# PharmaSeer™

# Educator Implementation Guide

Pharmacy Technician
Training Content
Powered by NHA

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## Description

PharmaSeer™ is a comprehensive, online training tool intended to serve as the didactic component of a pharmacy technician training curriculum. PharmaSeer™ is designed to complement the simulation and experiential components of a broader pharmacy technician curriculum. Created by leading pharmacy industry experts and educators, the content meets all 2019 entry-level didactic standards for pharmacy technician education established by the American Society of Health-System Pharmacists (ASHP). As the only programmatic accreditor of pharmacy technician education, ASHP standards address both the required subject matter as well as the minimum duration of time that should be spent on didactic content. By adhering to the ASHP didactic standards, PharmaSeer™ exemplifies flexibility in its use by being an "off the shelf" solution for pharmacy technician training programs, whether formal education programs (vocational schools, community colleges, and Career and Technical Education (CTE) programs), or employer-based training programs offering on the job (OTJ) training. PharmaSeer™ is broadly applicable to any level of pharmacy technician learner across all practice settings whether an entry-level technician in training, or a practicing pharmacy technician with years of experience seeking to refresh and update their baseline knowledge in areas of practice they may not perform daily.

# Using PharmaSeer™

## DATA & INSIGHTS

Included with PharmaSeer™ are robust analytics for both students and instructors. Both students and instructors have a dashboard that reports key metrics, including student progress, performance, and total "seat time." The instructor dashboard also includes a summary view that aggregates progress and performance of all students enrolled in their course.

| KEY METRICS | HOW MEASURED |
|---|---|
| Performance | End of Lesson (EOL) quiz items – % correct out of total attempted |
| Progress | EOL quizzes – % of completed quizzes out of total # of quizzes |
| Seat Time | Total amount of login time spent engaging with PharmaSeer™ |

Please refer to Appendix at the end of this document for information on how to access and interpret the PharmaSeer™ analytics reporting feature.

## EASE OF USE

- PharmaSeer™ is designed to be a self-paced course. An example of how a student would complete PharmaSeer™ in 16 weeks is provided in the Appendix.
- PharmaSeer™ provides students and their instructors the ultimate flexibility. Students can access the modules in any order and jump from one module to the next without completing a required assessment. PharmaSeer™ will not lock students out of the program if they fail to complete every quiz or activity. The program is designed to be flexible enough to meet your program's needs and requirements.
- Total time spent (i.e. "seat time") in PharmaSeer™ is a metric included in the facilitator dashboard. This metric should be used in conjunction with other reporting metrics such as progress and performance to provide a more complete picture of how students are using the program. Accurate reporting of student seat time allows for a defensible accounting of didactic hours required for ASHP programmatic accreditation.
- PharmaSeer™ includes formative activities and summative end of lesson quizzes. Comprehension of each lesson's learning objective is measured by the end of lesson quizzes. Cumulative scores on end of lesson quizzes create the performance metric for each module.

Features instructors may have questions about:

- **Rationales**–Students can take the end of lesson quizzes as many times as they need to feel confident that they've achieved the learning objective. However, the quiz questions don't change and so we've opted not to provide rationales for the correct answers. This way, you can assess students' improvement on subsequent quiz attempts knowing they were never provided the correct answer and simply committed it to memory. Formative (non-scored) activities within the lessons, as well as the My Practice feature provide opportunity for students to practice in a low stakes environment and receive immediate feedback (in the form of rationales) before re-taking the quiz.

- **Answer keys**– To maintain the highest level of security, the correct answers to the end of lesson quiz items are in a secure test data bank. Because these quizzes can be used to pass or fail someone in a course and in some cases, minimum scores are required for licensure by some state boards of pharmacy, we do not provide answer keys outside of our secure database.
- **Unlimited attempts** –Quizzes can be taken as many times as desired. Because the quizzes only assess knowledge for the associated lesson, learners with low quiz scores should be directed to go back and review the lesson content before subsequent quiz attempts to improve scores and demonstrate knowledge gain.

All end-of-lesson quiz features are built into the PharmaSeer™ product to provide validity to scores achieved and maintain a high level of exam security integrity.

## FEATURES

| Feature | What it is | How to use it |
|---|---|---|
| Module Overview Videos | Video providing summary of topics covered in the entire module | Watch at the beginning of each module to get a preview of what to expect in the following lessons |
| Lesson Overview | Brief introductory paragraph at the beginning of each lesson | Outlines the lesson learning objective and includes a brief summary of reinforcing topics |
| Multimedia | Videos, images, illustrations, tables, and audio narration | Utilized to explain, clarify, and reinforce concepts and keep learners engaged throughout |
| Confidence Checker | Self-reporting tool after each lesson overview that must be used to report on the user's confidence level with the lesson content to follow | NHA is collecting self-reported confidence levels, but is not currently displaying this data; data may be used in the future for connecting "self-efficacy" and learner performance |
| In-lesson Activities | Formative items in the form of multiple-choice questions, matching, or other activities help learners gauge understanding of lesson content | Upon completion of these activities, the correct answers and rationales are provided to the learner to help understanding; these activities are not "graded," but their completion is tracked in the analytics reporting. They can be used to prepare for the EOL quizzes. |
| My Practice Activities | Low-stakes, ungraded practice area to reinforce key concepts | At the end of each lesson, students who need further explanation or practice to understand key concepts should use prior to attempting the end of lesson (EOL) quizzes |

| Feature | What it is | How to use it |
|---|---|---|
| End of Lesson Quizzes | Summative quizzes at the end of each lesson to assess learners' level of mastery of lesson learning objectives | These quizzes are graded and are the basis of the performance metrics in the analytics dashboard; these multiple-choice questions are developed following the same rigorous, psychometrically-sound process used to develop official certification exam items; these quizzes can be taken as many times as desired, and correct answers and rationales are not provided |
| Drug Flashcards | Flashcards covering the brand and generic drug names, drug class, common uses, and common naming prefixes/suffixes used to help identify drug classes for the top 200 prescribed medications in the US | Flashcards should be studied throughout the use of PharmaSeer™ to memorize the top 200 prescribed medications, which accounts for ~91% of all prescribed medications |
| Flashcards | Flashcards covering vocabulary and key concepts PharmaSeer™ covers | Can view flashcards for all 20 modules, individual module, or individual lesson level to reinforce user's knowledge of topics covered |
| Glossary | Definitions of key terms found within the modules | The glossary can be accessed at any time from any module, with the choice to see the entire glossary across all modules, or just the glossary terms within the module the learner is currently in |
| Seat Time | Amount of time a learner spends logged into, and engaged with PharmaSeer™ | Seat time is a great way to gain insight into how individual learners are using PharmaSeer™, and allows for comparison between users, but also provides an average seat time by user or cohort for tracking didactic hours |

# Implementation Strategies

### WHERE TO START

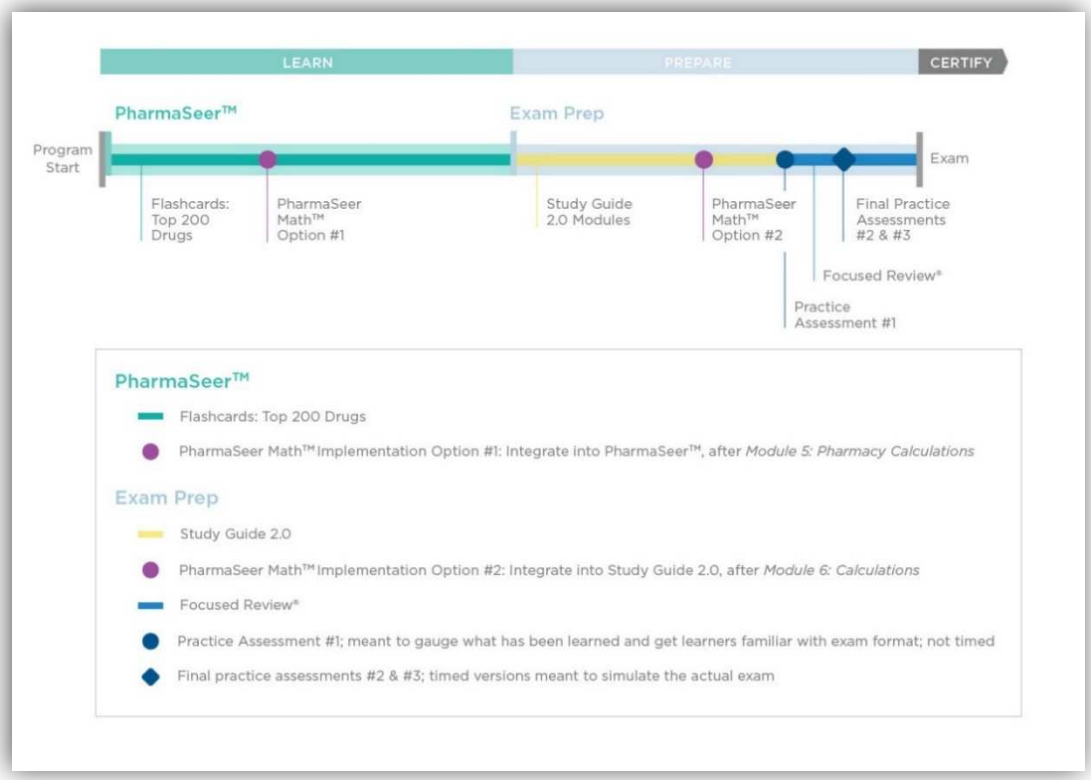
**Provide the right resources at the right time along the technician journey**

PharmaSeer™, when used in conjunction and in complement to an institution's core pharmacy technician education curriculum, it is intended to optimize class time spent with an instructor. By implementing uniform didactic content containing up-to-date and practice-relevant information, improvements can be achieved in the efficiency and productivity of the student when they enter the technician workforce, and in the

efficiency and productivity of instructors' preparation and class time.

## PHARMASEER™ IMPLEMENTATION

- Go through the PharmaSeer™ module outline (2nd document in appendix) to understand what topics are covered and in what order. The content is ordered logically; however, the modules can be rearranged to better fit an established curriculum.
- Align module content to related courses and build into lesson plans. Be sure to consider the time allotted for each module, and associated activities (shown below).
- Direct students to complete all end of lesson quizzes and encourage using other features such as in-lesson activities, flashcards, and additional questions and activities located in My Practice. End -of-lesson quizzes are not timed, though instructors may wish to administer them in class and set time limits to help students begin to prepare for the expectations they will experience when taking a high-stakes certification exam.
- Review the analytics dashboard regularly to gain insights into each student's progress and performance. Determine if there are any gaps in overall comprehension, or insufficiencies in how PharmaSeer™ is being used.
- Use reporting to identify common deficiency areas and review with students before moving on to the next module.



- If you are using a hybrid model with online and in class learning, homework can be assigned to the student to review and complete outside of class. Use in class to ensure understanding (like what would be done if using a text book).

## RECOMMENDED TIME

| | |
|---|---|
| PharmaSeer™ Module Content | 46 hours |
| Lesson Activities (139 x 0.16 hr) | 23 hours |
| End of Lesson Quizzes (138 x 0.25 hr) | 35 hours |
| Flashcards & My Practice | 20 hours |
| Total Time | 124 hours |

## RECOMMENDED TIME (IN MINUTES) PER MODULE

| Module Name | Learning Content | Lesson Activities | End of Lesson Quizzes | Flashcards and My Practice | Estimated Total Time |
|---|---|---|---|---|---|
| Introduction and Basic Overview | 100 | 50 | 75 | 60 | 4 hr 45 min |
| Prescription Medications: General | 160 | 80 | 120 | 60 | 7 hr 0 min |
| Prescription Medications: Controlled Substances | 100 | 50 | 75 | 60 | 4 hr 45 min |
| The Dispensing Process | 200 | 100 | 150 | 60 | 8 hr 30 min |
| Pharmacy Calculations | 140 | 70 | 105 | 60 | 6 hr 15 min |
| Self-Management Skills, Communication, and Teamwork | 60 | 30 | 45 | 60 | 3 hr 15 min |
| Patient Interaction | 120 | 60 | 90 | 60 | 5 hr 30 min |
| An Overview of Federal Privacy Requirements | 80 | 40 | 60 | 60 | 4 hr 0 min |
| Managed Care Prescriptions | 100 | 50 | 75 | 60 | 4 hr 45 min |
| Nondispensing Duties | 100 | 50 | 75 | 60 | 4 hr 45 min |
| Drug and Medical Terminology | 120 | 60 | 90 | 60 | 5 hr 30 min |
| Basic Anatomy and Physiology | 240 | 120 | 180 | 60 | 10 hr 0 min |
| Basic Pharmacology | 220 | 110 | 165 | 60 | 9 hr 15 min |
| Commonly Prescribed Interventions | 280 | 140 | 210 | 60 | 11 hr 30 min |
| Infection Control, Wellness, and Disease Prevention | 140 | 70 | 105 | 60 | 6 hr 15 min |
| Over-the-Counter (OTC) Medications | 160 | 80 | 120 | 60 | 7 hr 0 min |
| Unit Dose Systems and Medication | 60 | 30 | 45 | 60 | 3 hr 15 min |
| Nonsterile Product | 120 | 60 | 90 | 60 | 5 hr 30 min |
| Sterile Product | 180 | 90 | 135 | 60 | 7 hr 45 min |
| Emergency Situations | 100 | 50 | 75 | 60 | 4 hr 45 min |

## GENERAL INSTRUCTIONAL STRATEGIES FOR EDUCATORS

- Supplement PharmaSeer™ with information outlining the rules and regulations of your state.
- Certification preparation materials should be used in addition to—never as a replacement for—PharmaSeer™ and existing training curriculum.
- As an instructor, strive to be engaged with students as often as possible. Schedule time each week to review, discuss, and answer any questions related to the material covered that week.
- Consider assigning a time limit to the end of lesson quizzes. Since certification exams are timed, allotting roughly one minute per question, requiring completion of all or some of the end of lesson quizzes within 10 minutes can help condition students to the additional rigor of being timed, and potentially help alleviate some of the test anxiety students may experience when taking high-stakes assessments.
- Use the information provided in your analytics dashboard to remediate students who need it and encourage students who are excelling to mentor/tutor their peers.
- As there are many facets to pharmacy technician practice, incorporate other activities such as: role-playing scenarios, performing hands-on tasks such as counting out/measuring medications, donning/doffing garb in the correct order, or making uniform topical compounds, etc.
- Highlight real-world application of knowledge and skills from your experiences in pharmacy practice or invite a guest speaker to share their experiences.
- Conduct assessments of material mastered and look for opportunities for goal-setting and ways to help students improve.
- Assign a project that pertains to news stories or current events. If legislation is in the news, ask students to perform self-guided research and summarize the main points.
- Discuss the importance of soft skills on a regular basis. Soft skills can be practiced and built over time if given the opportunity.

# FAQ's

**Q: Are the end of lesson quizzes timed?**

A: EOL quizzes are not time-limited, though it is recommended for the instructor to limit time to 10 minutes on all or some to help students prepare for national certification testing. Time spent on EOL quizzes, as well as all other features, is accumulated and reported as seat time.

**Q: Are missed questions on the end of lesson quizzes identified?**

A: The end of lesson quizzes are meant to be more rigorous than the in-lesson activity questions that provide correct answers and rationales. To accurately validate quiz scores, missed questions are not identified. Just like the certification exam, the learner does not know what specific questions were missed, only how many. Each lesson has only one learning objective and quizzes can be taken an unlimited number of times. To ensure end-of-lesson quizzes can be used as an indicator of learning objective mastery and that correlating improved scores are truly indicative of knowledge gain, a key is not provided.

**Q: Where is the confidence indicator data for each lesson displayed?**

A: At present, NHA is collecting user confidence data, but is not reporting or displaying that data to students or educators. NHA intends to gather data over time to analyze any correlations between self-perceived confidence and actual assessment performance.

**Q: What should I do to help my students determine where to focus if they underperform on an EOL quiz?**

A: There is a 1:1 ratio of lessons to learning objectives. Therefore, each EOL quiz relates only to one learning objective, so the supporting content in the lesson associated with the quiz should be all that needs review.

**Q: How do I know which flashcards, or My Practice items are associated with a lesson?**

A: Instructors can view all My Practice items at the module or the lesson level by clicking the My Practice: Flashcards or My Practice: Activities icons at the bottom of the navigation bar in each module. Instructors can then filter activities and flashcards by module or lesson by clicking on one of three tabs at the top of the screen.

**Q: Does time spent in My Practice accumulate toward total seat time?**

A: Yes, total time spent in My Practice is accumulated and is included in the total seat time figure.

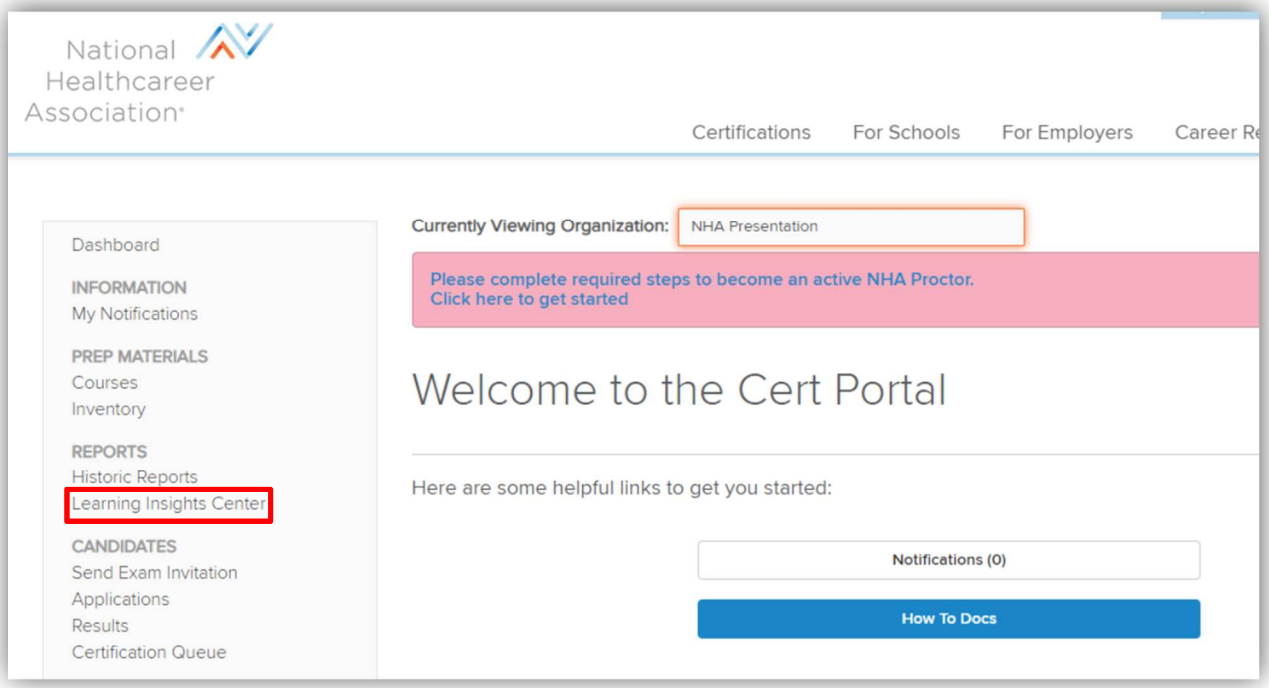
# Product Support

At NHA, we pride ourselves on timely, effective support to meet your needs. Please contact us at 800-499-9092 if you need assistance with this product.

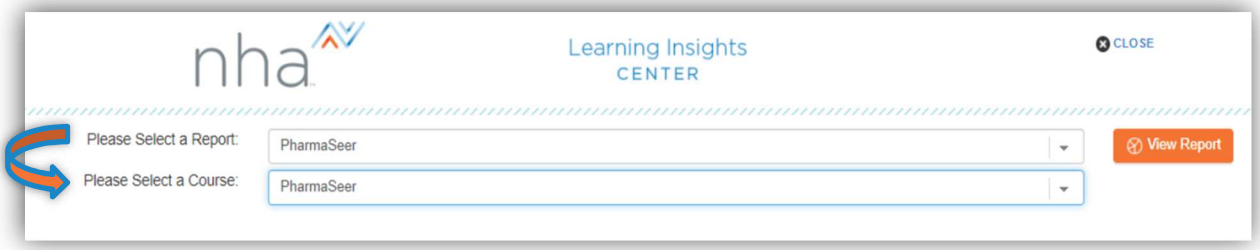
# Appendix

## Accessing Analytics Reports

To access reporting, login to your NHA account (https://certportal.nhanow.com/). In the middle of the page, near the type, choose your organization next to "Currently Viewing Organization," and in the left-hand column, click on "Learning Insights Center" under "Reports."



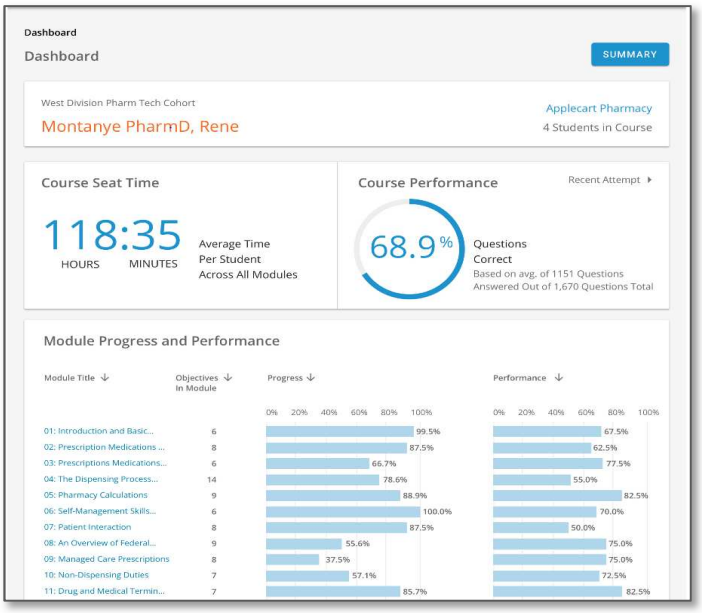

On the next page, select the report, then the class, and click "View Report."



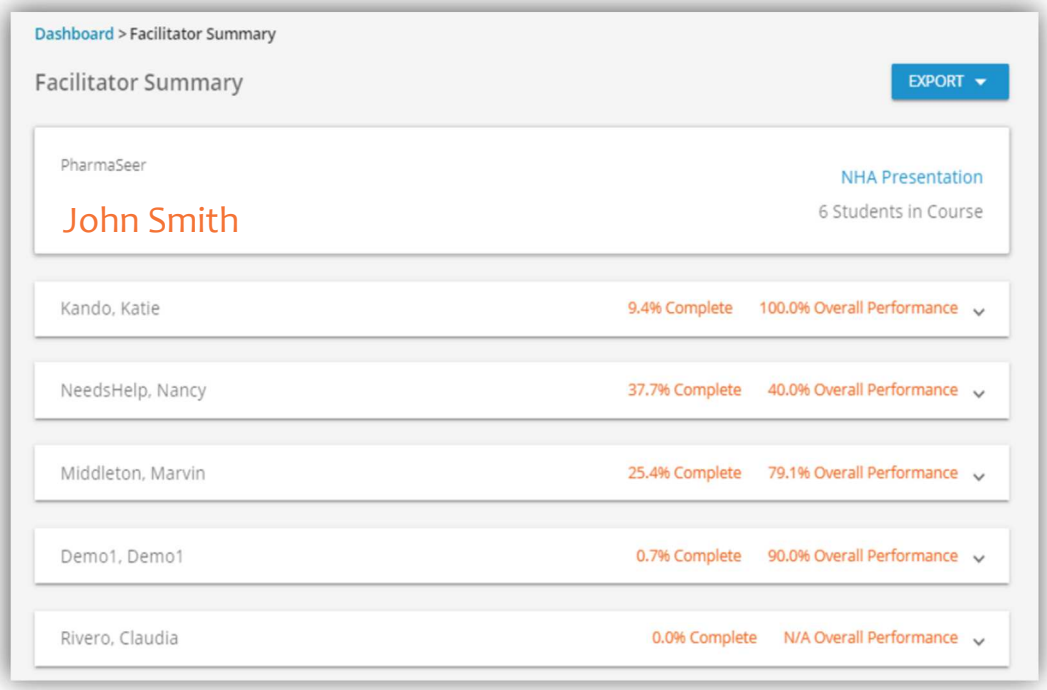
# Understanding the Report

Upon accessing the report, the default view.

is the "Dashboard." The Dashboard summarizes the average amount of time spent per student working in PharmaSeer™, as well as the average quiz scores and average progress through the modules across the class.

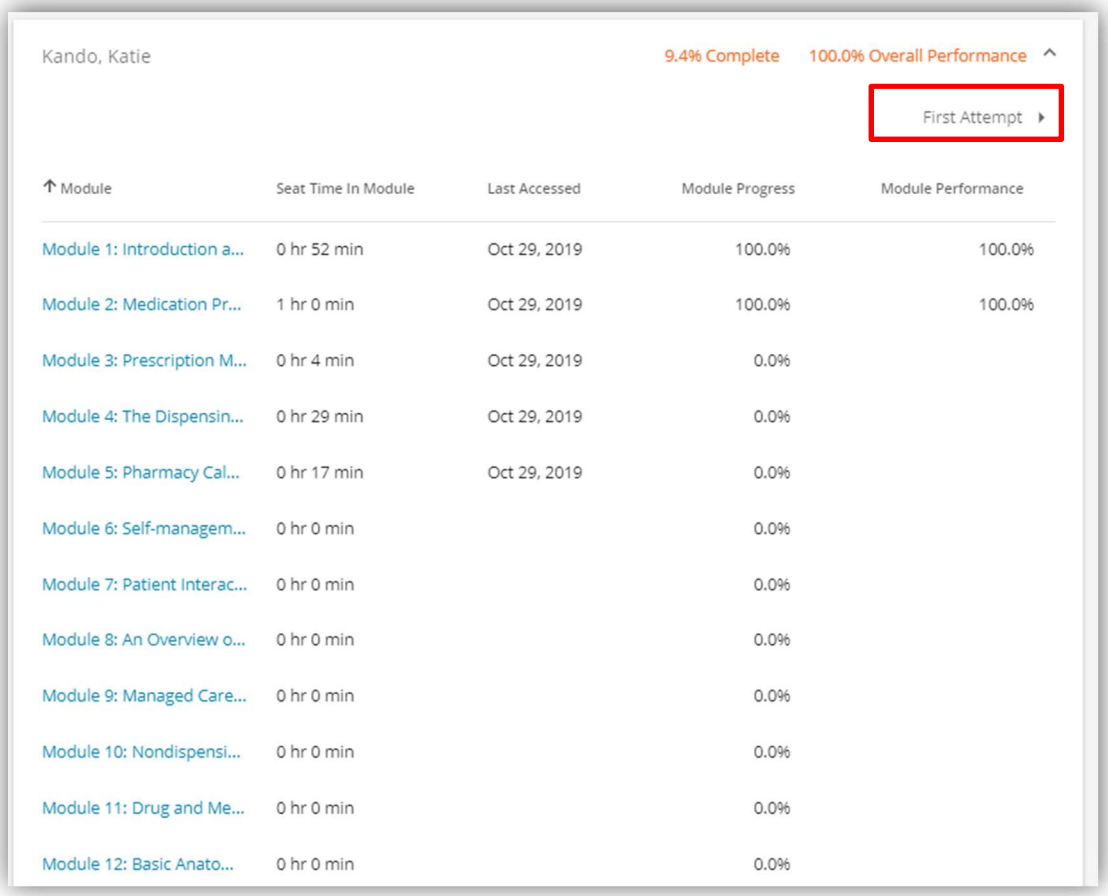



From the Dashboard, a summary of each learner can be accessed to provide an instructor an "at-a-glance" view, allowing an easy way to see if



any student's data stands out compared to their peers.
From the Facilitator summary, a class summary or detailed report can be exported to a .csv file by clicking the "Export" button. These files can be saved, printed, or uploaded to a Learning Management System (LMS). The facilitator can also click on a student to expand their data and show a breakdown by module. Clicking on the student's name again, the data set "collapses" back to the facilitator summary view, or more detailed student analytics can be viewed by clicking on one of the modules.

It is important to note that by default, only the scores for the first attempt at the end of lesson (EOL) quizzes is displayed. On the right side of the report, under the student's "Overall Performance," is a toggle switch to go from "First Attempt," to "Recent Attempt," the latter being the score from the most recent attempt at the EOL quizzes.



Kando, Katie — 9.4% Complete — 100.0% Overall Performance

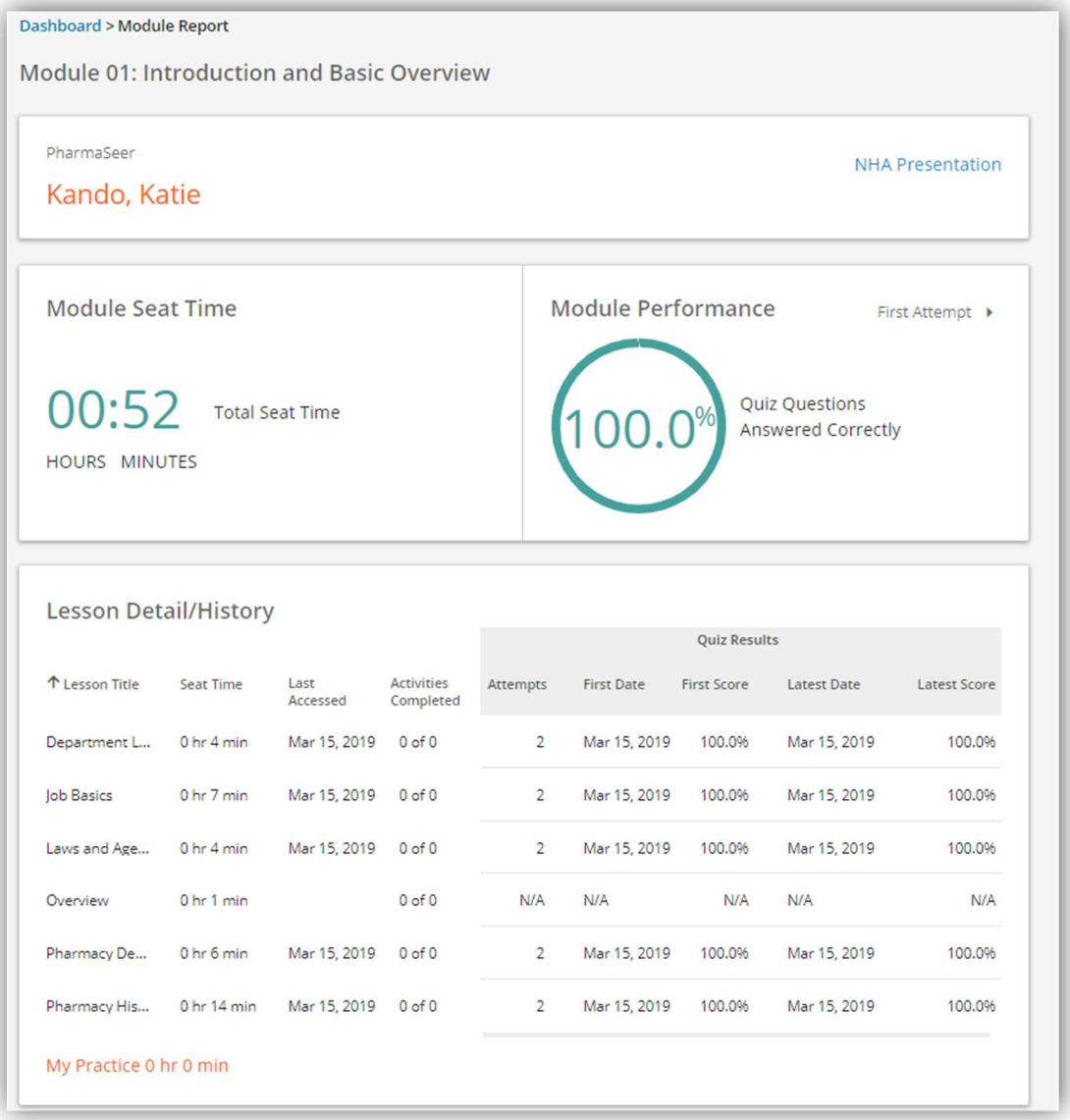
First Attempt

| Module | Seat Time In Module | Last Accessed | Module Progress | Module Performance |
|---|---|---|---|---|
| Module 1: Introduction a... | 0 hr 52 min | Oct 29, 2019 | 100.0% | 100.0% |
| Module 2: Medication Pr... | 1 hr 0 min | Oct 29, 2019 | 100.0% | 100.0% |
| Module 3: Prescription M... | 0 hr 4 min | Oct 29, 2019 | 0.0% | |
| Module 4: The Dispensin... | 0 hr 29 min | Oct 29, 2019 | 0.0% | |
| Module 5: Pharmacy Cal... | 0 hr 17 min | Oct 29, 2019 | 0.0% | |
| Module 6: Self-managem... | 0 hr 0 min | | 0.0% | |
| Module 7: Patient Interac... | 0 hr 0 min | | 0.0% | |
| Module 8: An Overview o... | 0 hr 0 min | | 0.0% | |
| Module 9: Managed Care... | 0 hr 0 min | | 0.0% | |
| Module 10: Nondispensi... | 0 hr 0 min | | 0.0% | |
| Module 11: Drug and Me... | 0 hr 0 min | | 0.0% | |
| Module 12: Basic Anato... | 0 hr 0 min | | 0.0% | |

By clicking on the module name instructors can access lesson-level analytics for single module. Detailed analytics for each lesson in the module include seat time, date the lesson was last accessed, the number of in-lesson activities that have been completed, and end of lesson quiz performance for both the first and most recent attempt, as well as the total number of quiz attempts. The amount of time spent using My Practice while logged into the module is also displayed near the bottom.

While My Practice items and in-lesson activities are not scored, the inclusion of both in the reporting is intended to provide insight to the instructor to better assist students and remediate when needed to improve performance. For instance, a student may want help due to low quiz scores in a module. The instructor may observe that the student has not spent any time in My Practice and has only completed 1 of 5 activities in one lesson, and 0 in another.

In this scenario, the instructor would likely recommend the student begin using the My Practice resource and complete the activities to reinforce the lesson content before attempting the end of lesson quizzes. This provides low stakes practice that produces correct answers and rationales upon submitting the answers.



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| Module 1: Introduction and Basic Overview | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Pharmacy history | Describe key historical milestones and individuals influencing the field of pharmacy. |
| Lesson 2: Job basics | Describe the roles, responsibilities, education requirements, and scope of practice of the pharmacy technician. |
| Lesson 3: Department layout | Follow appropriate workflow in the various areas of the pharmacy department, including policies and procedures for maintaining security. |
| Lesson 4: Laws and agencies governing pharmacy practice | Comply with laws, regulations, policies, and procedures instituted by federal and state governments, state boards of pharmacy, and other regulatory agencies. |
| Lesson 5: Pharmacy department reference sources | Differentiate between pharmacy department reference sources. |
| **Module 2: Prescription Medications: General** | |
| **Lesson** | **Learning Objective** |
| Lesson 1: Dosage forms | Differentiate between the four major categories of dosage forms. |
| Lesson 2: Prescription containers | Choose the appropriate prescription container and closure when filling a prescription. |
| Lesson 3: Generic products | Follow state and federal rules and pharmacy policies regarding generic substitution. |
| Lesson 4: Stock bottle labels | Locate information found on medication stock bottles required by the Food and Drug Administration (FDA), including the three components of an National Drug Code (NDC) number. |
| Lesson 5: Easily confused products | Follow proper procedures for avoiding easily confused products. |
| Lesson 6: Public safety and reporting errors | Differentiate between the programs aimed at promoting public safety. |
| Lesson 7: Dispensing errors | Follow proper procedures for avoiding and documenting dispensing errors. |
| Lesson 8: Dispensing precautions during pregnancy | Locate information regarding medication use with respect to contraception, fertility, pregnancy, and lactation. |
| **Module 3: Prescription Medications: Controlled Substances** | |
| **Lesson** | **Learning Objective** |
| Lesson 1: Controlled substance schedules | Differentiate among the various controlled substance schedules. |
| Lesson 2: Dispensing controlled substances | Follow rules when dispensing controlled substance medications, including regulations governing refills, partial refills, and transfers. |
| Lesson 3: DEA numbers and record keeping | Identify components of Drug Enforcement Agency (DEA) numbers and recordkeeping requirements for controlled substances. |
| Lesson 4: Diversion of controlled substances | Identify techniques and procedures for recognizing and preventing diversion of controlled substances. |
| Lesson 5: Substance use disorder in patients and colleagues | Recognize ways to identify and respond to substance use disorder in patients and colleagues. |

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| Module 4: The Dispensing Process | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Prescription requirements | Identify the information required to fill a prescription, the ways prescriptions can be transmitted, and what prescriptive authority different types of prescribers have. |
| Lesson 2: Interpreting Directions for Use | Translate prescribers' abbreviations and symbols into patient directions and identify error-prone symbols and abbreviations that prescribers should avoid along with recommended alternatives. |
| Lesson 3: Steps in the dispensing process | Outline the steps in the dispensing process. |
| Lesson 4: Receiving prescriptions | Follow the steps for receiving and verifying prescriptions. |
| Lesson 5: Entering patient profiles and prescription information | Follow procedures for entering, updating, and maintaining patient profiles and prescription information, including taking appropriate actions when compliance alerts are displayed by the computer. |
| Lesson 6: Generating prescription labels | Properly generate prescription labels and receipts, ensuring all required information is present. |
| Lesson 7: Stocking, checking, and preparing medications | Follow procedures for stocking, checking, and preparing medications, including the use of automated dispensing systems. |
| Lesson 8: Labeling prescription containers | Follow procedures for labeling prescription containers and for the proper use of auxiliary labels. |
| Lesson 9: Ensuring accurate prescription delivery | Follow procedures to ensure delivery of correct prescriptions to patients and to maintain accurate records. |
| Lesson 10: Refills | Follow procedures for refilling medications as well as regulations for refills on take-as-needed medications, controlled substances, and those that involve third-party payment. |
| **Module 5: Pharmacy Calculations** | |
| **Lesson** | **Learning Objective** |
| Lesson 1: Systems of measurement and Roman numerals | Convert within and between systems of measurement and between Roman and Arabic numerals. |
| Lesson 2: Methods for solving dosage calculations | Use ratios and proportions, dimensional analysis, or the desired over have equation to solve for unknown values and to reduce or enlarge formulas. |
| Lesson 3: Dilution of stock solutions | Calculate dilutions of stock solutions. |
| Lesson 4: Medication concentration and milliequivalents | Perform calculations involving medication concentration and milliequivalents. |
| Lesson 5: Dosage calculations | Calculate prescription dosages based on age, body weight, and body surface area (BSA). |
| Lesson 6: Business calculations | Perform basic business calculations (gross margin, markup, inventory turnover). |
| Lesson 7: Dosage units and days' supply | Calculate prescription quantities and days' supply. |

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| Module 6: Self Management Skills, Communication, and Teamwork | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Self-management skills | Apply emotional awareness and self-management skills for time management, stress management, and self-motivation. |
| Lesson 2: Teamwork, problem solving, and decision making | Apply teamwork, problem-solving, and decision-making skills as part of the pharmacy team. |
| Lesson 3: Conflict resolution | Apply conflict resolution skills when interacting with members of the pharmacy team. |
| **Module 7: Patient Interaction** | |
| **Lesson** | **Learning Objective** |
| Lesson 1: Direct patient care | Implement appropriate direct patient care in your pharmacy that demonstrates a caring attitude toward patients. |
| Lesson 2: Professionalism | Identify how appearance, conduct, and adherence to moral standards contribute to professionalism. |
| Lesson 3: Telephone, fax, and email communication | Use effective telephone, fax, and e-mail communication strategies within the pharmacy technician's scope of practice. |
| Lesson 4: Communication skills | Use appropriate nonverbal and verbal communication techniques with patients, coworkers, and health care professionals. |
| Lesson 5: Communication challenges | Implement strategies to overcome communication challenges. |
| Lesson 6: Communication with specific populations | Communicate effectively with specific populations including children, older adult patients, patients with disabilities, and patients who do not share a common language with you. |
| **Module 8: An Overview of Federal Privacy Requirements** | |
| **Lesson** | **Learning Objective** |
| Lesson 1: Privacy rules: Effects on pharmacy operations | Follow federal privacy rules regarding protected health information during the different stages of dispensing a prescription. |
| Lesson 2: Privacy rules: Effects on pharmacy communications | Communicate with patients and health care professionals in compliance with the privacy rules. |
| Lesson 3: Patient rights | Summarize the basic patient rights as described in the privacy regulations that may affect the pharmacy technician's role. |
| Lesson 4: Employer and employee responsibilities under HIPAA | Differentiate between employer and employee responsibilities in regard to federal privacy rules, including recognition of penalties for violation. |
| **Module 9: Managed Care Prescriptions** | |
| **Lesson** | **Learning Objective** |
| Lesson 1: Types of third-party programs | Differentiate among the various types of managed care prescription programs in regard to degree of program management and type of program sponsor. |
| Lesson 2: Prescription reimbursement | Differentiate between the three components of prescription reimbursement and the various types of patient cost-sharing. |
| Lesson 3: Dispensing third-party prescriptions and submitting claims | Follow procedures for dispensing third-party prescriptions, including checking eligibility and submitting claims. |
| Lesson 4: Third-party cost controls | Follow procedures to comply with third-party cost controls. |
| Lesson 5: Claims reconciliation and ensuring payment | Resolve problems with data entry, claim adjudication, and reconciliation to prevent chargebacks, & follow third-party payer guidelines to ensure proper reimbursement of claims and prevent discrepancies during audits. |

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| Module 10: Nondispensing Duties | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Purchasing: Factors affecting price | Identify factors that affect the purchase price of prescription medications. |
| Lesson 2: Purchasing: Ordering procedures | Follow proper procedures when ordering prescriptions. |
| Lesson 3: Receiving and stocking medications | Follow procedures for receiving, stocking, and identifying expired merchandise. |
| Lesson 4: Returning merchandise | Follow procedures when returning merchandise in various situations. |
| Lesson 5: Maintaining pharmacy department efficiency | Follow procedures for maintaining pharmacy work areas, supplies, and stock and for handling special types of sales transactions. |

| Module 11: Drug and Medical Terminology | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Dissection of medical terms | Use medical prefixes, roots, and suffixes to determine the meaning of words used in pharmacy and other medical settings. |
| Lesson 2: Patient medical charts and patient profiles | Differentiate between the types of information commonly found in medical charts or profiles, including progress reports (SOAP notes). |
| Lesson 3: General abbreviations found in patient charts | Interpret general abbreviations commonly found on patient profiles and charts. |
| Lesson 4: Abbreviations for diseases and conditions | Interpret abbreviations for diseases and conditions commonly found in patient profiles and charts. |
| Lesson 5: Abbreviations for laboratory and diagnostic tests | Interpret abbreviations for laboratory and diagnostic tests commonly found on patient profiles and charts. |
| Lesson 6: Medication terminology | Use word parts to identify a medication product's therapeutic class and primary indications, and recognize exceptions to these rules. |

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| Module 12: Basic Anatomy and Physiology | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: The skeletal system | Summarize the structures, functions, and common medical conditions of the skeletal system, including the actions of medications used to treat select skeletal system conditions. |
| Lesson 2: The muscular system | Summarize the structures, functions, and common medical conditions of the muscular system, including the actions of medications used to treat select muscular conditions. |
| Lesson 3: The cardiovascular system | Summarize the structures, functions, and common medical conditions of the cardiovascular system, including the actions of medications used to treat select cardiovascular conditions. |
| Lesson 4: The hematologic system | Summarize the structures, functions, and common medical conditions of the hematologic system, including the actions of medications used to treat select blood-clotting disorders. |
| Lesson 5: The respiratory system | Summarize the structures, functions, and common medical conditions of the respiratory system, including the actions of medications used to treat select respiratory conditions. |
| Lesson 6: The lymphatic and immune systems | Summarize the structures, functions, and common medical conditions of the immune systems, including the actions of medications used to treat bacterial, viral, and fungal infections. |
| Lesson 7: The digestive system | Summarize the structures, functions, and common medical conditions of the digestive system, including the actions of medications used to treat select digestive conditions. |
| Lesson 8: The urinary system | Summarize the structures, functions, and common medical conditions of the urinary system, including the actions of medications affecting urinary system physiology. |
| Lesson 9: The nervous system | Summarize the structures, functions, and common medical conditions of the nervous system, including the actions of medications used to treat select nervous system conditions. |
| Lesson 10: The integumentary system | Summarize the structures, functions, and common medical conditions of the integumentary system, including the actions of medications used to treat select integumentary conditions. |
| Lesson 11: The endocrine system | Summarize the structures, functions, and common medical conditions of the endocrine system, including the actions of medications used to treat select endocrine conditions. |
| Lesson 12: The reproductive system | Summarize the structures, functions, and common medical conditions of the reproductive system, including the actions of medications used to treat select reproductive conditions. |
| **Module 13: Basic Pharmacology** | |
| **Lesson** | **Learning Objective** |
| Lesson 1: Pharmacodynamics | Define concepts of pharmacodynamics, including mechanisms of action, therapeutic window, and therapeutic index. |
| Lesson 2: Pharmacokinetics | Summarize the concepts of absorption, distribution, metabolism, and excretion of medications, including factors affecting each process. |
| Lesson 3: Drug interactions: General concepts | Differentiate between drug-to-drug, drug-food, and drug-disease interactions. |
| Lesson 4: Drug-to-drug interactions | Differentiate between various types of pharmacodynamic and pharmacokinetic drug-to-drug interactions. |
| Lesson 5: Examples of drug-to-drug interactions | Recognize examples of drug-to-drug interactions. |
| Lesson 6: Drug-food interactions | Recognize types of drug-food interactions, including ways to avoid them by administering medications at optimal times. |
| Lesson 7: Drug-disease interactions | Recognize examples of drug-disease interactions, including their causes. |
| Lesson 8: Toxicology, overdoses, and antidotes | Identify poisons and their corresponding antidotes. |
| Lesson 9: Medication actions on the nervous system | Differentiate between medication actions on the somatic nervous system and on the two divisions of the autonomic nervous system. |
| Lesson 10: Autonomic nervous system receptors | Identify organs and receptors innervated by the autonomic nervous system, including the effects of medications on these receptors. |
| Lesson 11: Medications affecting the autonomic nervous system | Recognize examples of medications affecting autonomic nervous system receptors. |

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| Module 14: Commonly Prescribed Interventions | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Terms associated with disease states | Define the key medical terms sign, symptom, etiology, stage, status, risk factor, complication, nonpharmacological therapy, and pharmacological therapy. |
| Lesson 2: Hypertension (HTN) | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of hypertension (HTN). |
| Lesson 3: Hyperlipidemia (high cholesterol) | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of hyperlipidemia (high cholesterol). |
| Lesson 4: Diabetes mellitus | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of diabetes mellitus. |
| Lesson 5: Influenza | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of influenza. |
| Lesson 6: Pneumonia | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of pneumonia. |
| Lesson 7: Asthma | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of asthma. |
| Lesson 8: Chronic obstructive pulmonary disease (COPD) | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of chronic obstructive pulmonary disease (COPD). |
| Lesson 9: Gastroesophageal reflux disease (GERD) | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of gastroesophageal reflux disease (GERD). |
| Lesson 10: Cancer | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of cancer. |
| Lesson 11: Autoimmune diseases | Identify the characteristics and select pharmacological therapies of autoimmune diseases. |
| Lesson 12: Pain | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of pain, including consideration of side effects. |
| Lesson 13: Depression | Identify the characteristics, nonpharmacological therapies, and pharmacological therapies of depression. |
| Lesson 14: Contraception and hormone replacement therapy | Identify the characteristics, side effects, and considerations of nonpharmacological contraception, pharmacological contraception, and hormone replacement. |

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| Module 15: Infection Control, Wellness, and Disease Prevention | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: The chain of infection | Outline infection control procedures, including standard precautions, used to break the chain of infection in the pharmacy. |
| Lesson 2: The role of OSHA in infection control | Summarize OSHA requirements for the prevention of and response to bloodborne pathogen exposure. |
| Lesson 3: Healthcare-associated infections | Identify health care-associated infections and methods used to prevent them. |
| Lesson 4: First aid | Identify basic first aid procedures and equipment needed to prevent infection. |
| Lesson 5: Point-of-care testing | Identify point-of-care testing available in pharmacies. |
| Lesson 6: Immunizations | Follow procedures for processing, handling, and documenting immunizations commonly administered by pharmacists. |
| Lesson 7: Wellness promotion | Summarize wellness promotion and disease prevention concepts |

| Module 16: Over-the-Counter (OTC) Medications | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: OTC medications: The pharmacy technician's role | Identify the functions that pharmacy technicians can and cannot perform with regard to OTC medications and assisting patients. |
| Lesson 2: Analgesics, motion sickness medications, and sleep aids | Identify the uses, names, and considerations of OTC analgesics, motion sickness medications, and sleep aids, including patient conditions for which these products should be avoided. |
| Lesson 3: Gastrointestinal remedies | Identify the uses, names, and considerations of OTC gastrointestinal remedies, including patient conditions for which these products should be avoided. |
| Lesson 4: Cough, cold, and allergy medications | Identify the uses, names, and considerations of cough and cold medications, including patient conditions for which these products should be avoided. |
| Lesson 5: Eye and Ear Care | Identify the uses, names, and considerations of eye and ear care products. |
| Lesson 6: First aid, skin care, and hair care products | Identify the uses, names, and considerations of OTC first aid, skin care, and hair care products. |
| Lesson 7: Home health care products | Identify the uses, names, and considerations of home health care products, including foot care products, medical devices, supplies, and self-testing kits. |
| Lesson 8: Supplements | Summarize the major functions of vitamins and minerals and the considerations and resources associated with herbal product use. |

| Module 17: Unit Dose Systems and Medication Repackaging | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Types of medication distribution systems | Differentiate between the types of medication distribution systems in hospitals and long-term care facilities. |
| Lesson 2: Repackaging medications | Follow the procedures for repackaging medications. |
| Lesson 3: Emergency kits and compliance aids | Summarize the use and considerations of emergency kits and compliance aids with respect to the pharmacy technician's role. |

| Module 18: Nonsterile Product Compounding | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Compounding guidelines and regulations | Define compounding and the policies, procedures, and laws associated with compounding. |
| Lesson 2: Compounding equipment | Identify compounding equipment and acceptable uses in nonsterile settings. |
| Lesson 3: Compounding skills | Recognize procedures for measuring liquids and solids and for mixing powders. |
| Lesson 4: Compounding process: Oral solid dosage forms | Follow the compounding process for tablets and capsules. |
| Lesson 5: Compounding process: Oral liquid dosage forms | Follow the compounding process for solutions, suspensions, and emulsions. |
| Lesson 6: Compounding process: Topical and rectal dosage forms | Follow the compounding process for ointments, creams, lotions, and suppositories. |

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| Module 19: Sterile Product Compounding | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Sterile compounding: Purpose and regulations | Identify types of therapies requiring sterile compounding, including associated regulations. |
| Lesson 2: Sterile medication products | Differentiate between sterile medication products with respect to route of administration, type of therapy, volume of solution, and tonicity. |
| Lesson 3: Risk categories | Differentiate between risk categories for compounded sterile preparations. |
| Lesson 4: Sterile compounding environment | Identify the characteristics of the sterile compounding environment, including types of primary engineering controls. |
| Lesson 5: Hazardous medications as CSPs | Identify examples of hazardous medications and the procedures for receiving, preparing, and storing them in the pharmacy. |
| Lesson 6: Required aseptic procedures | Follow correct procedures for maintaining the sterile product compounding environment, including waste disposal, garbing, and aseptic technique. |
| Lesson 7: Compounding procedures | Follow aseptic compounding procedures for withdrawing fluids, transferring fluids, and reconstituting powders. |
| Lesson 8: Total parenteral nutrition | Summarize the components, uses, and considerations of total parenteral nutrition, including the recognition of physical, chemical, and therapeutic incompatibilities. |
| Lesson 9: Dispensing sterile product prescriptions | Outline the process and requirements for dispensing compounded sterile preparations, including beyond-use dating, documentation and labeling, and using the equipment and supplies. |

| Module 20: Emergency Situations | |
|---|---|
| **Lesson** | **Learning Objective** |
| Lesson 1: Types of emergency situations | Define common emergency situations, their associated impacts, and emergency preparedness. |
| Lesson 2: Roles of federal, state, and local organizations in emergency planning | Outline the roles of various organizations involved with emergency planning. |
| Lesson 3: Planning requirements for emergency situations | Describe the requirements for emergency planning, including implementation of emergency stockpiles. |
| Lesson 4: Risk assessment | Summarize risk assessment factors following a disaster, including the pharmacy technician's role. |
| Lesson 5: Functions of the pharmacy in disasters | Identify specific functions and requirements of the pharmacy and the pharmacy technician before, during, and after a disaster. |

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| Generic Name | Brand Name | Therapeutic Class | Most Common Indication | Common - prefix/suffix- |
|---|---|---|---|---|
| Acyclovir | Zovirax | Antiviral | Herpes simplex virus, herpes zoster, varicella zoster | -vir |
| Albuterol | ProAir HFA, Proventil HFA, Ventolin HFA | $Beta_2$ receptor agonist | Asthma, COPD | -terol |
| Albuterol + ipratropium Inhaler | Combivent | $Beta_2$ receptor agonist + anticholinergic | Asthma, COPD | -terol + -tropium |
| alendronate | Fosamax | Bisphosphonate | Osteoporosis | -dronate |
| Alprazolam | Xanax | Benzodiazepine | Anxiety | -zolam, -zepam |
| Amiodarone | Cordarone | Antiarrhythmic | Arrhythmias | |
| Amitriptyline | Elavil | Tricyclic antidepressant | Depression | -triptyline |
| Amlodipine | Norvasc | Calcium channel blocker | Hypertension, angina | -dipine |
| Amoxicillin | Moxatag | Beta lactam antibiotic, penicillins | Bacterial infection | -cillin |
| Amoxicillin + clavulanate | Augmentin | Beta lactam antibiotic, penicillins | Bacterial infection | -cillin |
| Amphetamine + dextroamphetamine | Adderall | Stimulant | ADD, ADHD | |
| Aripiprazole | Abilify | Atypical antipsychotic | Schizophrenia, bipolar mania | |
| Atenolol | Tenormin | $Beta_1$ receptor antagonist (selective) | Hypertension, angina | -olol |
| Atomoxetine | Strattera | Norephinephrine reuptake inhibitor | ADD, ADHD | |
| Atorvastatin | Lipitor | HMG-CoA reductase inhibitor | Hypercholesterolemia | -statin |
| Azithromycin | Zithromax | Macrolide antibiotic | Bacterial infection | -thromycin |
| Baclofen | Lioresal | Skeletal muscle relaxant | Muscle spasms | |
| Benazepril | Lotensin | Angiotensin converting enzyme (ACE) inhibitor | Hypertension, congestive heart failure | -pril |
| Benzatropine | Cogentin | Anticholinergic | Parkinson's disease, extrapyramidal disorders | |
| Benzonatate | Tessalon Perles | Antitussive | Cough | |
| Bisoprolol | Zebeta | $Beta_1$ receptor antagonist (selective) | Hypertension, angina | -olol |
| Buprenorphine | Suboxone | Opioid antagonist | Opioid dependence | |
| Bupropion | Wellbutrin, Zyban | Dopamine reuptake inhibitor | Depression, smoking cessation | |
| Buspirone | Buspar | Anxiolytic | Anxiety | |
| Butalbital + acetaminophen + caffeine | Fioricet | Barbiturate + Analgesic + Stimulant | Headache | |
| Carisoprodol | Soma | Skeletal muscle relaxant | Muscle spasms | |
| Carvedilol | Coreg | Beta + $alpha_1$ adrenergic receptor blocker | Hypertension, congestive heart failure, angina | -ilol |
| Cefdinir | Omnicef | Cephalosporin antibiotic | Bacterial infection | cef-, ceph- |
| Ceftriaxone | Rocephin | Cephalosporin antibiotic | Bacterial infection | cef-, ceph- |
| Cefuroxime Axetil | Ceftin | Cephalosporin antibiotic | Bacterial infection | cef-, ceph- |
| Celecoxib | Celebrex | COX-2 inhibitor | Pain, inflammation, osteoarthritis | -coxib |
| Cephalexin | Keflex | Cephalosporin antibiotic | Bacterial infection | cef-, ceph- |
| Chlorhexidine Gluconate | Peridex | Antiseptic | Gingivitis | |
| Chlorpheniramine + hydrocodone | Tussionex | Antihistamine + opioid antitussive | Rhinorrhea, cough | |
| Ciprofloxacin | Cipro | Fluoroquinolone antibiotic | Bacterial infection | -floxacin |
| Citalopram | Celexa | Selective serotonin reuptake inhibitor (SSRI) | Depression, generalized anxiety disorder | |
| Clarithromycin | Biaxin | Macrolide antibiotic | Bacterial infection | -thromycin |
| Clindamycin | Cleocin | Lincosamide antibiotic | Bacterial infection | -mycin |
| Clobetasol | Temovate | Corticosteroid | Dermatitis, psoriasis | |

[1]Kane, S. P. (2019, April 15). About the DrugStats Database. https://clincalc.com/DrugStats/About.aspx

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| Generic Name | Brand Name | Therapeutic Class | Most Common Indication | Common - prefix/suffix- |
|---|---|---|---|---|
| Clonazepam | Klonopin | Benzodiazepine | Anxiety | -zolam, -zepam |
| Clonidine | Catapres | Alpha$_1$ receptor antagonist | Hypertension | |
| Clopidogrel | Plavix | Antiplatelet | Thrombus, embolus | |
| Clotrimazole + betamethasone | Lotrisone | Antifungal + corticosteroid | Fungal infection, inflammation | -azole + -sone |
| Colchicine | Colcrys | Uricosuric agent | Gout | |
| Conjugated Estrogen | Premarin | Conjugated estrogens | Estrogen replacement therapy | |
| Cyclobenzaprine | Flexeril | Skeletal muscle relaxant | Muscle spasms | |
| Diazepam | Valium | Benzodiazepine | Anxiety | -zolam, -zepam |
| Diclofenac potassium | Cataflam | Nonsteroidal anti-inflammatory drug (NSAID) | Pain, inflammation | |
| Diclofenac sodium | Voltaren | Nonsteroidal anti-inflammatory drug (NSAID) | Pain, inflammation | |
| Dicyclomine | Bentyl | GI anticholinergic | Irritable bowel syndrome | |
| Digoxin | Lanoxin | Inotropic agent | Arrhythmias | |
| Diltiazem | Cardizem | Calcium channel blocker | Hypertension, angina | |
| Divalproex | Depakote | Anticonvulsant | Seizure disorder | |
| Donepezil | Aricept | Acetylcholinesterase inhibitor | Alzheimer's disease | |
| Doxazosin | Cardura | Alpha$_1$ receptor antagonist | Benign prostatic hyperplasia, hypertension | -zosin |
| Doxycycline | Vibramycin, Oracea | Tetracycline antibiotic | Bacterial infection, rosacea | -cycline |
| Duloxetine | Cymbalta | Serotonin + norepinephrine reuptake inhibitor (SNRI) | Depression, neuropathy, musculoskeletal pain | -oxetine |
| Dutasteride | Avodart | 5-alpha-reductase inhibitor | Benign prostatic hyperplasia | -asteride |
| Enalapril | Vasotec | Angiotensin converting enzyme (ACE) inhibitor | Hypertension, congestive heart failure | -pril |
| Enoxaparin | Lovenox | Anticoagulant (low molecular weight heparin) | Thrombus, embolus | |
| Escitalopram | Lexapro | Selective serotonin reuptake inhibitor (SSRI) | Depression, generalized anxiety disorder | |
| Esomeprazole | Nexium | Proton pump inhibitor | Gastroesophageal reflux disease (GERD) | -prazole |
| Eszopiclone | Lunesta | Sedative hypnotic | Insomnia | |
| Ethinyl estradiol + drospirenone | Yaz | Oral contraceptive hormones | Pregnancy prevention | |
| Ethinyl estradiol + norgestimate | Ortho Tri-Cyclen | Oral contraceptive hormones | Pregnancy prevention | |
| Ezetimibe | Zetia | Cholesterol absorption inhibitor | Hypercholesterolemia | |
| Ezetimibe + simvastatin | Vytorin | Cholesterol absorption inhibitor + HMG-CoA reductase inhibitor | Hypercholesterolemia | |
| Famotidine | Pepcid | Histamine $H_2$ antagonist | Gastroesophageal reflux disease (GERD) | |
| Fenofibrate | Tricor | Antihyperlipidemic, fibric acid agent | Hyperlipidemia | |
| Fentanyl | Duragesic | Opioid analgesic (synthetic) | Pain | |
| Ferrous Sulfate | Feosol | Iron supplement | Anemia, iron deficiency | |
| Fexofenadine | Allegra | Antihistamine | Seasonal allergic rhinitis | |
| Finasteride | Proscar | 5-alpha-reductase inhibitor | Benign prostatic hyperplasia | -asteride |
| Fluconazole | Diflucan | Antifungal | Fungal infection | -azole |
| Fluoxetine | Prozac | Selective serotonin reuptake inhibitor (SSRI) | Depression, generalized anxiety disorder | -oxetine |
| Fluticasone + salmeterol | Advair | Corticosteroid + beta$_2$ receptor agonist | Asthma, COPD | -sone, -terol |
| Fluticasone propionate | Flonase | Corticosteroid | Allergic rhinitis | -sone |
| Folic Acid | Folvite | Folic acid supplement | Folic acid deficiency, neural tube defect prophylaxis | |

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| Generic Name | Brand Name | Therapeutic Class | Most Common Indication | Common - prefix/suffix- |
|---|---|---|---|---|
| Furosemide | Lasix | Loop diuretic | Edema, hypertension | |
| Gabapentin | Neurontin | Anticonvulsant | Seizure disorder, neuropathic pain | |
| Gemfibrozil | Lopid | Antihyperlipidemic, fibric acid agent | Hyperlipidemia | |
| Glimepiride | Amaryl | Sulfonylurea | Diabetes mellitus, type II | |
| Glipizide | Glucotrol | Sulfonylurea | Diabetes mellitus, type II | |
| Glyburide | Micronase, DiaBeta | Sulfonylurea | Diabetes mellitus, type II | |
| Guaifenesin | Robitussin | Expectorant | Cough, chest congestion | |
| Hydralazine | Apresoline | Vasodilator | Hypertension, congestive heart failure | |
| hydrochlorothiazide | Microzide | Thiazide diuretic | Edema, hypertension | -thiazide |
| Hydrocodone + acetaminophen | Vicodin | Opioid analgesic combo | Pain | |
| Hydroxychloroquine | Plaquenil | Antimalarial, DMARD, immunosuppressant | Malaria infection, rheumatoid arthritis, lupus | |
| Hydroxyzine pamoate | Vistaril | Antihistamine | Pruritus, anxiety | |
| Ibuprofen | Motrin | Nonsteroidal anti-inflammatory drug (NSAID) | Pain, inflammation | |
| Insulin aspart | NovoLog | Insulin | Diabetes mellitus, type I, II | |
| Insulin glargine | Lantus | Insulin | Diabetes mellitus, type I, II | |
| Insulin lispro | Humalog | Insulin | Diabetes mellitus, type I, II | |
| Ipratropium | Atrovent | Anticholinergic (pulmonary) | Chronic obstructive pulmonary disease (COPD) | -tropium |
| Irbesartan | Avapro | Angiotensin II receptor blocker (ARB) | Hypertension | -sartan |
| Irbesartan + hydrochlorothiazide | Avalide | Angiotensin II receptor blocker (ARB) + diuretic | Hypertension, edema, congestive heart failure | -sartan + -thiazide |
| Isosorbide mononitrate | Imdur | Nitrate vasodilator | Angina pectoris | |
| Ketoconazole | Nizoral | Antifungal | Fungal infection | -azole |
| Lamotrigine | Lamictal | Anticonvulsant | Seizure disorder | |
| Lansoprazole | Prevacid | Proton pump inhibitor | Gastroesophageal reflux disease (GERD) | -prazole |
| Latanoprost | Xalatan | Prostaglandin analog | Glaucoma | |
| Levetiracetam | Keppra | Anticonvulsant | Seizure disorder | |
| Levofloxacin | Levaquin | Fluoroquinolone antibiotic | Bacterial infection | -floxacin |
| Levothyroxine | Synthroid, Levoxyl | Thyroid hormone replacement (synthetic T4) | Hypothyroidism | |
| Lidocaine | Lidoderm | Topical anesthetic | Pain, postherpetic nauralgia | -caine |
| Lisdexamfetamine | Vyvanse | Stimulant | ADD, ADHD | |
| Lisinopril | Prinivil, Zestril | Angiotensin converting enzyme (ACE) inhibitor | Hypertension, congestive heart failure | -pril |
| Lorazepam | Ativan | Benzodiazepine | Anxiety | -zolam, -zepam |
| Losartan | Cozaar | Angiotensin II receptor blocker (ARB) | Hypertension | -sartan |
| Losartan + hydrochlorothiazide | Hyzaar | Angiotensin II receptor blocker (ARB) + diuretic | Hypertension, edema, congestive heart failure | -sartan + -thiazide |
| Lovastatin | Mevacor | HMG-CoA reductase inhibitor | Hypercholesterolemia | -statin |
| Meclizine | AntiVert | Antiemetic | Nausea, vertigo | |
| Meloxicam | Mobic | Nonsteroidal anti-inflammatory drug (NSAID) | Pain, inflammation | |
| Memantine | Namenda | NMDA Receptor antagonists | Alzheimer's disease | |
| Metformin | Glucophage | Biguanide | Diabetes mellitus, type II | |

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| Generic Name | Brand Name | Therapeutic Class | Most Common Indication | Common - prefix/suffix- |
|---|---|---|---|---|
| Methadone | Methadose | Opioid analgesic | Pain, opioid dependence | |
| Methocarbamol | Robaxin | Skeletal muscle relaxant | Muscle spasms | |
| Methotrexate | Rheumatrex | Disease-modifying antirheumatic drug (DMARDs), antineoplastic | Rheumatoid arthritis, breast cancer | |
| Methylphenidate | Ritalin, Concerta | Stimulant | ADHD | |
| Methylprednisolone | Solu-Medrol | Corticosteroid | Inflammation | -olone |
| Metoclopramide | Reglan | GI motility stimulant | Nausea, vomiting, gastroparesis, gastroesophageal reflux disease (GERD) | |
| Metoprolol succinate | Toprol XL | $Beta_1$ receptor antagonist (selective) | Hypertension, angina | -olol |
| Metoprolol tartrate | Lopressor | $Beta_1$ receptor antagonist (selective) | Hypertension, angina | -olol |
| Metronidazole | Flagyl | Nitroimidazole antibiotic | Bacterial infection | |
| Minocycline | Minocin, Solodyn | Tetracycline antibiotic | Bacterial infection, acne vulgaris | -cycline |
| Mirtazapine | Remeron | $Alpha_2$ adrenergic receptor antagonist | Depression | |
| Mometasone | Nasonex | Corticosteroid | Allergic rhinitis | -sone |
| Montelukast | Singular | Leukotriene receptor antagonist | Allergic rhinitis, asthma | |
| Moxifloxacin | Avelox | Fluoroquinolone antibiotic | Bacterial infection | -floxacin |
| Mupirocin | Bactroban | Topical antibiotic | Bacterial infection | |
| Nabumetone | Relafen | Nonsteroidal anti-inflammatory drug (NSAID) | Pain, inflammation | |
| Naproxen | Naprosyn | Nonsteroidal anti-inflammatory drug (NSAID) | Pain, inflammation | |
| Niacin | Niaspan | Antihyperlipidemic, nicotinic acid agent | Hyperlipidemia | |
| Nifedipine | Procardia | Calcium channel blocker | Hypertension, angina | -dipine |
| Nitrofurantoin | Macrodantin | Nitrofuran antibiotic | Bacterial urinary tract infection | |
| Nitroglycerin | Nitrostat | Nitrate vasodilator | Angina pectoris | |
| Nortriptyline | Pamelor | Tricyclic antidepressant | Depression | -triptyline |
| Olanzapine | Zyprexa | Antipsychotic | Schizophrenia, bipolar mania | |
| Olmesartan + hydrochlorothiazide | Benicar HCT | Angiotensin II receptor blocker (ARB) + diuretic | Hypertension, edema, congestive heart failure | -sartan + -thiazide |
| Omega-3-acid ethyl esters | Lovaza | Antihyperlipidemic | Hyperlipidemia | |
| Omeprazole | Prilosec | Proton pump inhibitor | Gastroesophageal reflux disease (GERD) | -prazole |
| Ondansetron | Zofran | selective 5-HT3 antagonist | Nausea, vomiting | -setron |
| Oseltamivir | Tamiflu | Antiviral | Influenza A, B | -vir |
| Oxybutynin | Ditropan | Antispasmodic, urinary | Overactive bladder | |
| Oxycodone | Oxy IR, Oxycontin | Opioid analgesic | Pain | |
| Oxycodone + acetaminophen | Percocet | Opioid analgesic combo | Pain | |
| Pantoprazole | Protonix | Proton pump inhibitor | Gastroesophageal reflux disease (GERD) | -prazole |
| Paroxetine | Paxil | Selective serotonin reuptake inhibitor (SSRI) | Depression, generalized anxiety disorder | -oxetine |
| Penicillin VK | Pen-Vee K | Beta lactam antibiotic, penicillins | Bacterial infection | -cillin |
| Phentermine | Adipex | Stimulant anorexiant | Appetite suppression | |
| Phenytoin | Dilantin | Anticonvulsant | Seizure disorder | |
| Pioglitazone | Actos | Thiazolidinedione antidiabetic | Diabetes mellitus, type II | |
| Polyethylene glycol | Miralax | Osmotic laxative | Constipation | |
| Potassium chloride | Klor-Con | Electrolyte | Hypokalemia | |

[1]Kane, S. P. (2019, April 15). About the DrugStats Database. https://clincalc.com/DrugStats/About.aspx

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# Top 200 Medications Prescribed in the U.S. (by volume)*

*The data source (MEPS prescribed medicines file) is released annually by the U.S. Government. This data release represents survey data from two years prior. A database then sanitizes and standardizes this data, and is typically released within a few months of the MEPS release. There is an inherent delay in collecting the survey data (eg, in the 2016 calendar year), MEPS releasing the data from patients (August 2018), and the finalized release (a few months later, classified as the 2019 drug list)[1]

| Generic Name | Brand Name | Therapeutic Class | Most Common Indication | Common - prefix/suffix- |
|---|---|---|---|---|
| Pravastatin | Pravachol | HMG-CoA reductase inhibitor | Hypercholesterolemia | -statin |
| Prednisone | Deltasone | Corticosteroid | Inflammation | -sone |
| Pregabalin | Lyrica | Anticonvulsant | Seizure disorder | |
| Promethazine | Phenergan | Antiemetic | Nausea, vomiting | |
| Propranolol | Inderal | Beta$_1$ + beta$_2$ adrenergic receptor antagonist (nonselective) | Hypertension, angina | -olol |
| Quetiapine | Seroquel | Atypical antipsychotic | Schizophrenia, bipolar mania | |
| Quinapril | Accupril | Angiotensin converting enzyme (ACE) inhibitor | Hypertension, congestive heart failure | -pril |
| Rabeprazole | Aciphex | Proton pump inhibitor | Gastroesophageal reflux disease (GERD) | -prazole |
| Raloxifene | Evista | Selective estrogen receptor modulator (SERM) | Postmenopausal osteoporosis | |
| Ramipril | Altace | Angiotensin converting enzyme (ACE) inhibitor | Hypertension, congestive heart failure | -pril |
| Ranitidine | Zantac | Histamine $H_2$ antagonist | Gastroesophageal reflux disease (GERD) | -tidine |
| Regular insulin | Humulin R, Novolin R | Insulin | Diabetes mellitus, type I, II | |
| Risedronate | Actonel | Bisphosphonate | Osteoporosis | -dronate |
| Risperidone | Risperdal | Antipsychotic | Schizophrenia, bipolar mania | |
| Ropinirole | Requip | Dopamine agonist | Parkinson's disease, restless leg syndrome | |
| Rosuvastatin | Crestor | HMG-CoA reductase inhibitor | Hypercholesterolemia | -statin |
| Sertraline | Zoloft | Selective serotonin reuptake inhibitor (SSRI) | Depression, generalized anxiety disorder | |
| Sildenafil | Viagra | Phosphodiesterase-5 ($PDE_5$) inhibitor | Erectile dysfunction | -afil |
| Simvastatin | Zocor | HMG-CoA reductase inhibitor | Hypercholesterolemia | -statin |
| Sitagliptin | Januvia | Dipeptyl peptidase-IV inhibitor antidiabetic | Diabetes mellitus, type II | -gliptin |
| Spironolactone | Aldactone | Potassium-sparing diuretic | Edema, congestive heart failure | |
| Sulfamethoxazole + trimethoprim | Bactrim DS, Septra DS | Sulfa antibiotic | Bacterial infection | Sulfa- |
| Sumatriptan | Imitrex | Serotonin 5-HT receptor agonist | Migraine headache | -triptan |
| Tadalafil | Cialis | Phosphodiesterase-5 ($PDE_5$) inhibitor | Erectile dysfunction | -afil |
| Tamsulosin | Flomax | Alpha$_1$ receptor antagonist | Benign prostatic hyperplasia | |
| Temazepam | Restoril | Benzodiazepine | Insomnia | -zolam, -zepam |
| Terazosin | Hytrin | Alpha$_1$ receptor antagonist | Benign prostatic hyperplasia, hypertension | -zosin |
| Tiotropium | Spiriva | Anticholinergic (pulmonary) | Chronic obstructive pulmonary disease (COPD) | -tropium |
| Tizanidine | Zanaflex | Alpha$_2$ adrenergic receptor agonist | Muscle spasms | |
| Tolterodine | Detrol | Muscarinic receptor antagonist | Overactive bladder | |
| Topiramate | Topamax | Anticonvulsant | Seizure disorder, migraine prophylaxis | |
| Tramadol | Ultram | Opioid analgesic | Pain | |
| Trazodone | Desyrel | Histamine + alpha$_1$ adrenergic receptor antagonist | Depression, insomnia | -tidine |
| Triamcinolone | Nasacort | Corticosteroid | Allergic rhinitis | -olone |
| Triamterene | Dyrenium | Potassium-sparing diuretic | Edema, hypertension | |
| Valacyclovir | Valtrex | Antiviral | Herpes simplex virus, herpes zoster, varicella zoster | -vir |
| Valsartan | Diovan | Angiotensin II receptor blocker (ARB) | Hypertension | -sartan |

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# Top 200 Medications Prescribed in the U.S. (by volume)*

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| Generic Name | Brand Name | Therapeutic Class | Most Common Indication | Common - prefix/suffix- |
|---|---|---|---|---|
| Valsartan + hydrochlorothiazide | Diovan HCT | Angiotensin II receptor blocker (ARB) + diuretic | Hypertension, edema, congestive heart failure | -sartan + -thiazide |
| Vancomycin | Vancocin | Glycopeptide antibiotic | Bacterial infection | |
| Vardenafil | Levitra | Phosphodiesterase-5 ($PDE_5$) inhibitor | Erectile dysfunction | -afil |
| Varenicline | Chantix | Nicotinic receptor agonist | Smoking cessation | |
| Venlafaxine | Effexor | Serotonin + norepinephrine reuptake inhibitor (SNRI) | Depression, generalized anxiety disorder | |
| Verapamil | Calan, Verelan | Calcium channel blocker | Hypertension, angina | |
| Warfarin | Coumadin, Jantoven | Anticoagulant | Thrombus, embolus | |
| Zolpidem | Ambien | Sedative hypnotic | Insomnia | |

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| Week 1 | Resource Name | Activity | Time (mins) | Notes |
|---|---|---|---|---|
| | PharmaSeer | Module 1 - Introduction & Basic Overview | 225 | *Mark the first 15 flashcards by clicking the ' " in the upper right hand corner of the card |
| | | Module 2 - Prescription Medications: General | 360 | |
| | Flashcards/My Practice Activities | Modules 1-3, Top 200 medications flashcards, first 15* | 120 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 705 | |
| **Week 2** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 3 - Prescription Medications: Controlled Substances | 225 | |
| | | Module 4 - The Dispensing Process | 450 | |
| | Flashcards/My Practice Activities | Modules 3 - 4, Top 200 medications flashcards, 16 - 30 | 120 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 795 | |
| **Week 3** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 5 - Pharmacy Calculations | 315 | |
| | Flashcards/My Practice Activities | Module 5, Top 200 medications flashcards, 31 - 45 | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 375 | |
| **Week 4** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 6 - Self Management Skills, Communication, and Teamwork | 135 | |
| | | Module 7 - Patient Interaction | 270 | |
| | Flashcards/My Practice Activities | Modules 6 - 7, Top 200 medications flashcards, 46 - 60 | 120 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 525 | |
| **Week 5** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 8 - An Overview of Federal Privacy Requirements | 180 | |
| | | Module 9 - Non-Dispensing Duties | 225 | |
| | Flashcards/My Practice Activities | Modules 8 - 9, Top 200 medications flashcards, 61 - 75 | 120 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 525 | |

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| Week 6 | Resource Name | Activity | | |
|---|---|---|---|---|
| | PharmaSeer | Module 10 - Nondispensing Duties | 225 | |
| | | Module 11 - Drug and Medical Terminology | 270 | |
| | Flashcards/My Practice Activities | Modules 10 - 11, Top 200 medications flashcards, 76 - 90 | 120 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 615 | |
| **Week 7** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 12 - Basic Anatomy and Physiology | 540 | |
| | Flashcards/My Practice Activities | Module 12, Top 200 medications flashcards, 91 - 105 | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 600 | |
| **Week 8** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 13 - Basic Pharmacology | 495 | |
| | Flashcards/My Practice Activities | Module 13, Top 200 medications flashcards, 106 - 120 | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 555 | |
| **Week 9** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 14 - Commonly Prescribed Interventions | 630 | |
| | Flashcards/My Practice Activities | Module 14, Top 200 medications flashcards, 121 - 135 | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 690 | |
| **Week 10** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 15 - Infection Control, Wellness, and Disease Prevention | 315 | |
| | Flashcards/My Practice Activities | Module 15, Top 200 medications flashcards, 121 - 135 | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 375 | |
| **Week 11** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 16 - Over-the-Counter (OTC) Medications | 360 | |
| | Flashcards/My Practice Activities | Module 16, Top 200 medications flashcards, 136 - 150 | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 420 | |

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| Week 12 | Resource Name | Activity | | |
|---|---|---|---|---|
| | PharmaSeer | Module 17 - Unit Dose Systems and Medication Repackaging | 135 | |
| | Flashcards/My Practice Activities | Module 17, Top 200 medications flashcards, 151 - 165 | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | | 195 | |
| **Week 13** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 18 - Nonsterile Product Compounding | 170 | |
| | Flashcards/My Practice Activities | Module 18, Top 200 medications flashcards, 166 - 180 | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 230 | |
| **Week 14** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 19 - Sterile Product Compounding | 405 | |
| | Flashcards/My Practice Activities | Module 19, Top 200 medications flashcards, 181-200 | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 465 | |
| **Week 15** | **Resource Name** | **Activity** | | |
| | PharmaSeer | Module 20 - Emergency Situations | 225 | |
| | Flashcards/My Practice Activities | Review as Necessary | 60 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 285 | |
| **Week 16** | **Resource Name** | **Activity** | | |
| | PharmaSeer | None | | |
| | Flashcards/My Practice Activities | Review as Necessary | 120 | |
| | Other Activities | Follow recommended activities in the Facilitator Implementation Guide (FIG) | | |
| | | Total Time (mins) | 120 | |

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