

A framework for graduate and postgraduate specialty pharmacy training

Joseph L. Cesarz, MS, PharmD, Department of Pharmacy, UW Health, Madison, WI, USA

David A. Mott, PhD, FAPhA, Social and Administrative Sciences Division, School of Pharmacy, University of Wisconsin, Madison, WI, USA

Eric D. Friestrom, PharmD, Department of Pharmacy, UW Health, Madison, WI, USA

Address correspondence to Dr. Cesarz (jcesarz@visanteinc.com).

Twitter: @JCesarzRxDoc

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Purpose. There is a growing need for specialty pharmacy leaders within integrated delivery networks (IDNs). Traditional training for students and residents has not met the demand for pharmacy leaders in this space. This article describes the partnership between UW Health (UWH) and the University of Wisconsin School of Pharmacy (UWSOP) in developing a specialty pharmacy elective course at UWSOP and in creating a postgraduate residency training program at UWH. Future directions for the partnership are discussed.

Summary. Members of the leaderships of UWH and UWSOP met to discuss expanding coursework related to specialty pharmacy business fundamentals at UWSOP. This meeting led to the development of a 2-credit elective course beginning in spring 2017. The course focused on marketplace economics, channel strategies, and specialty pharmacy practice development. Additionally, UWH identified the need to provide postgraduate training to meet the increasing demand across IDNs for specialty pharmacy leaders. The residency program was initiated in 2013 and received accreditation in 2016. The residency provides experience in specialty pharmacy leadership, managed care, finance, the revenue cycle, accreditation, and the supply chain. Future partnership opportunities include creation of a longitudinal student pharmacist track and joint project coordination between UWSOP students and UWH residents.

Conclusion. This partnership has provided a pathway for students to gain expertise in specialty pharmacy business fundamentals as well as postgraduate training opportunities for future specialty pharmacy leaders. IDN and school of pharmacy partnerships can expand educational opportunities for future specialty pharmacy leaders and help fulfill the market gap in specialty pharmacy leaders.

Keywords: course, education, residency, specialty pharmacy, student

Over the last 10 years, specialty medications have substantially increased the overall healthcare drug spend. The quantity of specialty medications in the market, patient utilization of specialty pharmaceuticals, and drug pricing have all seen annual increases.¹⁻³ With an overwhelming majority of agents in the drug pipeline being specialty medications, this trend shows no signs of stopping. It is estimated that specialty medications account for approximately 45% of the overall \$450 billion market.⁴ With this growth in specialty medication volume and cost, unique drug channels and competitive marketplaces have emerged, requiring pharmacy leaders to be trained and competent in this area. Due to the complicated and cumbersome processes faced by many patients initiated on specialty medications, integrated delivery networks (IDNs) have gained interest as a means of providing specialty pharmacy services that promotes a better patient experience and improved clinical outcomes. This has led to an increased need at IDNs for pharmacy leaders who understand health-system enterprise economics and the specialty pharmacy marketplace. Core competencies include streamlining prior authorization procedures, establishing logistics to deliver specialty medications, achieving and maintaining appropriate accreditation(s), collaborating with specialty prescribers, and developing procedures to increase the rate of capture of specialty medication prescriptions from clinics.

UW Health (UWH) has managed patients with specialty disease states for decades and formally started specialty pharmacy services in 2012. The specialty pharmacy serves over 80 clinics and provides care to approximately 6,600 patient lives. The specialty pharmacy is triple-accredited by URAC (since 2017), the Center for Pharmacy Practice Accreditation (since 2017), and the Accreditation Commission for Health Care (since 2019),

and all specialty pharmacists have earned the Certified Specialty Pharmacist (CSP) credential through the National Association of Specialty Pharmacy. Due to the significance of specialty pharmacy to UWH and the ongoing need to develop competent clinicians and leaders in this area, a strategic effort was made to increase training and educational opportunities in specialty pharmacy for student pharmacists and pharmacy residents. Cornerstones of this effort were establishing a partnership between the UWH pharmacy department and the University of Wisconsin School of Pharmacy (UWSOP) and initiating an ASHP-accredited specialty pharmacy residency.

The purpose of this article is to highlight the partnership between UWH and UWSOP to enhance training and educational opportunities in specialty pharmacy leadership and to describe the implementation of a UWH postgraduate residency training program. Future directions for the partnership related to specialty pharmacy training are also described. For reference, a timeline of key events is provided in Figure 1 to outline the chronology of the programs developed to enhance training and educational opportunities in specialty pharmacy.

Development and implementation of a specialty pharmacy elective course

The conception of UWSOP training opportunities related to specialty pharmacy originated in discussions between pharmacy leadership team members, including the senior director of pharmacy, director of ambulatory services, and the manager of specialty pharmacy at UWH, an assistant director for clinical program development at another IDN, and the chairpersons of the Pharmacy Practice Division and the Social and Administrative Sciences (SAS) Division at UWSOP. The objectives were to discuss the need for additional specialty pharmacy educational offerings at UWSOP and identify core concepts to include in

the coursework. Members of the group from the 2 IDNs identified that students needed training related to marketplace economics, supply chain strategies (including the 340B Drug Pricing Program), business integrity, reimbursement, and pharmacy practice development. Further, they noted that specialty pharmacy was experiencing significant growth regionally and nationally, and that there will be a continued need for pharmacists to develop and manage services in this area. Additionally, their observations showed that student pharmacists and incoming postgraduate year 1 (PGY1) pharmacy residents lacked awareness of business fundamentals related to specialty pharmacy, the implications and importance of specialty pharmacy for pharmacy practice, and the growth potential of specialty pharmacy.

Members of the group from UWSOP shared that the preexisting curriculum did not effectively prepare students to navigate future challenges related to specialty pharmacy that they may encounter. While the group felt that clinical aspects of many specialty drugs (ie, mechanisms of action, indications, dosing, and monitoring) were effectively covered in the second and third years of the required curriculum, there was limited faculty experience and student exposure to specialty pharmacy economics and business management. The concepts of drug distribution channels and pharmacoeconomics were provided to students in the first year of the PharmD curriculum, but at this point many students had little context for these subjects and there was no direct application to specialty pharmacy thereafter. However, UWSOP leaders shared that UWSOP offered introductory pharmacy practice experiences (IPPEs) and Advanced pharmacy practice experiences (APPEs) at specialty pharmacy practice sites in the second half of the PharmD curriculum.

Based on the information shared by both groups, planning for a 2-credit elective course focused on specialty pharmacy that would be offered to third-year doctor of

pharmacy students began. The group first determined the overall objectives of the course, the outline of topics and objectives for each topic, the proper mix of faculty and specialty pharmacy practitioners who would provide the content, and the format to be used to provide the content. The group identified a faculty member to coordinate the course and provide course content. Additionally, the group developed a list of local UWSOP alumni who were practicing in specialty pharmacy and/or had expertise in an area applicable to the goals of the course. These experts were then contacted to gauge their interest in providing content for the course based on his or her area of expertise. The entire planning process took 9 months to complete. The course was first offered in the spring 2016 semester and continues to be offered, with the most recent semester occurring in the spring of 2020.

Table 1 lists the topics covered, the providers of the topic content, and the objectives for each weekly meeting of the 16-week, semester-long course. One week of the semester is allocated to spring break and 1 week is allocated to school-wide testing of third-year students. The course is coordinated by a faculty member in the SAS division.

Enrollment in the course is limited to 20 to 25 students to facilitate class discussion.

Based on needs identified by IDN leaders and areas of interest among UWSOP faculty, the course focuses on marketplace economics, channel strategies, and specialty pharmacy practice development, implementation, and evaluation (rather than clinical aspects of specialty drugs). Clinical aspects of the drugs are discussed briefly during the course but are typically shared as examples with a focus on how pharmacists are utilized within specialty pharmacy programs to help with prescribing, proper use, and/or management of patient outcomes of specialty drugs. The course meets for 2 hours each week and learning activities for class meetings include a mix of didactic lectures, large and small group discussions, small group problem-solving exercises, and case discussions.

Students are provided with reading material for each class session that consists of industry reports, academic research articles, specialty pharmacy trade press articles, and newspaper articles. Students are required to read the provided materials prior to each weekly meeting and to submit to the course coordinator before the meeting up to 3 questions they have about the topic. The students' questions are shared with the topic leader for the corresponding week. Students submit structured reflections on weekly topics, which allows for assessment of their learning and understanding of key topics.

Development of specialty pharmacy residency

In 2012, UWH was experiencing significant growth in specialty pharmacy volumes, and discussions with other IDN pharmacy leaders made it evident that this was a shared trend. Due to improved patient care, clinic staff satisfaction, and financial benefit, many health systems were developing internal specialty pharmacy programs.⁵⁻⁷ However, a specialty pharmacy program was a relatively new business unit for IDNs, and there was a significant need for cultivating pharmacy leaders in the specialty pharmacy space. As a result, UWH began developing a postgraduate training program to develop future specialty pharmacy leaders.

The conceptual framework for the program was established with input from the department leadership and guidance from experienced residency program directors (RPDs) at UWH. The director of ambulatory pharmacy services was enlisted to serve as the RPD for the Specialty Pharmacy Program. An application for pre-candidate status was submitted to ASHP, and the first resident was matched with and started the program in July 2013.

The initial structure of the program was a combined PGY1 and postgraduate year 2 (PGY2) program. The PGY1 year was highly integrated with a UWH PGY1 pharmacy practice

residency, with an emphasis on specialty pharmacy disease states (hematology, solid organ transplant, neurology) and transitions of care. The primary practice area in the first year was the inpatient setting, with some longitudinal experience in the ambulatory clinics also provided; the competency areas and goals and objectives (CAGOs) of the ASHP-accredited PGY1 pharmacy practice residency were utilized for this portion of the training. In the PGY2 year, the resident shifted into the specialty pharmacy setting for dedicated experiences in specialty clinics and pharmacy leadership. When the program started, there was not an ASHP-recognized residency program structure or set of CAGOs in this area, so UWH developed PGY2 CAGOs based on specialty pharmacy accreditation standards and core competencies for future leaders in this area.

The residency program received full accreditation from ASHP in 2016. After the second resident successfully completed the 2-year program in 2017, UWH decided to transition from a combined PGY1/PGY2 program to a 1-year PGY2 program. The rationale for the change was largely based on graduate feedback related to having a more concentrated experience specific to specialty pharmacy and more focus on leadership development. In the 2-year structure, the first year of the residency largely mirrored our PGY1 pharmacy practice residency, and the residents felt that they had minimal exposure to the operations and services of the specialty pharmacy until the second year. Additionally, as specialty pharmacy training was a nonstandard residency program offering, there were challenges with recruiting fourth-year pharmacy students due to lack of awareness of what specialty pharmacy was, let alone what training opportunities existed within specialty pharmacy. By transitioning to a dedicated PGY2 residency, the entirety of the program was focused on specialty pharmacy operations, business development, and pharmacy leadership.

In July 2018, the third resident of the program began in the restructured PGY2 specialty pharmacy residency. During this time, ASHP established workgroups to evaluate the different types of residency programs and associated CAGOs. As a result of these efforts, ASHP created a unique track and CAGOs within the health-system pharmacy administration and leadership (HSPAL) framework for PGY2 specialty pharmacy programs.⁸ This was a major advancement in recognizing specialty pharmacy as a formal postgraduate training opportunity.

The structure of the UWH PGY2 program is outlined in Table 2. There are 9 required block rotations, 7 longitudinal rotations, and 8 weeks of elective time. The resident is expected to provide direct patient care in the specialty and outpatient pharmacy for an average of 12 hours per week, with weekday staffing occurring in the specialty pharmacy and weekend staffing at the hospital outpatient pharmacy. The resident is involved in an average of 4 hours per week of direct patient care in a specialty clinic as part of the specialty clinic leadership rotation.

Areas of focus throughout the residency include collaboration with the organization's health maintenance organization prescription benefit management team, ensuring compliance with accreditation standards and participating in accreditation visits, specialty pharmacy operations and shipping logistics, clinical management, and experience with marketplace negotiations. The resident is also expected to participate in lectures and colloquia provided at UWSOP as part of the specialty pharmacy elective course and other related courses.

For major residency projects, specialty pharmacy residents have been involved with developing integrated specialty patient management modules within the electronic medical record (EMR), facilitating the specialty pharmacy space design for a new centralized

pharmacy services building, incorporating symptom-based patient assessments into the EMR-based specialty modules, and advancing the role of pharmacy technicians to improve the cost-effectiveness of managing specialty pharmacy patients. Past graduates have graduated to take on roles including assistant director for clinical program development, clinical pharmacy specialist, and clinical manager of ambulatory pharmacy services at health systems across the United States.

Future strategic directions

With the increase in numbers of new pharmacy graduates, leaders of the UWH-UWSOP partnership are discussing new strategies to differentiate graduates into novel pharmacy roles. Recently UWSOP introduced student career tracks to allow students the opportunity to concentrate their required electives in the PharmD curriculum around an area of interest. Examples include a rural health track and an operations and technology management track offered in partnership with the UWH school of business. Our partnership has started conversations about a specialty pharmacy track that would complement the existing specialty pharmacy course developed by UWSOP and UWH.

The specialty pharmacy track could be a 3-semester sequence and entail a variety of elective course options designed to cover pharmacotherapy of specialty drugs, financial and business aspects of specialty pharmacy, and project management. The specialty-focused pharmacotherapy course would supplement existing pharmacotherapy courses by providing a stronger emphasis on mechanisms of actions, monitoring parameters, and adverse effects of specialty medications. The specialty pharmacy business course would expand on topics covered in the current specialty pharmacy elective described above. The project management course would be provided as a 2-course series on project management

focusing on specialty pharmacy. In the first course in the series, students would be asked to partner with local specialty pharmacies to identify an area of need at the pharmacy and outline steps to complete a project to address the area of need. The second part of the 2-course series would focus on completion of the project and disseminating the results via posters, presentations, and publications. The project management course would also provide opportunities for facilitated networking of pharmacy students with the UWH PGY2 specialty pharmacy resident, UWH HSPAL residents, and UWH pharmacy leaders. Lastly, the final year of the track would include APPE rotations at specialty pharmacies and/or specialty clinics.

Additionally, UWH and UWSOP are planning to partner on major resident research projects to improve project frameworks, scholarship, and collaboration between clinicians, leaders, and researchers. This will transform the existing project and research enterprise in both entities, resulting in improvements for all engaged participants. Residents will achieve improved access to seasoned researchers, experience with grant proposals, training in high-integrity project frameworks, and more facets of scholarship. Leaders and clinicians will receive opportunities for professional development related to formal research, improved preceptorship for future projects, and better engagement in scholarly activities. Researchers will have access to experts in pharmacy practice and leadership, allowing for a better understanding of contemporary issues, unanswered questions in daily practice, and more impactful opportunities for future research. This type of translational research framework is crucial in a growing area like specialty pharmacy, where there is scarcity of research in practice management and clinical outcomes and the need for the results of such research is growing.

Conclusion

Specialty pharmacy is, and will continue to be, an important area for pharmacist leadership within IDNs. The partnership between UWH and UWSOP serves as a model of collaboration between IDNs and schools of pharmacy to increase student awareness of specialty pharmacy and provide resident teaching opportunities. By providing these experiences, UWH is helping to prepare students and trainees to be qualified for specialty leadership roles after training. This collaboration has also provided an opportunity for differentiation of UWSOP from other schools of pharmacy. Students at UWSOP can gain exposure to specialty pharmacy, an area with an anticipated increase in demand for the foreseeable future. We encourage all IDNs and schools of pharmacy to form specialty pharmacy-focused collaborations and consider the implementation or expansion of specialty pharmacy student courses and accredited residencies

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Figure 1. Chronology of specialty pharmacy training program development. APPE indicates advanced pharmacy practice experience; HSPAL, health-system pharmacy administration and leadership; PGY, postgraduate year; UWSOP, University of Wisconsin School of Pharmacy; UWH, University of Wisconsin Health.

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Key Points

- Specialty pharmacy leadership roles will be increasingly critical to successfully manage health-system pharmacy departments.
- Collaboration between integrated delivery networks (IDNs) and schools of pharmacies increases student awareness of specialty pharmacy and helps prepare learners for career opportunities in specialty pharmacy.
- Other IDNs and schools of pharmacy are encouraged to explore partnerships in specialty pharmacy training and should consider the addition of curriculum and residency training opportunities in this area.

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Table 1. Topics, Topic Leaders, and Objectives of Specialty Pharmacy Elective (2 Credit Hours)

Lecture Number	Topic	Topic Leader(s)	Objectives
Unit 1: Structure of the Specialty Pharmacy Marketplace			
1	Course Introduction Specialty Pharmacy Overview and Market Implications	Course coordinator	<ol style="list-style-type: none"> 1. Identify characteristics of drug products that define drug products as specialty drug products. 2. Describe significant trends in specialty drug spending, price and utilization. Describe the implications of these trends for the health system. 3. Describe the components of the channel of distribution of patient administered specialty drug products. 4. Describe how characteristics of specialty drug products impact the goals and objectives of components in the channel of distribution for specialty drugs. 5. Describe the implications of characteristics of specialty drug products for specialty pharmacy operations. 6. Link characteristics of the specialty pharmacy market to future class topics. Set stage for class topics.
2	Specialty Pharmacy Operations, Distribution, and Infrastructure	Panel of pharmacists from 2 IDNs and a retail specialty pharmacy	<ol style="list-style-type: none"> 1. Compare and contrast different models of specialty pharmacy development. 2. Describe core services of specialty pharmacy operations and patients served. 3. Describe infrastructure requirements of specialty pharmacy services development 4. Describe the relationship between specialty pharmacy, health providers, and the health plan within an IDN. 5. Describe future strategic directions for specialty pharmacies.
3	Pharmacy Benefit Managers (PBMs)	Course coordinator	<ol style="list-style-type: none"> 1. Discuss the role of PBMs in the health care system. Describe the services that PBMs offer various entities in the health care system. 2. Provide a brief history of PBMs in the health care market and how their role has evolved to their role today. 3. Describe the money flow and physical product flow through PBMs in the healthcare system.

4	PBM Specialty Pharmacy	Pharmacist team from a PBM specialty pharmacy	<p>4. Discuss the role of PBMs in the specialty pharmacy channel of distribution.</p> <p>5. Compare and contrast common models of PBMs in the marketplace.</p> <p>6. Provide examples of the services PBMs provide to their clients. Describe how PBMs interact with various clients.</p> <p>1. Describe the history of and factors that contributed to the development of the PBM specialty pharmacy.</p> <p>2. Describe the relationship between the PBM specialty pharmacy and the PBM.</p> <p>3. Describe the services provided, patients served, and how services are provided by the PBM specialty pharmacy.</p> <p>4. Describe PBM specialty pharmacy participation in a closed distribution network and the advantages and disadvantages to a PBM specialty pharmacy and a manufacturer of participating in such a network.</p>
5	Managed Care Organizations/Prior Authorization (PA) Programs	Pharmacy director from a managed care organization and specialty pharmacy director from an IDN	<p>Managed Care Organizations</p> <p>1. Describe the evolution of the goals of managed care and strategies to achieve those goals.</p> <p>2. Describe the basic functions of a managed care organization.</p> <p>3. Describe the relationships between a payer and a health system.</p> <p>4. Describe how specialty drugs impact the drug benefit.</p> <p>5. Describe tools used by managed care to control the specialty benefit.</p> <p>6. Describe the goals of a PA program and steps in a PA program from a payer perspective.</p> <p>PA Programs</p> <p>1. Outline a typical pathway to initiate treatment with specialty medications.</p> <p>2. Define a PA and understand why they are utilized by PBMs.</p> <p>3. Explain the importance of a PA department to the success of a specialty pharmacy.</p> <p>4. Identify the key characteristics of a drug class or therapeutic area that make it a good candidate for PA services.</p>
6	Specialty Pharmacy Reimbursement	Specialty pharmacy	<p>1. Understand the core terms and concepts of specialty pharmacy</p>

	(includes 340B Drug Pricing Program basics)	director from an IDN and course coordinator	reimbursement. 2. Develop an understanding of drug distribution models and impacts on reimbursement. 3. Apply the concepts of reimbursement to example specialty drug products and payers. (Students do group work to work through reimbursement examples.) 4. Understand the origin of the 340B program and issues related to the 340B program. 5. Discuss the impact of the 340B program on specialty pharmacy and the future of 340B.
7	Specialty Manufacturer Perspective	Managers from a specialty pharmacy manufacturer	1. Describe the role of specialty pharmaceuticals in a manufacturer's portfolio. 2. Describe approaches to pricing and marketing of specialty products. Provide examples of each. 3. Describe how manufacturers interact with various players in the specialty space (ie, hubs, PBMs, health systems, etc) and how and why manufacturers set up limited distribution networks and data reporting requirements, etc. that are associated with such arrangements.

Unit 2: Issues in Specialty Pharmacy Operations

8	Specialty Pharmacy Contracting	Specialty pharmacy director from an IDN	1. Describe steps in a structured approach to contracting to provide specialty pharmacy services. 2. Describe payer and manufacturer considerations that should be considered in specialty pharmacy contracting. 3. Describe how to identify internal stakeholders, to determine the scope of activity, and create the value proposition. 4. Describe key aspects of taking advantage of opportunities and leveraging strengths when establishing specialty contracts. 5. Review actual contracts to identify pitfalls and opportunities.
9	Patient Clinical Management/Specialty Outcome Reporting	Specialty pharmacy director from an IDN	Patient Clinical Management 1. Identify potential care models for a variety of specialty disease states and patient populations. 2. Describe the role and impact of the pharmacist within high-risk case

			<p>management.</p> <ol style="list-style-type: none"> 3. Describe tools utilized to support specialty patient management programs. 4. Design the roles and objectives for a pharmacist-led specialty patient management program. (Students engaged in group work to complete objective 4.)
10	Specialty Ethical Considerations	Faculty member with expertise in ethics	<p>Outcome Reporting</p> <ol style="list-style-type: none"> 1. Describe the rationale for specialty pharmacy outcomes reporting. 2. Describe patient satisfaction, pharmacy operations, patient adherence, and clinical outcomes metrics used in specialty pharmacy practice. 3. Discuss outcomes that could/should be reported for specific specialty therapeutic areas. (Students engaged in group work to complete objective 3.) <ol style="list-style-type: none"> 1. Describe how ethical principles apply to case studies of three specialty drug products. 2. Describe issues that managed care organizations must deal with when choosing to provide high-cost specialty medications.
11	Implementation of Specialty Pharmacy in a Health System	Panel of specialty pharmacists from 3 IDNs	<ol style="list-style-type: none"> 1. Demonstrate knowledge of previously-discussed specialty pharmacy concepts including specialty pharmacy operations, PA services, payor considerations, and patient clinical management. 2. Draw on key concepts to develop a structured plan to implement a specialty pharmacy within an academic health system. Compare and contrast the developed plan with real-world examples. (Students do group work to outline a plan to develop a specialty pharmacy based on a case presented to each group.) 3. Describe the processes each IDN used to develop a specialty pharmacy.
12	Specialty Pharmacy Quality and Accreditation	Director of pharmacy accreditation	<ol style="list-style-type: none"> 1. Describe the value of pharmacy practice accreditation in the healthcare system and in pharmacy. 2. Describe how accreditation aligns with initiatives for quality, safety, and efficiency in pharmacy practice and for recognition of pharmacist delivered patient care services.

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Specialty Pharmacy ROI/Specialty Drug Pipeline

Director of pharmacy from an IDN and pharmacy director at a managed care organization

3. Describe the pharmacy practice accreditation process.
4. Discuss the concepts and indicators for value in pharmacy practice standards.

Specialty Pharmacy ROI

1. Describe the fundamentals of ROI analysis and reporting.
2. Describe issues that are important in conducting ROI analyses.
3. Apply ROI fundamentals to specialty pharmacy examples.

Specialty Pharmacy Pipeline

1. Describe why understanding and tracking the pharmaceutical pipeline is important to various stakeholders in the health care system.
2. Describe how a managed care organization would use pipeline information to adjust budgeting.
3. Describe the factors that add variability and unpredictability to pipeline budget estimates.

Abbreviations: IDN, integrated delivery network; PA, prior authorization; PBM, pharmacy benefits manager; ROI, return on investment.

Table 2. Rotation Grid for PGY2 Specialty Pharmacy Residency Program

Rotation Name	Length	Preceptor	Description
Department Training	5 weeks	Specialty pharmacy supervisor	Dedicated time to train in pharmacist workflows across direct patient care areas where the resident will be staffing
Orientation	5 weeks	Residency program director	Provides an overview of all ASHP-required residency elements
Patient Care (Staffing)	47 weeks ^a	Specialty pharmacy supervisor	Direct patient care experience that occurs in the organization's specialty pharmacy and main hospital outpatient pharmacy; average of 12 hours per week across the duration of the residency
Specialty Pharmacy Operations	4 weeks	Specialty pharmacy manager	Provides exposure to and experience with the workflows and systems that exist within the specialty pharmacy; this includes supply chain and purchasing systems, inventory management, shipping logistics, and product fulfillment workflows
Specialty Clinic Leadership	4 weeks	Ambulatory care pharmacy manager	Provides the resident with a thorough understanding of the decision-making processes that support coordination of pharmaceutical care among ambulatory care clinics (with an emphasis on specialty clinics)
Managed Care	4 weeks	PBM clinical pharmacist	Provides the resident with an overview of the Quartz Health Solutions managed care organization and its integration within UW Health; designed to improve knowledge of managed care models, PBM models, formulary management, manufacturer contracting and rebates,

Specialty Pharmacy Leadership	4 weeks	Specialty pharmacy manager	and medication outcomes/case management programs Provides the resident with foundational components of leading a health system-based specialty pharmacy in a competitive marketplace; the resident will develop an understanding of internal and external strategies to grow specialty pharmacy business, and how to capitalize on specialty pharmacy business opportunities
Finance and Revenue Cycle	4 weeks	Ambulatory pharmacy director	The resident gains experience with preparing the operating budget, specifically related to specialty pharmacy volume, revenue, and drug expense
Supply Chain & 340B	4 weeks	Pharmacy supply chain and financial services director	Develops a thorough understanding of the principles and standards for purchasing and contracting, 340B, and asset management (inventory control, order to pay process for pharmaceutical procurement); specific focus is placed on the processes that impact the specialty pharmacy
Elective #1	4 weeks		
Elective #2	4 weeks		
Advising	52 weeks ^a		Advisors review the resident's goals and assist in developing customized plans; advisors meet with the resident after each residency advisory committee meeting to provide feedback, mentorship, and career counseling; they also guide residents as they move through their year-long project, provide

insight on how to navigate the organization, and assist with career counseling

Major Residency Project

47 weeks^a

Provides the resident with the opportunity to lead a large-scale project that will have a positive impact on the department of pharmacy as well as the organization overall

Accreditation

39 weeks^a

The resident learns to understand the scope of accreditation standards, and similarities/differences between the different accrediting bodies; additionally, the resident develops an understanding for data reporting and validation requirements

Personnel Management

39 weeks^a

Specialty pharmacy manager

Provides the resident with direct supervisory experience; the resident oversees a team of employees within the specialty pharmacy, as determined by the preceptor and RPD (this may include medication access specialists, pharmacists, and/or pharmacy technicians)

Abbreviations: PBM, pharmacy benefits manager; PGY2, postgraduate year 2; RPD, residency program director.

^aDenotes longitudinal rotation.

Figure 1: Chronology of Specialty Pharmacy Training Program Development

