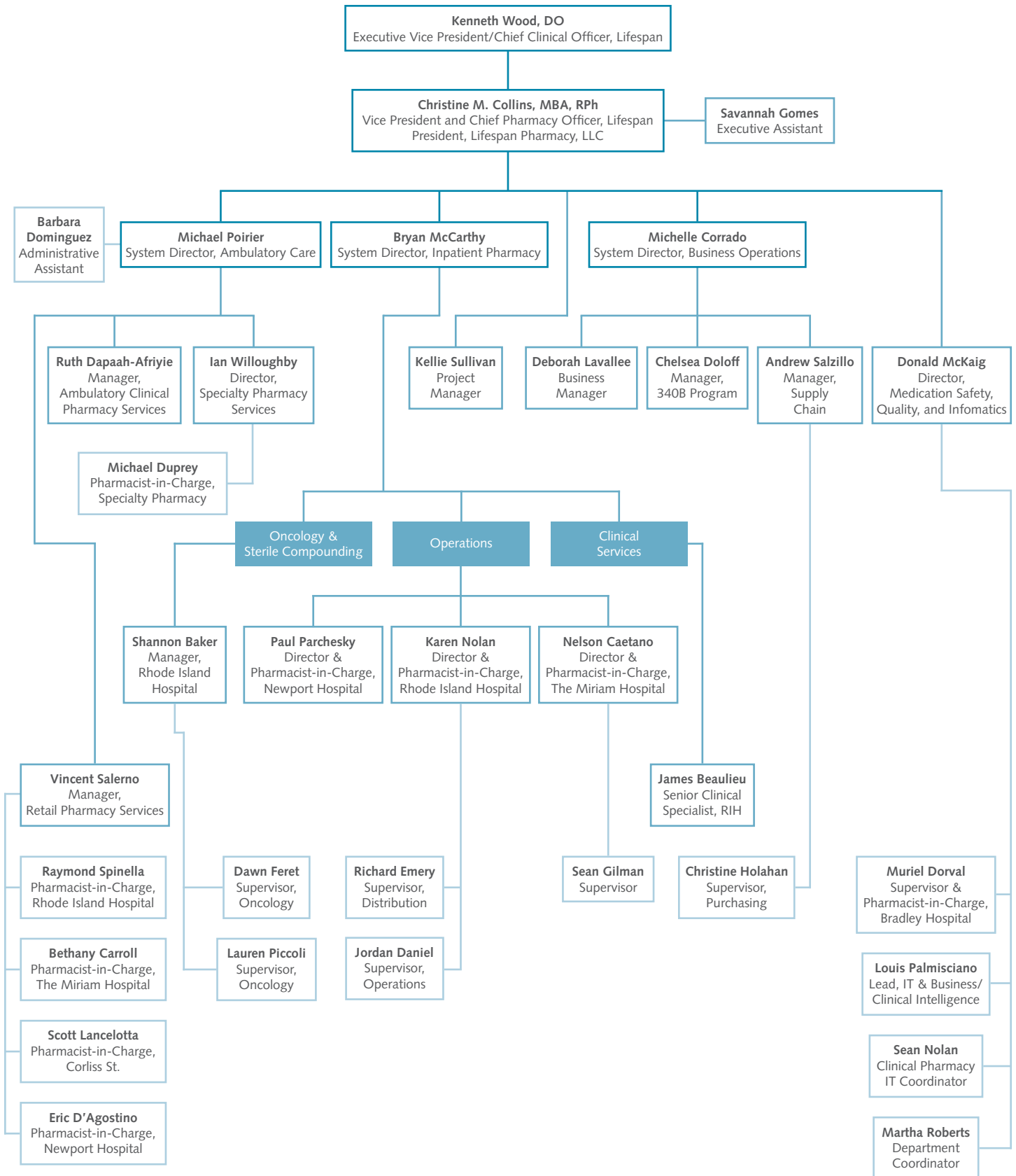
Vision:

To be identified as the leading medication experts.

Click here to visit [LifespanPharmacy.org](https://www.lifespanpharmacy.org)



Organizational Chart



Lifespan Pharmacy Leadership Team



Shannon Baker, PharmD
Pharmacy Manager, Oncology
and Sterile Compounding



James Beaulieu, PharmD
Senior Clinical Pharmacist
Specialist



Nelson Caetano, PharmD
Director, Inpatient Pharmacy,
The Miriam Hospital



Michelle Corrado, PharmD
System Director,
Pharmacy Business Operations



**Ruth Dapaah-Afriyie,
PharmD**
Manager, Ambulatory Clinical
Pharmacy Services



Chelsea Dolloff, CPhT
Manager, 340B Program



**Deborah Ann Lavallee,
MBA**
Pharmacy Business Manager



**Bryan McCarthy, Jr.,
PharmD**
System Director,
Inpatient Pharmacy



Donald McKaig, RPh
Director, Medication Safety,
Quality, and Informatics



Karen Nolan, RPh
Director, Inpatient Pharmacy,
Rhode Island Hospital



Louis Palmisciano
Team Lead, Pharmacy Business
Operations and Clinical Intelligence



Paul Parchesky, RPh
Director, Inpatient Pharmacy,
Newport Hospital



Michael Poirier, PharmD
System Director,
Ambulatory Care Pharmacy



Martha Roberts, PharmD
Pharmacy Department
Coordinator



Vincent Salerno, PharmD
Manager,
Retail Pharmacy Services



Andrew Salzillo, PharmD
Pharmacy Manager,
Supply Chain



Kellie Sullivan, MBA
Pharmacy Project Manager



Ian Willoughby, PharmD
Director,
Specialty Pharmacy Services

INPATIENT PHARMACY

Overview of Services

- Order Verification – Review medication orders before first dose is administered. Intervening and providing recommendations, where necessary to ensure patient safety and therapeutic efficacy.
- Patient Monitoring – Unit-based pharmacists review patient profiles and monitor medication therapy for optimization opportunities.
- Targeted Drug Monitoring – Review patients with renal insufficiency, medications with important serum concentrations, critical labs, and patients receiving age-inappropriate high-risk medication.
- IV to PO Conversion – Monitor for opportunities to convert patients from IV to oral medication.
- Patient Care Rounding – Participate in rounding activities with medicine and critical care teams.
- Code Blue Response – Assist with adult Code Blue activations throughout the hospital, ICU, and Emergency Department.
- Medication Safety – Monitor medication related safety events for process improvement opportunities and facilitate hospital medication safety meeting.
- Drug Information – Available 24 hours daily as a resource for drug information for all hospital staff and subject matter experts on select committees.
- Investigational Drug Services – Pharmacists coordinate proper storage and dispensing of investigational drugs for clinical trials and serve on the Institutional Review Board for Rhode Island Hospital.
- Admission Medication Reconciliation – Construct the best possible medication history for adult patients admitted through Emergency Department and compare it against the accuracy of orders placed during admission.
- Pharmacy Transitions of Care – Pharmacy consult service that helps coordinate the continuity of care for chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), myocardial infarction (MI), and pneumonia (PNA) patients.
- Medication Therapy Management – Integration involving meeting with patients to review their medications, discuss healthy behaviors, and lifestyle modifications (e.g., gastrointestinal).
- Outpatient Clinical Pharmacy Services – Pharmacists help support optimal patient outcomes at the outpatient clinics (e.g., diabetes, heart failure, rheumatology, hepatitis C.)
- Non-Sterile and Sterile Compounding Services – Safe preparation of medications in a final dosage form for administration to patients.
- Controlled Substance Accountability Support – Pharmacist and technician responsible for partnering with area leadership to resolve any controlled substance discrepancies and perform audits.
- Purchasing, Repackaging and Distribution Services – Provides logistical support for purchasing and distribution of medications both on and off campus.

- Antimicrobial Stewardship (AMS) – Implementation of order sets, patient lists, guidelines, and other initiatives that promote optimal antimicrobial use. Additionally, pharmacists round with the infectious disease (ID) consult team, complete prospective review of antimicrobials, and monitor for necessity of dose adjustments.
- Emergency Medicine Services – Pharmacist specialist in the emergency department that assists with critical disease state management and drug information.
- Critical Care Services – Clinical and specialist pharmacists rounding in ICU as part of interdisciplinary team.
- Internal Medicine Services – Clinical and specialist pharmacists rounding with medicine hospitalists and residents as part of interdisciplinary team.
- Pediatric Services – Clinical and specialist pharmacists rounding in pediatric patient care areas as part of interdisciplinary team.
- Transplant Services – Pharmacist specialist rounds with inpatient and outpatient transplant care teams.

Major Accomplishments

- Transitioned to large volume infusion smart pumps with electronic medical record interoperability.
- Hosted learners including pharmacy technician externs, pharmacy student interns, and pharmacist residents.
- Implemented pharmacist Code Blue response.
- Coordinated and supported COVID-19 vaccine clinics for employees, community providers, and community members.
- Established inpatient and emergency department COVID-19 vaccination process.
- Implemented pharmacist admission medication reconciliation in coordination with medication history technicians.
- Transitioned perioperative automated dispensing cabinets to a safer profiled configuration.

>3,000

Significant medication errors prevented by the medication history pharmacy technicians.

“*The Lifespan medication reconciliation program has exceeded quality and safety expectations. Accurate medication histories recorded in the emergency department at all affiliates leads to accurate continuation of outpatient therapies while hospitalized.*”

– BRYAN MCCARTHY, SYSTEM DIRECTOR OF INPATIENT PHARMACY

Rhode Island Hospital

The inpatient pharmacy supports 719 beds including 87 at Hasbro Children's Hospital, Rhode Island's only Level I Trauma Center, and the principal teaching hospital of The Warren Alpert Medical School of Brown University.

Major Accomplishments

- Implemented several frontline team member "Action Teams" to explore opportunities reported in the annual Your Voice survey.
- Expanded evening and overnight pharmacy resources.
- Expanded pharmacist unit-based coverage in critical care on evening shift.
- Expanded antimicrobial stewardship pharmacy clinical services.
- Added systemwide Director of Inpatient Pharmacy position.

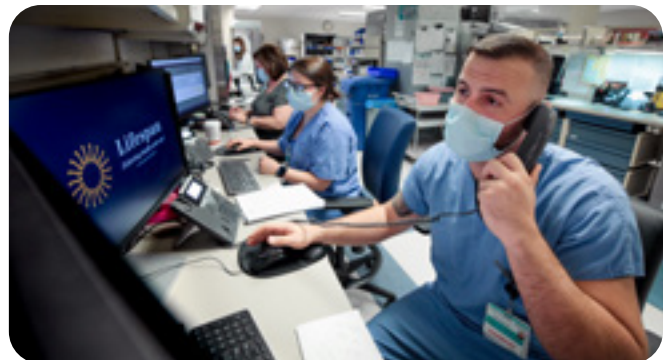


The Miriam Hospital

The inpatient pharmacy supports a 247-bed complex care teaching hospital that includes medical units, surgical units, critical care, oncology, and emergency medicine.

Major Accomplishments

- Expanded pharmacist coverage of outpatient diabetes clinic.
- Sustained organization leading employee engagement scores.
- Developed and internally promoted four team members to coordinator and supervisor roles.
- Integrated pharmacy into existing pneumatic tube system.
- Installed sterile compounding microsphere to streamline off shift compounding needs.
- Expanded evening and overnight pharmacy resources.
- Expanded pharmacist unit-based coverage in critical area onto weekends.
- Established pharmacy clinical services in the emergency department.



Newport Hospital

The inpatient pharmacy supports a 129-bed community hospital that includes medical-surgical units, behavioral health, labor and delivery, inpatient rehabilitation, oncology, and emergency medicine.

Major Accomplishments

- Upgraded Omnicell XT anesthesia workstations in all OR suites.
- Implemented new Omnicells in Pre-Op and OR Inner Core areas.
- Implemented new patient controlled epidural analgesia pumps and drug libraries.



Bradley Hospital

Bradley Hospital was the nation's first psychiatric hospital for children and continues to provide acute inpatient services and partial hospital programs at their 70-bed facility, as well as offering wide-ranging outpatient programs that include both residential and school-based services.

Major Accomplishments

- Completed upgrade to Omnicell XT automated dispensing cabinet (ADC) and optimized functionality to ensure safety and efficiency, including barcode scanning on restock, universal expiration date tracking, integrated labels generated for patient bulk items.
- Development of updates to admission order sets to improve patient care and reduce the risk of therapeutic duplication.
- Converted to National Drug Code (NDC) numbers for all packaged products to ensure accurate barcode scanning.
- Integrated review of policies and procedures with Lifespan-wide process to align policies across the system, where appropriate.



CLINICAL PHARMACY CARE SERVICES

Overview of Services

Patient Care Services

Clinical pharmacists and clinical pharmacist specialists work collaboratively with the patient care team in a decentralized model. Clinical specialists act as the team lead with highly trained, engaged, and motivated clinical pharmacists to provide unit-based services on adult and pediatric medical, surgical, critical care and specialty patient care units. Pharmacists participate in daily patient care rounds and provide order verification, medication management, Code Blue response, consultative, and targeted protocolized services.

Educational Services

Clinical pharmacists and clinical pharmacist specialists provide education during nursing and physician orientation and during patient care rounds and conferences. They also serve as preceptors for the University of Rhode Island College of Pharmacy, Massachusetts College of Pharmacy and Health Sciences, Northeastern University School of Pharmacy, and the pharmacy residency training programs. Many clinical pharmacist specialists hold adjunct faculty positions at the Rhode Island College of Nursing graduate program, and the Johnson & Wales University and Bryant University Physician Assistant programs, where they teach advanced therapeutics.

Formulary Management Services

Formulary management is a process which allows pharmacists, physicians, nurses, and other healthcare providers to work collaboratively and promote evidence-based, cost-effective medication therapy and optimal patient outcomes. Clinical pharmacist specialists identify, develop, and maintain drug therapy and therapeutic guidelines and protocols. They also take the lead on the development of initiatives reviewed by formulary management focus groups. Clinical pharmacist specialists act as the recording secretary and set the agenda for the oncology and antithrombotic subcommittees of the Lifespan Pharmacy and Therapeutics Committee. They also participate on departmental, unit-based, hospital, and health-system committees involving quality improvement initiatives, information technology, clinical research, and order set and treatment plan review, and medication policy and safety.

Major Accomplishments

- Response to COVID-19 pandemic
 - » Provided clinical services during patient care rounds to all designated COVID-19 critical care units.
 - » Responded to opening of COVID-19 specific critical care units by providing collaborative patient care services.
 - » Provided decentralized, evening clinical services on COVID-19 critical care units.
 - » Participated in the hospital incident command structure.
 - » Provided clinical services to the alternate care hospital via Epic Secure Chat and Microsoft Teams.
 - » Developed and maintained COVID-19 specific drug therapy and treatment guidelines.
 - » Provided recommendations for critically ill COVID-19 patients on dosing and alternatives to paralytics, sedatives, and vasopressors to conserve supplies.

- » Provided medication dosing and monitoring recommendations for critically ill COVID-19 patients on continuous renal replacement therapy and extracorporeal membrane oxygenation.
- » Provided critical care medication utilization data to pharmacy purchasing to ensure consistent inventory and mitigate shortages and outages.
- » Participated on team that developed an adult COVID-19 admission order set.
- Antithrombotic Subcommittee of the Pharmacy and Therapeutics Committee
 - » The subcommittee was established to provide the Lifespan Pharmacy and Therapeutics Committee with recommendations on requests for formulary additions and proposed deletions, new and revised drug therapy and therapeutic guidelines, and analysis of results from medication use evaluations and therapeutic class reviews.
- Anticoagulation Stewardship
 - » Developed an Anticoagulation Stewardship roadmap outlining the clinical services of the program that will be implemented during the next year.
 - » Received approval and began recruitment for an Anticoagulation Clinical Pharmacist Specialist.
- Antimicrobial Stewardship Team
 - » Recognized as an Infectious Diseases Society of America (IDSA) Antimicrobial Stewardship Center of Excellence.
 - » The team has grown to five clinical specialists. There are now three inpatient clinical specialists and two in the infectious diseases and immunology center.
 - ◇ Interventions: 1,686 with 87 percent acceptance rate
 - ◇ Microbiology Stewardship through Rapid Diagnostics (Accelerate Pheno) estimated two days saved in length of stay
 - » The antimicrobial stewardship clinical specialists responded to the pandemic and to multiple Food and Drug Emergency Use Authorizations (EUAs) by developing drug therapy and therapeutic guidelines for chloroquine, hydroxychloroquine, remdesivir (Veklury), tocilizumab (Actemra), and COVID-19 directed monoclonal antibody treatments.
 - » Triage remdesivir orders using restricted use criteria developed from the EUA in collaboration with infectious diseases attending physicians.
 - » Triage statewide and internal candidates for COVID-19 directed monoclonal antibody therapy using restricted use criteria developed from the EUA in collaboration with outpatient infectious diseases clinic providers.
 - » Three infectious diseases clinical specialists were appointed assistant professors of medicine for The Warren Alpert Medical School of Brown University in recognition of their direct involvement in the learning curriculum for the infectious diseases fellows and teaching of medical residents.
- Recruitment
 - » Successfully hired into five new clinical specialist positions.
 - ◇ Internal Medicine (1)
 - ◇ Adult Critical Care – Evenings (1)
 - ◇ Adult Infectious Diseases (1)

- ◇ Adult Critical Care/Emergency Medicine (1)
- » Successfully replaced three outgoing clinical specialists.
 - ◇ Internal Medicine (1)
 - ◇ Neurosciences (1)
 - ◇ Trauma and Burn (1)
- Formulary Management Activities
 - » Participated in the development and modification of existing protocols and drug therapy and therapeutic guidelines.
 - ◇ 15 new
 - ◇ 40 revised
 - ◇ Four retired
 - » Completed two medication use evaluation
 - » Completed two therapeutic class reviews
 - » 20 drugs added to the formulary
 - ◇ Four formulary additions via monograph reviews
 - ◇ 16 via therapeutic class review by oncology subcommittee
 - » Deleted 39 medications from the formulary
 - » Completed three formal adverse drug event and trend reviews
 - » 14 online formulary management forums were launched representing physician specialists, pharmacist specialists, and nurse specialists, who collaborated to forge consensus recommendations regarding formulary management and patient safety initiatives.
- Additional accomplishments and recognition
 - » Clinical pharmacists and specialists started attending Code Blue calls. Specialists provided all training modules.
 - » Three specialists completed the Vizient Clinical Database analyst certificate program.
 - » The neurocritical care specialist participated on the team that successfully secured Joint Commission reaccreditation of the Comprehensive Stroke Center.

INVESTIGATIONAL DRUG SERVICES

Overview of Services

Pharmacy Investigational Drug Services (IDS) supports clinical investigators conducting research on promising experimental therapies across medical specialties. The IDS coordinates investigational drug dispensing and storage with the clinical investigator for all clinical drug trials approved by the Committee on the Protection for Human Subjects (IRB). The IDS is available to principal investigators for the coordination and management of clinical drug trials and provides the following services:

- Experienced investigational pharmacists available 24 hours daily for information and dispensing of study drug.
- Experienced investigational pharmacists available by appointment for sponsor monitor visits, study meetings, and teleconferences.
- Secure investigational drug storage for frozen, refrigerated, and non-refrigerated investigational drugs. Storage temperatures are continuously monitored and recorded via a wireless electronic system.
- Receipt of investigational drug, storage, or distribution, as appropriate. Shipments are inspected, contents verified, and inventory logs updated.
- Maintenance and routine audits of perpetual inventory study drug logs.
- Procurement of study drug from sponsor.
- Return of unused or expired study drug to sponsor or destruction as either hazardous or non-hazardous waste in accordance with Pharmacy Services policy "Disposal of Unusable Drugs" (PH-321).
- Establishment of procedures for randomization, documentation, preparation, labeling, and dispensing of the study drug per protocol. Maintenance of study records including, but not limited to, updated copy of the protocol and investigator brochure, accountability logs, shipping invoices, storage temperature records, name of the principal investigator and study contact.
- Provide all necessary clinical content to LifeChart analyst for build of medication entries (ERX) or order panels. Develop Beacon treatment plans and therapy plans as part of multidisciplinary team including LifeChart analysts and investigator team.
- Randomization/treatment assignment of patient. Pharmacists are experienced with interactive voice and web response systems, randomization logs, and other randomization systems.
- Maintain integrity of blinded studies. Pharmacists are available 24 hours daily for emergency unblinding.
- Drug preparation, including but not limited to, sterile parenteral formulations for hazardous and non-hazardous medication and non-sterile study drug capsules with matching placebos.
- Experienced investigational pharmacists can design randomization schedules, perform clinical review (patient profile, protocol, order validation), assess patient adherence, complete IVRS/IWRS transactions, and extract data and create custom reports.

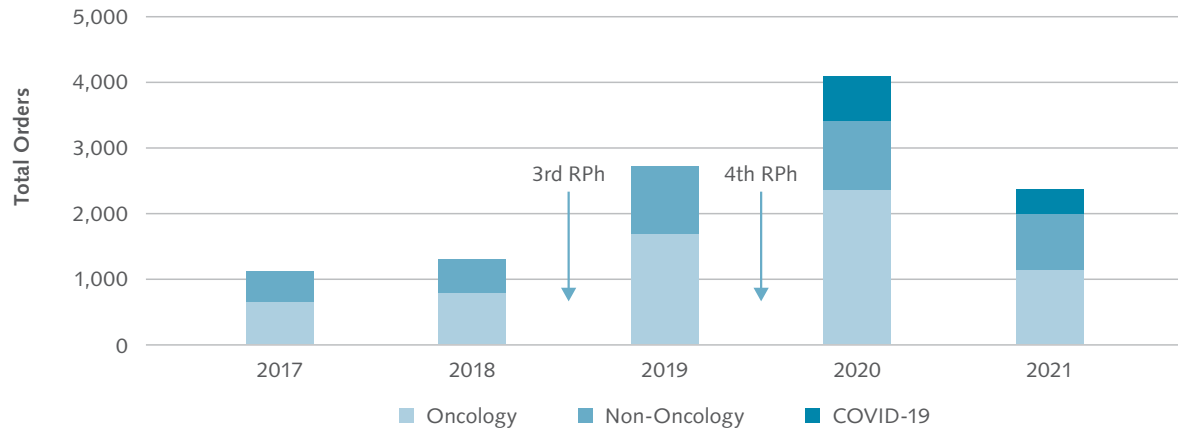
While Rhode Island Hospital (RIH) has a strong oncology and memory disorders research group, The Miriam Hospital (TMH) focuses on infectious disease and immunologic research. The oncology clinical trials are offered to patients from all Lifespan Cancer Institute locations. Other important research groups that are supported include the emergency department, nephrology, and cardiac research.

For off hours services, investigational drugs are dispensed by staff pharmacists.

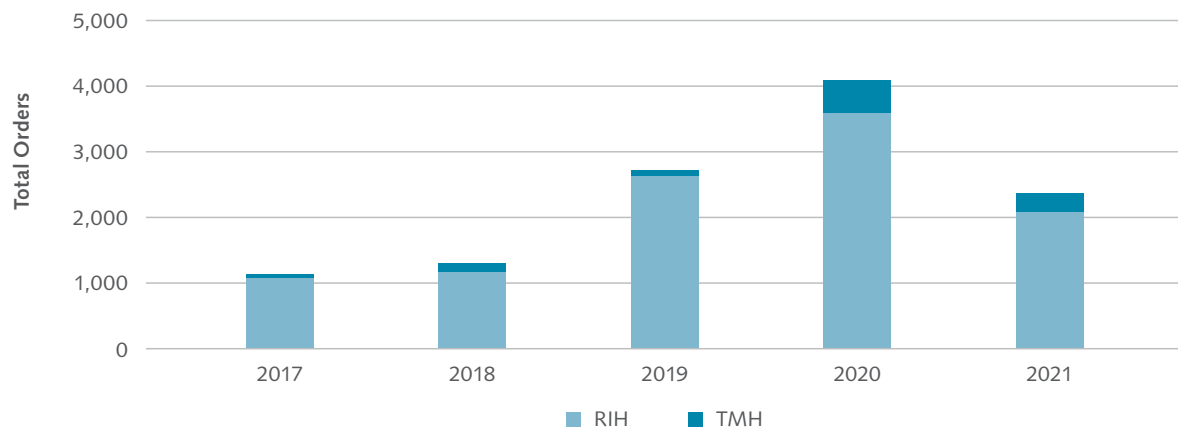
Major Accomplishments

- During the last four years, there has been considerable growth in research activities going from 100 to 150 active trials per year with pharmacy service support. In 2018, the oncology research group developed a Phase I research team that has increased the oncology research accrual. This team added a third research pharmacist in 2018, and a fourth research pharmacist in 2019. Every investigational oncology patient is now assessed by a multidisciplinary team that includes an investigator, research nurse, clinical research associate, and investigational pharmacist to ensure that all protocol requirements are fulfilled prior to their study treatment. The same team works together on the development of Beacon treatment plans once pharmacy coordinated the ERX built with LifeChart analyst.
- During 2020-21, the oncology research team was the main enroller for protocol Actuate 1801, and the first site to treat a human research patient with 9-ING-41 for advanced cancer.
- During 2020, pharmacy has coordinated the building of 196 ERx drug file builds within the electronic medical record, validated 55 treatment plans, two therapy plans, and 12 study panels.
- IDS provided timely support for Lifespan's COVID-19 research studies in treatment and prevention, which developed quickly during the height of the pandemic. Lifespan Pharmacy became the world's fourth highest enroller for remdesivir protocol GS-GU-540-5773 trial that led to its approval. IDS participation in the Regeneron neutralizing COVID-19 monoclonal antibodies trials continues, and other expanded access treatments. The IDS team collaborated with the IS department on a discovery project to search for an appropriate Investigational Management Inventory software system. The goal of this system is to support the department's recent growth and be able to provide the best service available to patients and the research community. Final contract for this system is expected to be completed for implementation to process to begin next year.
- Participated in National Clinical Trials Audits (NRG, CTSU, COG, Alliance, SWOG and ACTG) and FDA Audit for one of the memory disorders research groups.
- IRB Coverage: all research pharmacists actively participated in their assigned IRB meetings.
- Precepted pharmacy residents; one PGY2 during their IDS rotation and three PGY1 residents who elected to learn investigational drug services.

Investigational Oncology Orders Verified at Lifespan *by Study Type*



Investigational Oncology Orders Verified at Lifespan *by Institution*



INFORMATION TECHNOLOGY: DATA SCIENCE, ANALYTICS AND AUTOMATION

Overview of Services

Lifespan Pharmacy Data Science, Analytics and Automation promotes and enables data driven decision making, outcome monitoring, efficient operations, and optimization of medication storage technology. The program is composed of five technology professionals. Services provided include:

- Administrate and maintain information distribution channels
 - » Pharmacy intranet server, providing over 200 web pages of clinical and operational content
 - » Pharmacy Sharepoint network
 - » Pharmacy Teams network
- Develop and maintain a suite of pharmacy focused analytics solutions supporting all aspects of pharmacy-based patient care, research, and business operations
 - » Ad-hoc and on-demand reporting needs
 - » Clarity certified reporting
 - » Lifespan Specialty Pharmacy drug access, payor network access and accreditation reporting
 - » Over 100 scheduled reports
 - » Over 250 PowerBI reports
 - » Predictive analytics and machine learning solutions
- Develop and maintain custom software suites
 - » Pharmacy Research and Publication Council workflow suite
 - » PharmNotes web-based software solution
 - » Sage pharmacy workflow suite
- Develop and maintain the Pharmacy Data Warehouse containing data from multiple sources including:
 - » Aeroscout temperature monitoring
 - » Amerisource Bergen drug wholesaler
 - » Omnicell medication dispensing cabinets
 - » RxStrategies 340B third party administrator
 - » Shields pharmacy services
 - » Therigy Clinical Assessment System
 - » Vizient Clinical Database
 - » Wellparter 340B third party administrator
- Participate in system-wide committees including:

- » Predictive Analytics Guidance Council
- » Report Prioritization Huddle
- Provide 24 hour daily on-call technical support for the pharmacy
- Support and maintain pharmacy focused Filemaker software system including:
 - » Employee database
 - » Investigational drug support
 - » Sterile compounding

Major Accomplishments

- Accomplished seamless integration of legacy retail pharmacy data with data from the Epic-based Willow Ambulatory Pharmacy module including:
 - » Financial performance
 - » Initiative performance
 - » Multiple medication and insurance access reports
 - » Reporting for multiple accreditation bodies
- Developed new 340B contract pharmacy development tools
 - » Implemented the Contract Pharmacy Surveillance Tool, electronically auditing 100 percent of 340B claims from Accredo, CVS, and Optum pharmacy chains
 - » Implemented the Contract Pharmacy Missed Opportunity Tool, electronically reviewing 340B non-eligible claims from Accredo and Optum to identify revenue generation opportunities
 - » Implemented a universal financial dashboard to monitor revenue from Accredo, CVS and Optum pharmacies
- Developed new data feeds for drug and payor network access
 - » Blue Cross Blue Shield Specialty Pharmacy Network
 - » Blueprint Medicines
- Developed MOUD Missed Opportunities report, connect patients with medication assisted therapy for opioid use disorder
- Developed workflow activity tracking and financial metrics for new pharmacy initiatives
 - » Medication Access Program
 - » Medication Reconciliation
- During COVID-19 patient surge, quickly built powerful tools for COVID-related medication management
 - » Developed a COVID-focused medication usage PowerBI, allowing the pharmacy to plan an array of future COVID scenarios
 - » Developed a reporting suite specifically designed to plan for pharmacy lead vaccination site medication and personnel coverage
 - » Answered numerous ad hoc, clinical, COVID-related requests with efficiency and accuracy

LIFESPAN AMBULATORY CARE PHARMACY NETWORK

Retail Pharmacy Services

Overview of Services

- Outpatient retail pharmacy services
- Integrated into electronic health record
- Most insurance plans accepted
 - » Preferred pharmacy on Lifespan Health Plan
- Refills ordered by phone or online through MyLifespan
- Automatic refills
- Free home delivery
- Walk-in immunizations
- Medication Adherence Packaging
- Bedside prescription delivery service (Meds to Beds)
- Collaboration with internal departments
- Provide information to patients and care teams
- Over-the-counter (OTC) medications



Locations and Hours of Operation:

Rhode Island Hospital, 593 Eddy Street, Providence, RI 02903

Monday-Friday, 7 a.m. – 11:30 p.m., weekends and holidays, 8 a.m. – 4:30 p.m.

The Miriam Hospital, 164 Summit Avenue, Providence, RI 02906

Monday-Friday 7 a.m. – 7 p.m., weekends and holidays, 8 a.m. – 4:30 p.m.

Corliss, 180 Corliss Street, Providence, RI 02908

Monday-Friday, 7 a.m. – 7 p.m., closed weekends and select holidays

Newport Hospital, 11 Friendship Street, Sheffield Building, First Floor, Newport, RI 02840

Monday-Friday, 8 a.m. – 4:30 p.m., closed weekends and select holidays

Major Accomplishments

- Established outpatient retail pharmacy at the Lifespan Alternate Hospital Site (LAHS) at the Rhode Island Convention Center to provide Meds to Beds for COVID discharges.
- Implemented COVID-19 mass vaccination clinic through retail pharmacy to administer vaccine to the public at offsite location.
- Continuing to offer vaccines to the public at retail pharmacies.
- Participated in quality and safety improvement initiative with Gateway at Johnston and Pawtucket locations.
- Included conversion of Gateway patients to automated adherence packaging technology.

- Opening of the retail pharmacy at Newport Hospital May 2021.
- Expansion/relocation of The Miriam Hospital retail pharmacy July 2021.
- Transition of Meds to Beds program to an opt-out model at Rhode Island Hospital resulting in 100 percent increase in utilization of service (30 percent to 60 percent utilization at Rhode Island Hospital).
- Enhanced Meds to Beds process and turnaround time with improved electronic notification through the Electronic Medical Record (EMR) and utilization of medication lock boxes in patient rooms.
- Integration of pharmacy automation (Eyecon and Kirby Lester systems) into Willow Ambulatory for improved patient safety.
- Development and transition of dialysis orders to an electronic order set in Epic, resulting in enhanced accuracy and greater 340B capture.
- Improved capture rate of eye clinic prescriptions at Lifespan Pharmacy through collaboration with providers to ensure compliance, resulting in patient cost saving and convenience
- Number of prescriptions filled this year:
 - » Rhode Island Hospital: 129,656
 - » The Miriam Hospital: 63,650
 - » Corliss: 52,809
 - » Newport Hospital: 2,151 (opened May 19, 2021)

57,421

Total number of discharged patient prescriptions dispensed through the Lifespan Meds to Beds program

“The Meds to Beds concierge service helps reduce hospital readmission, improve medication adherence, and generate revenue to offer more services for the underserved population.

– MICHAEL POIRIER, SYSTEM DIRECTOR OF AMBULATORY CARE PHARMACY

Specialty Pharmacy Services

Overview of Services

- URAC and Accreditation Commission for Health Care (ACHC) dual-accredited specialty pharmacy
- 24-hour clinical pharmacist support for patients
- Services integrated into LifeChart
- Program staff embedded within majority of Lifespan specialty clinics and participating directly in improving patient care
- Improving access to care through integrated financial assistance and prior authorization assistance expertise
- Improving patient knowledge and engagement care through face-to-face, telephonic, and remote video pharmacist consultation, including personalized teaching visits for each new specialty medication start
- Pro-active patient outreach to ensure uninterrupted therapy, therapy compliance, and side effect minimization



- Extensive access to hard-to-find and limited distribution specialty medications
- Free prescription delivery to home, office, or clinic appointment

Location and Hours of Operation:

117 Chapman Street, Suite 200, Providence, RI 02905

Monday-Friday, 7 a.m. – 7 p.m., weekends and holidays, 8 a.m. – 4:30 p.m.

Major Accomplishments

- Positively impacted the lives of over 1,800 specialty patients:
 - » Over 25,000 prescriptions dispensed
 - » 21 percent program patient growth
- In partnership with the retail pharmacy team, provided extensive resource support to the COVID-19 mass vaccination clinic, through which nearly 9,000 vaccinations were administered
- Successful three-year re-accreditation with ACHC
- Tier 1 employee engagement and employee retention 97.4 percent
- Expanded care to patients with hemophilia, sickle cell, and transthyretin-mediated amyloidosis
- Expanded patient care opportunities through partnership with Blue Cross Blue Shield of Rhode Island

Ambulatory Care Clinical Pharmacy Services

Overview of Services

The ambulatory care clinical pharmacy service staff includes 17 clinical pharmacist specialists, eight clinical pharmacists and six pharmacy technicians. The clinical pharmacists have advanced training in disease state management, medication therapy management, and specialty pharmacy. The majority of the clinical pharmacist specialists are board-certified in various specialties including ambulatory care, geriatrics, infectious diseases, oncology, and specialty pharmacy. The ambulatory care clinical pharmacy team works in collaboration with other healthcare providers in various ambulatory practice settings within Lifespan and the Lifespan Health Alliance. Ambulatory care clinical pharmacy services include:

- Provision of medication therapy management for various disease states under collaborative practice agreements (CPA) with physicians from primary care (diabetes, hypertension, hyperlipidemia) to specialty medicine (gastroenterology, rheumatology, dermatology, transplant, infectious diseases, endocrinology, and addiction medicine).
- Facilitation of access to medications for patients through Medication Access Program (MAP) via:
 - » Medication refills
 - » Completion of prior authorizations
 - » Financial assistance

Major Accomplishments

The clinical services team was actively involved in the provision of quality health care under the constraints of the COVID-19 pandemic as follows:

- Adapted delivery of health care to incorporate telehealth options for continuity in care of patients

- Pharmacist and technician immunizers assisted with staffing of Lifespan's employee and community COVID-19 vaccination clinics
- Development of drug therapy and therapeutic guidelines for chloroquine, hydroxychloroquine, remdesivir (Veklury), tocilizumab (Actemra), and COVID-19 directed monoclonal antibody treatments by the infectious disease clinical specialists in collaboration with the infectious disease providers
- In the first quarter of FY21, the pharmacist-managed hypertension clinic resulted in a primary care blood pressure quality measure of 54.9 percent, which is more than twice the national average of 24 percent per CDC
- Established a Pharmacy and Therapeutics Ambulatory Care Subcommittee

10,664

Total number of medication refills supported by the Medication Access Program team of pharmacists and technicians in the six months since the program went live.

“*The Medication Access Program's contemporary services of medication refill approvals, prior authorization workups, and patient financial assistance creates value for physicians. Removal of these clerical burdens allows clinicians to reinvest valuable time into patient care. Patient outcomes are improved with more rapid medication turnaround times and therapy initiation.*

– MICHAEL POIRIER, SYSTEM DIRECTOR OF AMBULATORY CARE PHARMACY

Clinical Integration Medical Therapy Management Pharmacy Team received awards for #1 system of care for the Blue Cross Blue Shield of Rhode Island Medical Therapy Management Pharmacy Program and #1 system of care for UHC achieving Five Stars on all Medication Measures on the MA-PCPi program.

- Aisha Ashraf, clinical pharmacist specialist
- Cristina Santos, clinical pharmacist specialist
- Safiya Naidjate, clinical pharmacist specialist
- Melissa Wilk, clinical pharmacist specialist
- Diana Rebello, clinical pharmacist specialist
- Michelle Hersey, clinical pharmacist specialist

Growth/Expansion

- Collaborative Practice Agreements - added four more (Hypertension, MAP refill authorizations, Human Immunodeficiency Virus and Gout), bringing total number to nine. Workforce – added 5.4 full time employees to five different practices: Cardiovascular Institute, Endocrinology, Lifespan Health Alliance, Medicine-Pediatrics, and The Miriam Hospital Immunology.

33

Current number of clinical pharmacist specialists who are part of the multidisciplinary team in outpatient provider practices.

“*Clinical pharmacist specialists are an integrated part of the ambulatory patient's care team, working under collaborative practice with providers to deliver a higher level of care and improve patient medication outcomes.*

– MICHAEL POIRIER, SYSTEM DIRECTOR OF AMBULATORY CARE PHARMACY

Initiation of Medication Access Program

This centralized team of pharmacists and technicians provide prescription support for ambulatory clinics. In the past year, the MAP team services encompassed:

- Prescription benefits investigation for 1,976 patients
- Prior authorization support for 2,440 patients
- Refill authorization support for 10,664 refill requests (six months from service inception)
- Patient financial assistance for prescriptions
- Referrals to Lifespan Pharmacy (13,500)

MAP team added the following clinics in FY21:

- Rhode Island Hospital Center for Primary Care at Chapman Street
- Medicine Pediatrics
- Cardiovascular Institute

Pharmacy Transitions of Care

Overview of Services

- Reduce risk of readmission by providing in-depth medication and disease state education to hospitalized patients with Centers for Medicare and Medicaid Services (CMS) qualifying high-risk disease state: chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), myocardial infarction (MI), and pneumonia (PNA).
- Primary diagnoses served:
 - » Cardiology: 63 percent
 - » Pulmonary: 28 percent

Major Accomplishments

- High or critical interventions included those involving therapeutic duplication, medication adherence, ADE/allergy to medication, medication reconciliation, access to medication, therapeutic omission
- Streamlined counseling and education for patients with COPD; participation of The Miriam Hospital team in hospital-wide COPD initiative to reduce readmissions
- Recipient of the American Society of Health-System Pharmacists (ASHP) - Pharmacy Resident Practice-Based Research Grant Program Recipient (2020-21) for ToPP-HF (Tool for Pharmacists to Predict Heart Failure rehospitalization)
- Hearts@Home coordination to reduce readmissions for patients with heart failure; coordination with CHF clinic pharmacist (also Transitions of Care team member)
- Telehealth training to all pharmacists for post-discharge medication counseling

PHARMACY BUSINESS OPERATIONS

Overview of Services

Pharmacy Business Operations includes three business units: pharmacy supply chain, pharmacy finance, and the 340B drug discount program. The team provides oversight and ensures the integrity of business and financial operations of the department. The team is also responsible for identifying and coordinating implementation of growth opportunities in alignment with the organization's objectives. Specific functions of the business operations team include:

- Coordinating drug purchases and maintaining efficient and effective drug inventory across all Lifespan hospital affiliates and retail pharmacy locations
- Developing a robust drug shortage management program and responding in a timely and effective way to all real or anticipated shortages
- Negotiating and implementing contracts with all drug wholesalers, pharmaceutical manufacturers, and vendors for the entire pharmacy service line
- Drug distribution for infusion centers and clinics
- Conducting an annual inventory of all medications
- Managing the daily business and financial functions of the department
- Developing business plans to support growth opportunities
- Overseeing inpatient, outpatient, retail, and specialty pharmacy revenue and ensuring adequate record keeping, receipt and reporting of revenue
- Coordinating completion of the annual operating and capital budgets
- Overseeing the process for month end financial closure for the department

\$250,000,000

The amount spent on pharmaceutical purchases by the Health System on an annual basis.

“Our team ensures safe and fiscally responsible sourcing of all our pharmaceutical products through an expansive network of sourcing partners.”

– MICHELLE CORRADO, SYSTEM DIRECTOR OF BUSINESS OPERATIONS

70%

How much the Lifespan 340B Contract Pharmacy network grew during FY21

“By expanding our 340B program, we are simultaneously able to expand our ability to help patients afford their medications, offer quality patient care services, and give them peace of mind while managing complex treatments.”

– MICHELLE CORRADO, SYSTEM DIRECTOR OF BUSINESS OPERATIONS

240

The average number of drug shortages in 2021 per quarter as reported by the American Society of Health-System Pharmacists (ASHP).

“The pharmacy purchasing team works with external partners such as drug distributors and internal partners that include medication safety, pharmacy informatics, clinical services, pharmacy operations, to mitigate the impact of drug shortages for our patients.”

– MICHELLE CORRADO, SYSTEM DIRECTOR OF BUSINESS OPERATIONS

- Maintaining working knowledge of applicable federal, state, and local laws and regulations governing the 340B program
- Developing and maintaining the organization's policies and procedures related to the 340B program and retail pharmacy revenue management processes
- Maintaining a quality assurance audit plan and performing audits on a periodic basis to ensure compliance with the current 340B program regulations
- Planning, developing, organizing, implementing, directing, enforcing, and evaluating the organization's compliance of the 340B program
- Providing timely and accurate reporting or analysis of compliance with 340B program requirements and drug price file integrity

50%

Increase in 340B program auditing activity during FY21

“By increasing the number of outpatient scripts audited, we are able to ensure our compliance with a complex federally-regulated program. Best practices in this area change as audit results from HRSA are released each year. Working with external auditing firms helps us stay on top of these trends.”

– MICHELLE CORRADO, SYSTEM DIRECTOR OF BUSINESS OPERATIONS

Major Accomplishments

- Added key leadership positions: Director of Business Operations, 340B Program Manager
- Doubled 340B contract pharmacy network
- Outsourced annual pharmacy inventory
- Coordinated compilation and submission of more than a \$225 million annual operating budget
- Conducted RFP and vendor selection for assistance with development of a business plan for a Consolidated Service Center (CSC)
- Conducted RFP and vendor selection for external audit partner (three-year contract) for 340B program
- Led RFP and vendor selection process for a new radio-frequency identification (RFID) inventory management system for emergency code trays and anesthesia automated dispensing machines
- Joined the Vizient Northeast Purchasing Coalition (NPC), LLC
- Joined the Vizient Oncology Network (VON)

MEDICATION SAFETY

Overview of Services

The Lifespan Medication Safety Program promotes data driven safety improvements based on trending and analysis of medication error reporting, supports medication best practices, and optimization of medication safety technology. The program comprises the pharmacy manager for medication safety, quality, and informatics and the pharmacist specialist for medication safety. Services provided include:

- Review, analysis, and development of action plans for improvement based on review and trending of medication-related events reported via the SafetyNet system and pharmacist intervention documentation of prevented prescribing errors
- Coordination of medication safety team activities across the system
- Generate reports which enable ongoing monitoring, trending, and analysis of medication related safety issues and monitoring compliance with best practices
- As members of the Advisory Board for the Institute for Safe Medication Practices (ISMP), review and provide feedback on content for the bimonthly *Medication Safety Alert!* newsletters
- Review ISMP newsletter at Medication Safety Team meetings and develop appropriate action plans based on recommended actions and gap analyses
- Participation on a variety of hospital and system-based committees relating to patient and medication safety
- Support ongoing regulatory readiness activities across the system including participation in interdisciplinary unit-based rounding and assessments
- Drug shortage monitoring including evaluation of new products, packaging concerns, and communication of Product Change Alerts when appropriate
- Trending of Vizient Quality and Accountability metrics related to safety with insulin (rates of hypoglycemia) and warfarin (rates of elevated INR)
- Presentation of specific medication safety issues and follow-up at hospital-based daily safety briefing and other meetings as needed
- Provision of formal and informal medication safety presentations tailored to audiences across the health system
- Support ongoing education on medication safety and quality related topics, including pharmacy residency programs (PGY1, PGY2 Oncology, PGY2 Administration), pharmacy students, nursing orientation, and physician assistant (PA) programs (Bryant University, Johnson & Wales University) and nursing advanced practice programs (Rhode Island College)

Major Accomplishments

- During COVID-19 patient surge, established medication safety best practices at the LAHS
 - » Development of standardized order sets for patients admitted to the LAHS
 - » Oversight of the data driven development of pharmacy formulary at the LAHS and optimization of storage conditions to reduce the risk of medication error (e.g., product standardization, enhanced labeling and storage conditions for look-alike/high alert medications)

- » Implementation of medication safety technology and daily monitoring and report out to leadership on compliance, including:
 - ◇ Omnicell automated dispensing cabinets
 - ◇ Barcode scanning (BCMA) during medication administration
 - ◇ Smart infusion pumps
- » Participation in simulation testing to optimize medication processes, workflows, and available medications for emergent situations
- » Provider education on medication safety and pharmacy services at the LAHS
- Supported the Lifespan COVID-19 Vaccine Program, including review of vaccine-related error mitigation strategies, workflow optimization, and reporting/tracking of adverse drug reactions and medication errors
- Reported several medication safety related issues to ISMP which were included in nationwide Medication Safety Alert! newsletter
- Participated in medication-related apparent cause analyses (ACA), failure mode and analysis (FMEA), and TapRoot reviews to identify and mitigate root causes of error.
- Implementation of smart pump integration across Rhode Island/Hasbro Children's Hospital, The Miriam Hospital, and Newport Hospital. Between go-live in April to end of June, over 72,000 infusions started using auto programming, reducing risk of manual pump programming error.
- Alert fatigue reduction interventions implemented including filtering out clinically insignificant drug-disease warnings which reduced alert firing by ~89 percent (more than 13,000 alerts per month).
- Ongoing monitoring and optimization of system-wide medication safety technology.
 - » BCMA rates > 95 percent for all inpatient adult and pediatric med/surg, ICU units (Leapfrog-defined areas).
 - » Omnicell override rates < 1 percent for all affiliates.
 - » Smart pump DERS rates > 97 percent for all affiliates.
- Seven medication alert setting issues identified in the First Data Bank (FDB) system that led to an FDB system change which would impact alert firing nationwide for organizations using FDB for alert content. One example was the addition of zinc sulfate to the Dose Range Check Module (DCRM) that has prevented potentially fatal overdoses in pediatric patients. This change was identified by Institute for Safe Medication Practices (ISMP) as one of the nationwide yearly top 10 prevented medication errors.
- Medication safety-related presentations provided at national or regional conferences, including:
 - » Drug-Disease Warnings: Stemming the Tide of Alert Fatigue, Epic XGM 2021, April 2021
 - » Predictive Modeling: Improving INR Monitoring for Warfarin Using Artificial Intelligence, Vizient Consortium Pharmacy Network, December 2020
 - » Driving Quality Improvement with Just Culture and High Reliability, 36th Annual University of Rhode Island Seminar by the Sea Conference, March 2021

RESEARCH

Overview of Services

Lifespan Pharmacy Research Services conducts and facilitates pharmacy practice research primarily through the Pharmacy Research and Publications Committee (PRPC), which is an advisory committee that aims to enhance the quality, rigor, and reproducibility of the research conducted by all Department of Pharmacy members. The PRPC also serves to steward departmental resources, identify administrative needs, and ensure all human subject requirements are met. The PRPC is comprised of pharmacists with complementary scientific and clinical expertise.

PRPC Activities

- Curating research projects to guarantee strategic alignment with Pharmacy and Lifespan mission, goals, and priorities
- Encouraging professional staff to author original abstracts and scholarly papers in strategic alignment with Pharmacy and Lifespan mission, goals, and priorities
- Assisting with research question development and specification
- Conducting preliminary data review and specification, power calculations, and overall feasibility assessments
- Ensuring adherence to Institutional Review Board requirements and best practices
- Helping to identify and refine research questions from preceptors and create a repository of questions with associated clinical preceptors for residents' use
- Establishing and updating guidance documents, including timelines, for research projects
- Assisting all investigators with ensuring that all investigators clearly communicate the following for each project in writing:
 - » The potential scientific, public health, or clinical impact of the research
 - » The key gaps that exist in scientific knowledge
 - » The actions that can be taken as a result of filling those knowledge gaps and the consequences that will be averted
 - » How to actually integrate what is learned from the research into pharmacy practice
- Providing feedback on all aspects of research project methodology, including:
 - » Study design (observational or experimental)
 - » Data source(s) and linkage thereof
 - » Observation period ("study dates")
 - » Study population eligibility criteria
 - » Exposure definitions (and treatment assignment)
 - » Comparator groups

- » Start and end of follow-up
- » Statistical analyses
- » Stability and sensitivity analyses
- » Potential problems and alternative strategies
- » Resource needs, including personnel and funding
- Communicating approval, conditional approval, or denial of research project and publication submissions within three weeks of submission, on average
- Reviewing and providing feedback on all written products meant to disseminate research, including abstracts and presentations
 - » Detailed written feedback is provided to pharmacy residents in preparation for conferences.
- Organize training sessions to develop the skills and methodological knowledge of pharmacy members, especially residents
- Host weekly research office hours to provide study design consulting, statistical analysis consulting, and a wide array of research services
- Assist with ensuring that all pharmacy members have appropriate training in human subject research and obtain necessary certifications (e.g., the Collaborative Institutional Training Initiative [CITI] Program)

PRPC Reviews

There was a total of 12 research projects, and 16 publications and presentations reviewed this past fiscal year by the PRPC.

Pharmacy Research Scholarship

Grants Awarded to Pharmacy Investigators as Principal Investigator (Active from October 1, 2020 to September 30, 2021)

Pharmacy members served as principal investigators of four competitive research grants totaling nearly \$2.4 million. Grants on which pharmacy members served as co-investigators, consultants, or in other roles are not represented here.

Development of a novel pharmacist-led opioid deprescribing protocol in older adults

Principal Investigator: Alissa Margraf

Funder: ASHP Foundation

Mechanism: Pharmacy Resident Practice-Based Research Grant

Project Period: January 1, 2020 – December 31, 2021

Total: \$5,000

Project Identifier: N/A

Description: This project will develop a novel opioid deprescribing protocol for older adults that addresses the fundamental issue of unclear division of responsibilities between members of a care team.

Development and validation of a pharmacist transitions of care tool using machine learning algorithms to predict rehospitalization in chronic heart failure

Principal Investigator: Melissa "Missy" Riester

Funder: ASHP Foundation

Mechanism: Pharmacy Resident Practice-Based Research Grant

Project Period: January 1, 2020 – December 31, 2020

Total Amount: \$4,931

Project Identifier: N/A

Description: This project will develop a novel screening tool to assist transitions of care pharmacists with efficiently intervening on their chronic heart failure patients.

Medications and the Risk of Motor Vehicle Crashes in Older Drivers

Principal Investigator: Andrew Zullo

Funder: National Institutes of Health (National Institute on Aging)

Mechanism: R01

Project Period: September 15, 2020 – May 31, 2024

Total Amount: \$1,872,374 (issued to Brown University)

Project Identifier: R01AG065722

Description: The objective of this project is to evaluate the effects of medications, including dose and adherence, on motor vehicle crashes in older adults.

Opioid Use in Post-Acute Hip Fracture Care: Prescribing Patterns, Effectiveness, and Safety

Principal Investigator: Andrew Zullo

Funder: National Institutes of Health (National Institute on Aging)

Mechanism: R21

Project Period: July 1, 2019 – June 30, 2021

Total Amount: \$461,483 (issued to Brown University)

Project Identifier: 1R21AG061632

Description: Suboptimal pain treatment during post-acute care after hip fracture is a major cause of increased morbidity, mortality, and costs among older adults, yet there is no clear evidence base for choosing an analgesic medication regimen in post-acute care. This R21 project will provide a better understanding of the benefits and harms of different analgesic regimens for pain treatment, which will help guide treatment decisions for the post-acute care population residing in skilled nursing facilities (SNFs), and ultimately improve patient health outcomes.

Guidelines and Best Practices for Evaluating the Causal Effects of Medications on Motor Vehicle Crashes and Driving Outcomes using Observational Data

Principal Investigator: Andrew Zullo

Project Period: February 1, 2020 – July 31, 2022

Funder: International Society for Pharmacoepidemiology

Total Amount: \$13,000 (issued to Brown University)

Project Identifier: N/A

Description: The Medications and Driving Working Group will formally synthesize the existing observational literature examining medication exposures and motor vehicle crash outcomes to make principled recommendations that ultimately enable the construction of a formal evidence-based methodological framework for estimating the causal effects of medication use on motor vehicle crash.

Peer-Reviewed Scientific Publications from October 1, 2020 to September 30, 2021

Pharmacy members published 23 peer-reviewed scientific manuscripts.

1. Ali, D., Barra, M. E., Blunck, J., Brophy, G. M., Brown, C. S., Caylor, M., Clark, S. L., Hensler, D., Jones, M., Lamer-Rosen, A., Levesque, M., **Mahmoud, L. N.**, Mahmoud, S. H., May, C., Nguyen, K., Panos, N., Roels, C., Smetana, K., Traeger, J., Shadler, A., & Cook, A. M. (2021, Aug). Stress-Related Gastrointestinal Bleeding in Patients with Aneurysmal Subarachnoid Hemorrhage: A Multicenter Retrospective Observational Study. *Neurocrit Care*, 35(1), 39-45. doi:10.1007/s12028-020-01137-5
2. Chuck, C., Kim, D., Kalagara, R., Rex, N., Madsen, T. E., **Mahmoud, L.**, Thompson, B. B., Jones, R. N., Furie, K. L., & Reznik, M. (2021, Sep 23). Modeling the Clinical Implications of Andexanet Alfa in Factor Xa Inhibitor-Associated Intracerebral Hemorrhage. *Neurlogy*, 10.1212/WNL.0000000000012856. doi:10.1212/WNL.0000000000012856
3. Cortes, A., Corsi, M., & **McCarthy Jr., B. C.** (2021, May 24). Drug purchase price volatility in an academic medical center. *Am J Health Syst Pharm*, 78(Supplement_2), S33-S37. doi:10.1093/ajhp/zxaa422
4. Fowler, M. L., Mendez, L., **Whitehead, S.**, Shah, B., Rizza, K. E., Schapero, M., Memmo, E. P., Hendessi, P. M., Iverson, R. E., & Anand, M. (2020). Implementation of Enhanced Recovery in Gynecologic Surgery to Improve Outcomes at an Urban Safety-Net Hospital. *J Clin Gynecol Obstet*, 9(3), 43-52. doi:https://doi.org/10.14740/jcgo666
5. Goldberg, E. M., Marks, S. J., Merchant, R. C., **Nagy, J. L.**, **Aquilante Jr., J. A.**, & Beaudoin, F. L. (2021, Feb). How Accurately Do Older Adult Emergency Department Patients Recall Their Medications? *Acad Emerg Med*, 28(2), 248-252. doi:10.1111/acem.14032
6. Lancaster, J. W., **McAuliffe, L.**, O'Gara, E., Cornelio, C., Hum, J., Kim, Y., Phung, A., She, K., Lei, Y., Balaguera, H., & Liesching, T. (2021). Impact of antibiotic choice on readmission in adults experiencing an acute COPD exacerbation. *Am J Health Syst Pharm.*, 78(Suppl 1), 23-32. doi:10.1093/ajhp/zxaa317
7. Lee, J., Banerjee, D., **Greene, R. A.**, Palmisciano, A., Baird, G., Sharkey, K. M., Ely, E., & Levy, M. M. (2020). Effect of Ramelteon on Sleep and Delirium in Patients Admitted to the ICU. *Am J Respir Crit*, 201, A4792. doi:10.1164/ajrccm-conference.2020.201.1_MeetingAbstracts.A4792
8. Mahta, A., Anderson, M. N., Azher, A. I., **Mahmoud, L. N.**, Dakay, K., Abdulrazeq, H., Abud, A., Moody, S., Reznik, M. E., Yaghi, S., Thompson, B. B. Wendell, L. C., Rao, S. S., Potter, N. S., Cutting, S., Mac Grory, B., Stretz, C., Doberstein, C. E., & Furie, K. L. (2021, Aug). Short- and long-term opioid use in survivors of subarachnoid hemorrhage. *Clin Neurol Neurosurg*, 207:106770. doi:10.1016/j.clineuro.2021.106770
9. **Margraf, A.**, & Lemay, V. (2020, Nov 30). Pharmacist Led Chair Yoga in Home Care Patients with Chronic Pain. *J Yoga Phys Ther*, 11(S2), 316. doi:10.35248/2157-7595.2020.10.S2.316
10. **McCarthy Jr., B. C.**, & Rhodes, J. (2021, Jan). Know before you throw: Pharmaceutical waste and drug disposal. *PharmacyTech Topics*, 26(1), 1-22. Retrieved from <https://docplayer.net/219611824-Pharmacy-tech-topics-volume-26-no-1-january-2021-know-before-you-throw-pharmaceutical-waste-and-drug-disposal.html>
11. **Mecadon, K.** (2021, Feb). Managing Side Effects of Immunosuppressants. *R I Med J*, 104(1), 31-33. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/33517596/>
12. Nevola, K. T., Kiel, D. P., **Zullo, A. R.**, Weiss, S., Homuth, G., Foessler, I., Obermayer-Pietsch, B., Motyl, K. J., & Lary, C. W. (2021). miRNA Mechanisms Underlying the Association of Beta Blocker Use and Bone Mineral Density. *J Bone Miner Res.*, 36(1), 110-122. doi:10.1002/jbmr.4160

13. **Riester, M. R.**, Bosco, E., Bardenheier, B. H., Moyo, P., Baier, R. R., Eliot, M., Silva, J. B., Gravenstein, S., van Aalst, R., Chit, A. Loiacono, M. M., Zullo, A. R. (2021). Decomposing Racial and Ethnic Disparities in Nursing Home Influenza Vaccination. *J Am Med Dir Assoc.*, 22(6), 1271-1278.e3. doi:10.1016/j.jamda.2021.03.003
14. **Riester, M. R., McAuliffe, L., Collins, C., & Zullo, A.** (2021). Development and validation of the Tool for Pharmacists to Predict 30-day hospital readmission in patients with Heart Failure. *Am J Health Syst Pharm.*, 78(18), 1691-1700. doi:10.1093/ajhp/zxab223
15. Rough, S., Shane, R., Armistead, J. A., Belford, S. M., Brummond, P. W., Chen, D., **Collins, C. M.**, Dalton, H., Legreid Dopp, A., Estevez, M. M., Hager, D., R., Halbach, B., Hays, R., Knoer, S., Kotis, D., Montgomery, D., Plummer, B., **Riester, M. R.**, Schreier, D. J., Simonson, D., Siska, M. H., Waier, K., & Vermeulen, L. C. (2021, Mar 5). The high-value pharmacy enterprise framework: Advancing pharmacy practice in health systems through a consensus-based, strategic approach. *Am J Health Syst Pharm*, 78(6), 498-510. doi:10.1093/ajhp/zxaa431
16. Saldanha, I. J., Roth, J. L., Chen, K. K., **Zullo, A. R.**, Adam, G. P., Konnyu, K. J., Cao, W., Reddy Bhuma, M., Kimmel, H. J., Mehta, S., **Riester, M. R.**, **Sorial, M. N.**, & Balk, E. M. (2020, Nov). Management of Primary Headaches in Pregnancy. *Agency for Healthcare Research and Quality (US)*, 20(21), EHC026. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/33263968/>
17. **Shah, R. B.**, Garrett, K. L., **Brotherton, A. L.**, & Noska, A. J. (2021). Elbasvir/grazoprevir administered for 12 weeks via percutaneous endoscopic gastrostomy tube achieves sustained virologic response: A case report and a review of the literature. *Pharmacotherapy*, 41(7), 634-640. doi:10.1002/phar.2531
18. Silva, J. B., Bosco, E., **Riester, M. R.**, McConeghy, K. W., Moyo, P., van Aalst, R., Bardenheier, B. H., Gravenstein, S., Baier, R., Loiacono, M. M., Chit, A., & **Zullo, A. R.** (2021, Sep). Geographic variation in influenza vaccination among U.S. nursing home residents: A national study. *J Am Geriatr Soc.*, 69(9), 2536-2547. doi:DOI: 10.1111/jgs.17270
19. **Sorial, M. N.**, **Huynh, J. P.**, Azzoli, C. G., **Liau, J. C.**, **Brunault, R. D.**, **Collins, C. M.**, & **Zullo, A. R.** (2021, Mar). Survival outcomes associated with corticosteroid use before chemoimmunotherapy in patients with advanced lung cancer. *Eur J Cancer*, 145, 234-244. doi:10.1016/j.ejca.2020.12.011
20. **Wynes, M. A.**, & Boyle, J. A. (2021, Feb 15). Effect of Average Blood Glucose Greater Than 140 mg/dL on Adverse Patient Outcomes in Adult Medical/Surgical Patients. *Innov Pharm*, 12(1), 10.24926/iip.v12i1.3577. doi:10.24926/iip.v12i1.3577
21. **Zullo, A. R.**, Danko, K. J., Moyo, P., Adam, G. P., **Riester, M.**, Kimmel, H. J., Panagiotou, O. A., Beaudoin, F. L., Carr, D., & Balk, E. M. (2020, Nov). Prevention, Diagnosis, and Management of Opioids, Opioid Misuse, and Opioid Use Disorder in Older Adults. *Agency for Healthcare Research and Quality (US)*, 21, EHC005. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK564144/>
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Presentations from October 1, 2020 to September 30, 2021

Pharmacy members presented 10 PowerPoint and poster presentations, as well as two panel discussions, at national conferences.

1. **Dunton, P.** (2021, Apr). *Development and validation of a risk-stratification tool for methicillin resistant staphylococcus aureus (MRSA) pneumonia* [PowerPoint presentation]. Eastern States Conference.
2. **Dunton, P., Zullo, A., Collins, C., & Whitehead, S.** (2021, Apr). *Development of a risk-stratification tool for empiric anti-methicillin resistant staphylococcus aureus antibiotics from patient-specific risk factors in pneumonia* [Poster presentation]. Eastern States Conference.
3. **McKaig, D.** (2021, Mar). *Driving Quality Improvement with Just Culture and High Reliability* [PowerPoint presentation]. Seminar by the Sea Conference, University of Rhode Island.
4. **McKaig, D.** (2021, Aug). *Drug-Disease Warnings: Stemming the Tide of Alert Fatigue* [PowerPoint presentation]. Epic UGM Conference.
5. **McKaig, D., & Palmisciano, L.** (2020, Dec). *Predictive Modeling: Improving INR Monitoring for Warfarin Using Artificial Intelligence* [PowerPoint presentation]. Vizient Consortium Pharmacy Network.
6. **Prasad-Reddy, L., & McCarthy Jr., B. C.** (2021, Feb). *Just a Small Town Girl – Livin' in a COVID World: New Pharmacy Perspectives on Workplace Burnout* [PowerPoint slides]. ICHP Northern Illinois Society CPE Program.
7. **Roberts, M., Kane-Gill, S., & Goswami, E.** (2020, Dec). *On Your Mark, Ready, Set ... Should We Go? An Update on Acute Kidney Injury Biomarkers* [PowerPoint presentation]. ASHP Midyear.
8. **Schade, S., Stanley, D., Young, T., & Collins, C.** (2021, May). *Digital Transformation: Emerging from COVID19* [Panel discussion]. New England Healthcare Information and Management Systems Society Annual Spring Conference.
9. **Shane, R., Brummond, P. W., Collins, C., & McBride, A.** (2020, Oct). *Advancing Pharmacy Practice and Defining Value: Leveraging Evidence and Professional Consensus* [Panel discussion]. ASHP Leaders Conference.
10. **Ware, L.** (2021, Apr). *Economic assessment of sugammadex use in the operating room* [PowerPoint presentation]. Eastern States Conference.
11. **Ware, L., Zullo, A., Collins, C., & Nagy, J.** (2021). *Economic assessment of sugammadex use in the operating room* [Poster presentation]. Vizient.
12. **Whitehead, S.** (2020, Dec). *Hyperkalemia Treatment* [PowerPoint presentation]. Morbidity and Mortality Conference.

ACADEMIC PROGRAMS

Year In Review

Lifespan Pharmacy Services participated in a number of educational programs during the 2020 – 2021 academic year including lecturing to local college physician assistant programs, precepting introductory pharmacy practice experience (IPPE), and advanced pharmacy practice experience (APPE) students.

- The Rhode Island Hospital (RIH) pharmacy gave a total number of 153 hours of lectures to physician assistant programs over the 2020 – 2021 academic year.
 - » This included 11 lectures to Bryant University students and 70 lectures to Johnson & Wales University students.
- For the academic year 2020 – 2021, the RIH pharmacy precepted a total number of 34 APPE students over the course of 44 rotations. Twenty-five different preceptors spanning inpatient, retail, and ambulatory care pharmacy provided these experiences.
 - » The RIH pharmacy hosted two longitudinal APPE experience students. These students complete all their APPE rotations at Rhode Island Hospital and can thus make a larger impact by completing longitudinal projects over the course of their year with us.
 - ◇ Both the longitudinal APPE students from 2020 – 2021 went on to PGY1 residency programs; one at Johns Hopkins Hospital and the other at Christiana Care Health System. Last year, they completed projects at Lifespan looking at the outcomes of patients who received a fixed dose of four factor prothrombin complex concentrate for reversal of anticoagulation in intracranial hemorrhage and the factors influencing nimodipine dose modification in aneurysmal subarachnoid hemorrhage.
 - ◇ A longitudinal APPE student from 2019 – 2020 completed her PGY1 residency year and is currently completing a PGY2 in pharmacy administration and leadership at the University of Wisconsin Health. A longitudinal APPE student from 2018 – 2019 was recently hired as one pharmacy's new internal medicine clinical specialists after completing his PGY2 in internal medicine from Yale New Haven.
- In addition to APPE students, the RIH pharmacy also precepted 10 IPPE students across two blocks in the summer and the winter. The strength of pharmacy's IPPE program is reflected by past IPPE students who return to RIH for their APPE rotations.
- For the academic year 2020 – 2021, The Miriam Hospital pharmacy precepted a total number of 12 APPE students over the course of 12 rotations. Eight (8) different preceptors spanning inpatient, retail, and ambulatory care pharmacy provided these experiences. Two of these preceptors also mentored 5 IPPE students over the course of the academic year.
- For the academic year 2020 – 2021, the Newport Hospital pharmacy hosted 4 APPE students and 4 IPPE students over the course of 8 rotations precepted by 2 Clinical Pharmacists and 1 Pharmacy Manager.

Challenges Overcome

Pharmacy was able to continue to provide a high-level educational experience to our APPE and IPPE students during a worldwide pandemic. When many institutions closed their doors to learners, we adapted ways to provide an education to learners and, in most cases, that included on-site at each of our affiliate hospitals.

RESIDENCY PROGRAMS

Post-Graduate Year 1 (PGY1) Pharmacy Residency Program

Rhode Island Hospital continued to expand its PGY-1 residency program. This program offers comprehensive experiences in both inpatient and ambulatory care pharmacy practice sites. Its residents gain expertise in clinical pharmacy practice, pharmacy operations, and develop leadership skills throughout the year. Their learning experiences cover a wide variety of areas including internal medicine, infectious diseases, pediatrics, critical care, oncology, medication safety, formulary management, ambulatory care, pharmacy informatics, research, healthcare analytics, and more. Residents are involved in teaching activities with practitioners and pharmacy students at Lifespan and across Rhode Island. Residents complete the PGY-1 program with the skills to impact patient care at Lifespan and wherever their careers may lead.

Timeline

- 2018
 - » PGY1 program launches with two residents
- 2020
 - » PGY1 program expands to four residents
 - » Program receives full accreditation status (eight years) from the American Society of Health Systems Pharmacy
- 2022
 - » PGY1 program to expand to seven residents

2021–2022 RESIDENCY CLASS



Ama Cobbinah

Graduate of the Arnold and Marie Schwartz College of Pharmacy and Health Sciences, Brooklyn, New York



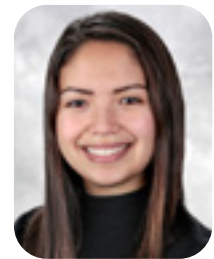
Katie Konieczny

Graduate of the Massachusetts College of Pharmacy and Health Science, Worcester, Massachusetts



Vanamrung Isaragumpot

Graduate of the Oregon Health & Science University in Portland, Oregon



Nicole Kalver

Graduate of the University of Rhode Island College of Pharmacy, Kingston, Rhode Island

Residency Accomplishments

- Expansion of rotations offered to increase the clinical reach of the residency program and clinical pharmacy services
- Three of the program's 2020-2021 four graduating residents have successfully pursued a postgraduate year two (PGY2) pharmacy
 - » PGY2 critical care at Brigham and Women's Hospital
 - » PGY2 solid organ transplant at Ohio State University
 - » PGY2 oncology at Rhode Island Hospital
- Remaining graduating resident obtained the following position:
 - » Clinical Pharmacist – outpatient oncology services at M Health Fairview

Post-Graduate Year 2 (PGY2) Ambulatory Care Pharmacy Residency Program

Rhode Island Hospital in partnership with the University of Rhode Island College of Pharmacy developed a PGY2 ambulatory care pharmacy residency program. This program offers comprehensive experiences in ambulatory care pharmacy practice involving collaborative practice and medication therapy management in a variety of practice settings. These include adult primary care, dermatology, gastroenterology (inflammatory bowel disease and hepatitis C therapy management), renal transplantation, rheumatology, specialty pharmacy, and transitions of care. Residents are involved in teaching activities at the University of Rhode Island College of Pharmacy. Residents are directed in skills critical to patient care, communication, and leadership.

Timeline

- 2014
 - » PGY2 program launches with one resident
- 2016
 - » PGY2 program expands to two residents
- 2020
 - » PGY2 program grows to three residents
 - » PGY2 program receives full re-accreditation status from the American Society of Health Systems Pharmacy

CURRENT 2021–2022 RESIDENCY CLASS



Erin Connolly

Graduate of the University of Rhode Island
College of Pharmacy

PGY1 residency completion at University of
New England, Portland, Maine



Noelle Cordova

Graduate of the University of Rhode Island
College of Pharmacy

PGY1 residency completion at Michael E.
DeBakey Veterans Affairs Medical Center
(MEDVAMC), Houston, Texas



Katherine (Katie) Harte

Graduate of the University of Rhode Island
College of Pharmacy

PGY1 residency completion at Dartmouth-
Hitchcock Medical Center, Lebanon,
New Hampshire

Major Accomplishments

- Grants awarded:
 - » Two grants awarded to residents: American Society of Health-System Pharmacists (ASHP) - Pharmacy Resident Practice-Based Research Grant Program Recipient 2020-21
- Expansion of hepatitis C virus rotation to include immunology clinic (HCV-HIV)
- Streamlining of service commitment rotation at Lifespan Specialty Pharmacy to include residents in clinical assessments of patient care, along with medication dispensing
- Established new elective rotation experiences in various ambulatory care clinic sites including anticoagulation, heart failure, ambulatory hematology/oncology, medicine pediatrics, hypertension
- Twelve of the program's 13 graduating residents are national board-certified pharmacists and one is currently a postdoctoral research associate at Brown University pursuing a Master's degree in public health
- Graduating residents obtained the following positions:
 - » Industry - medical science liaison
 - » Academic medical centers - clinical pharmacist at University Vermont Medical Center
 - » Academia - clinical assistant professor at Binghamton University
 - » Fellowship - postdoctoral research associate at Brown University
 - » Clinical pharmacy specialist – Tufts Medical Center
 - » Clinical pharmacist specialist at Rhode Island Hospital, where we have retained eight of 13 residents since 2015

Post-Graduate Year 1/2 (PGY-1/2) Health System Pharmacy Administration and Leadership Pharmacy Residency Program

Rhode Island Hospital launched a PGY-1/2 health system pharmacy administration and leadership pharmacy residency program. This program offers comprehensive experiences in clinical pharmacy, pharmacy operations, and pharmacy leadership throughout the health system. Learning experiences also include medication safety, pharmacy informatics, pharmacy finance and business operations, and specialty pharmacy. Residents perform strategic planning and service line expansion opportunities. Residents are directed in skills critical to patient care, communication, and health system leadership.

Timeline

- 2020
 - » PGY1/2 program launches with one resident (PGY-1)
- 2021
 - » PGY1/2 program expands to two residents (PGY-1 and PGY-2)
 - » American Society of Health-System Pharmacy residency accreditation survey scheduled for May 2022

CURRENT 2021–2022 RESIDENCY CLASS



James Ning (PGY-1)
Graduate of the University of Illinois
College of Pharmacy

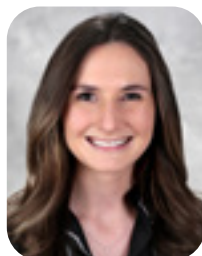


Hope MacLeod (PGY-2)
Graduate of the University of South
Florida College of Pharmacy
Completed PGY-1 Health System
Pharmacy Administration and
Leadership at Rhode Island Hospital

Post-Graduate Year 2 (PGY-2) Oncology Pharmacy Residency Program

The PGY-2 Oncology Pharmacy Residency Program at Rhode Island Hospital, in affiliation with the University of Rhode Island College of Pharmacy, launched in July of 2011 training one resident per year. Upon graduation, residents are prepared to function independently as hematology/oncology clinical pharmacy specialists and are considered essential members of a multidisciplinary team caring for patients with cancer. Furthermore, graduates from the program are prepared for roles as adjunct faculty for pharmacy students on rotation and in classroom learning experiences at colleges of pharmacy.

CURRENT 2021–2022 RESIDENCY CLASS



Hannah Means
Graduate of the University of
New England
PGY1 residency completion at
Rhode Island Hospital

Residency Accomplishments

- Graduating residents recognized for continued professional success:
 - » Board Certification in Oncology Pharmacy (R. Brunault, J. Hutchinson, M. Sorial)
 - » RISHP Pharmacy Resident of the Year Award (V. Abdelmeseh)
 - » Admission to the University of Massachusetts Master of Public Health Program (M. Sorial)
 - » Program Director for the Oncology Pharmacy Residency Program at MGH (U. Lou)

Preceptor Awards

The Pharmacy awards two recipients at the end of each academic year: one for Preceptor-In-Training of the Year and one for Preceptor of the Year. The recipients of these awards have demonstrated strong commitment to the professional training of students and residents while also displaying leadership skills and professionalism.

2021 Preceptor of the Year: Jessica Nagy



Pharmacy students and residents who have precepted with Jessica have cited her as an integral part of the medical team in the emergency department and vouched for her exemplary commitment, leadership, and professionalism.

"Jessica remains calm during these stressful situations and always makes sure her patients receive safe and effective therapeutic regimens."

"She is a vital member of the pharmacy service line and the pharmacy residency program, serving as the PGY1 residency coordinator and receiving praise from all the pharmacy residents for her work in this role."

2021 Preceptor in Training of the Year: Lyndsey Garde



Lyndsey's pharmacy students and residents reference her many clinical and administrative responsibilities and her uncompromising commitment to patients and pharmacists in training.

"She is a true pharmacy role model and was very relatable in her precepting style, having completed a residency herself."

"Lyndsey is never overwhelmed or flustered despite the challenges that may arise during her day, and her positive attitude and high quality precepting has earned her this award."

AWARDS AND APPOINTMENTS

Awards

Verona Abdelmeseh, PGY2 Oncology Resident
Rhode Island Society of Health-System Pharmacists (RISHP) Resident of the Year

Christine Collins, Vice President and Chief Pharmacy Officer
Louis Palmisciano, Pharmacy Business Operations and Clinical Intelligence Specialist, Team Lead
Ashley Rimay, Controlled Substances Pharmacist
ASHP Best Practice Award, Opioid Diversion/Artificial Intelligence/Machine Learning

Ruth Dapaah-Afriyie, Manager, Ambulatory Clinical Pharmacy Services
2020 3rd Quarter, Employee Hero of the Quarter, Rhode Island Hospital

Mori Dorval, Pharmacy Supervisor
2021 Second Quarter, Emma Award for Outstanding Employee, Bradley Hospital

Katherine Duprey, Clinical Pharmacist Specialist
Rhode Island Pharmacists Association (RIPA) Distinguished Young Pharmacist of the Year

Ray Iannuccillo, Pharmacy Supervisor
Rhode Island Society of Health-System Pharmacists (RISHP) Board Member of the Year

Newport Hospital Pharmacy
2021 Newport Hospital President's Award

Karen Nolan, Director, Inpatient Pharmacy Services
Rhode Island Society of Health-System Pharmacists (RISHP) Committee Chair of the Year

Paul Parchesky, Director of Pharmacy
2021 1st Quarter, Leader of the Quarter, Newport Hospital

Michael Poirier, System Director, Ambulatory Care Pharmacy
Rhode Island Pharmacists Association (RIPA) Pharmacy Service Award

Appointments

Amy Brotherton, Clinical Pharmacist – Inpatient
Assistant Professor, The Warren Alpert Medical School of Brown University

Bryan McCarthy, System Director of Inpatient Pharmacy
American Society of Health-System Pharmacists (ASHP) Fellow

Diane Parente, Clinical Pharmacist – Inpatient
Assistant Professor, The Warren Alpert Medical School of Brown University

Rajeev Shah, Clinical Pharmacist – Inpatient
Assistant Professor, The Warren Alpert Medical School of Brown University

CERTIFICATIONS AND ADVANCED DEGREES

James Beaulieu, Senior Clinical Specialist
Vizient Analyst Certificate

Nelson Caetano, Director, The Miriam Hospital
Vizient Analyst Certificate

Ruth Dapaah-Afriyie, Manager, Ambulatory Clinical Pharmacy Services
MBA Degree, Bryant University, and Beta Gamma Sigma (The International Business Honor) Society

Jamie Falso, Pharmacy Technician Specialist, Newport Hospital
Medication History Certificate

Lyndsey Garde, Specialty Pharmacy Patient Care Coordinator
Board Certified Ambulatory Care Pharmacist (BCACP)

Michelle Gauvin, Clinical Pharmacy Specialist – AM Care
Board Certified Geriatric Pharmacist (BCGP)

Sara Hartke, Lead Pharmacy Technician, Med Access Program
Billing and Reimbursement PTCB Certificate

Matthew Lariviere, Clinical Pharmacist – Inpatient
Board Certified Oncology Pharmacist (BCOP)

Leana Mahmoud, Clinical Pharmacist Specialist
Vizient Analyst Certificate

Courtney Murray, Lead Pharmacy Technician, Rhode Island Hospital
Certified Compounded Sterile Preparation Technician and Advanced Certified Pharmacy Technician

Louis Palmisciano, Lead, Data Scientist
Vizient Analyst Certificate

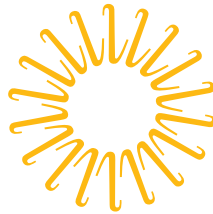
Diane Parente, Clinical Pharmacist Specialist
Vizient Analyst Certificate

Brenda Pierce, Clinical Pharmacist – Outpatient
NASP Certified Specialty Pharmacist

Michelle Ting, Clinical Pharmacist Specialist – Inpatient
Board Certified Infectious Diseases Pharmacist

Laura Varnum, Clinical Pharmacist – Inpatient
Board Certified Ambulatory Care Pharmacist

Allison Zuern, Clinical Pharmacy Specialist – AM Care
Certified Diabetes Educator



Lifespan Pharmacy

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**PHARMACY SERVICE LINE
ANNUAL REPORT **2021****

