

Distance-based certificate program:

Module	Title, Description, and Learning Objectives
1	<p>Title: Informatics & Medication Use Technologies: An Introduction</p> <p>Are you new to pharmacy informatics? Fundamental principles and definitions within the fields of pharmacy, medical, and biomedical informatics will be presented to the participant. This activity will be the building block for subsequent modules within the series.</p> <p>Objectives:</p> <ul style="list-style-type: none">• Describe biomedical informatics and pharmacy informatics.• Discuss the various roles of individual pharmacy informatics.• List the key technologies used across the medication use spectrum.• Identify success factors that can improve your performance in pharmacy informatics.
2	<p>Title: Success Through Knowing Your IT Teammates and Tools</p> <p>Every pharmacy informatics professional works closely with other members of the informatics and information technology services departments. Whether you are employed by the pharmacy department or the IT department, knowing who your teammates are and what their skills and areas of expertise are will be valuable knowledge for having a collegial and productive working relationship.</p> <p>Objectives:</p> <ul style="list-style-type: none">• Discuss the role of the Information Technology Department in an organization.• List common information technology terminology.• Identify common team assignments and the role of individual members of the IT department.• Identify the major differences between the IT department and the pharmacy IT team.

3	<p>Title: Improving Medication Safety Through Electronic Order Entry Systems and Clinical Decision Support</p> <p>Health Information Technology can prevent errors during patient care, but errors can still occur. The use of clinical decision support (CDS) can be utilized to prevent some errors from occurring. There are multiple types of CDS that can be implemented to improve patient care. The use of passive and active CDS strategies will be defined with examples of each type of CDS tools.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Define the different types of errors that can occur in the medication use process. • Discuss how content provided by a drug database vendor is used by a computerized prescriber order entry system vendor to inform providers of potential safety issues. • Describe how specific types of passive clinical decision support are applied in prescriber order entry systems to prevent or minimize the occurrence of medication errors. • Explain how active forms of clinical decision support can promote the safe and cost-effective use of medications in health-systems.
4	<p>Title: The Optimization of Informatics: Human Factors, Unintended Consequences, and Patient Care Outcomes</p> <p>Once an EHR has been implemented, continued support and maintenance is required to ensure that the systems work appropriately. When providers take short cuts or utilize the system outside of how it was developed (work around), unintended consequences may result in patient harm. Evaluating the usability of the system prior to implementation is a key factor of success.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Describe two major challenges associated with the growth and widespread use of health information technology. • Discuss three tools that can be used or questions that can be posed to evaluate the usability of software or a medical device.

	<ul style="list-style-type: none"> • Explain three potential patient care outcomes that might arise from implementation of a new information technology device or system. • Discuss at least three major, unintended consequences faced by clinicians when implementing a new or updated electronic health record, computerized order entry and/or clinical decision support system.
5	<p>Title: Standards and Vocabularies; as easy as ABC</p> <p>The development of standards within Health Information Technology is important to ensure that the systems function predictably and efficiently. The use of standard terminologies will also allow for appropriate data collection to determine a wide range of factors such as quality measurement and operational efficiency. Pharmacists need to have an understanding of standards and terminologies when working with other members of the HIT team and vendors.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Define the American National Standards Institute (ANSI) process for US health care Standards Development Organizations (SDO) Health Level Seven (HL7), National Council for Prescription Drug Programs (NCPDP) and Accredited Standards Committee (ASC X12). • Explain the role of the SDOs in pharmacy informatics and their function in pharmacy health systems standards. • Describe and differentiate between NDC, RxNorm, SNOMED CT, NDF-RT, and other normalized terminologies or vocabularies/ontologies. • Discuss benefits and limitations of various normalized terminologies. • Explain the value of using normalized terminologies with standardized structured documents using clinical document architecture when exchanging clinical information between health care providers.
6	<p>Title: Knowledge Management in Health Systems: an Integrated Approach to Decisions, Processes and Implementation</p> <p>Keeping an electronic system up to date and in synch with current knowledge and information is a challenge for many institutions. Fine tuning the clinical decision support (CDS) alerts for providers is an important aspect of CDS governance that many hospital</p>

	<p>struggle. Poor management of excessive alerts is often a frustration of providers, suggestions on managing these alerts will be discussed on this webinar.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Explain knowledge management as it relates to health systems. • Describe update process considerations for managing knowledge in the electronic health record. • Outline the relationship between knowledge management and clinical decision support. • Define alert fatigue and describe factors contributing to its origination. • Express techniques for alert management used to reduce unnecessary alerting.
7	<p>Title: Determining a strategy for data analysis: Basic Data Analysis Tools</p> <p>A frustration of many managers and clinical pharmacists is difficult access to the data within the EHR. In order to obtain useful reports, a pharmacist needs to understand how the data is stored with the complex tables of an EHR or data repository. Canned reports and custom reports can be exported into a variety of formats for use, and the interpretation can be a struggle.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Describe the difference between data and information. • List the skills required to obtain information from electronic health record system's (EHR) data. • Discuss relational database concepts and apply them to future report requests. • Examine accessible reporting tools.
8	<p>Title: Better Data Analytics: Building on the Basics</p> <p>When developing a report from the EHR, pharmacists should work with data analysts that understand the complexities and nuances of the EHR. Once the data has been exported from the EHR, the pharmacist generally still needs to interpret the report and aggregate the data for other purposes. Once data is exported from an EHR, a presentation or report needs to be written summarizing the data in tables and graphs.</p>

	<p>Objectives:</p> <ul style="list-style-type: none"> • List important characteristics of reporting and data analysis tools. • Describe the process to select the best reporting or data analysis tool for a task. • Discuss reporting and data analysis best practices.
9	<p>Title: Project Management 101: Basic Principles and Overview</p> <p>Project management is required for all health information technology (HIT) projects no matter how large, small, and/or complex. Understanding the project life cycle and what to expect with these projects is an important aspect of any member of the HIT team. Understanding the terminologies and phases of a project will allow for more participation from pharmacy personnel on a project.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Define selected common project management terminology. • Describe the differences between a project, a Project Management Office (PMO), and a Project Portfolio Management (PPM). • Identify the different phases of a project life cycle. • Differentiate a project manager from a pharmacy operations manager.
10	<p>Title: Project Management 101: Tools and Challenges</p> <p>As an HIT project progresses, there are stakeholders that need to be notified of the projects status. Having a strong project plan allows for key communication and status updates for all involved. The way communication is provided may be different for each audience with varying degrees of project detail. Some projects may not go according to plan, but a strong plan will allow for these changes and assist in getting back on track.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Describe potential project challenges encountered during a project's life cycle. • Explain how to use tools and technique to help the team understand the purpose of a project.

	<ul style="list-style-type: none"> • List three ways to keep key stakeholders informed of the status of a project. • Explain the interpersonal dimensions of project management: leadership, team dynamics, influencing and negotiating.
11	<p>Title: CPOE and E-Prescribing: Keys to Success for Ordering Medications Electronically in both the Inpatient and Ambulatory Environment</p> <p>How does computerized provider order entry (CPOE) differ from electronic prescribing (e-prescribing)? Learn about the advantages when providers order medications electronically to improve patient safety, but determine possible disadvantages when systems are not optimally designed. The use of electronic systems can improve safety, but they need to be complimentary to the clinician's workflow.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Describe potential benefits of computerized provider order entry (CPOE) over traditional paper based ordering workflows. • Explain key required components of medication orders. • Identify risks, benefits, and appropriate methods and levels of clinical decision support (CDS) that can be utilized to guide medication order entry. • Discuss important benchmarks to assist with monitoring the CPOE system. • Explain e-prescribing functionality standards of today, and potential enhancements to be seen in the future. Outline typical e-prescribing workflows and challenges.
12	<p>Title: EMAR, BCMA, and Smart Pumps: The Last Lines of Defense Against Medication Errors</p> <p>Optimizing the safeguards around medication administration is an important aspect of many medication safety plans. The use of barcode medication administration (BCMA) with an electronic medication administration record (eMAR) is one strategy that has been rapidly adopted across the US. The addition of smart infusion pumps with drug libraries and other safety features can improve medication safety when high risk medications are administered. The use of technology can also introduce other errors and work arounds that will be evaluated in this presentation.</p>

	<p>Objectives:</p> <ul style="list-style-type: none"> • Review potential benefits of electronic medication administration records (EMAR) documentation over traditional paper based documentation workflows. • Examine basic EMAR functionality, and challenging workflows associated with EMAR documentation. • Describe the impact of barcoded medication administration (BCMA) on EMAR workflow and medication safety. • Identify benefits and limitations associated with smart pump use. • Review important features found in smart pumps.
13	<p>Title: Managing automation, robotics and technology within your hospital</p> <p>Most pharmacies have adopted the use of technology rapidly over the past 20 years to improve patient safety and improve efficiencies. These technologies have improved medication management and dispensing activities. Many of these technologies are complex, so pharmacists and pharmacy technicians need to be aware of how to operate and manage these technologies. These technologies bring a new host of challenges and opportunities for pharmacy staff.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Review the history of technology and automation used in pharmacy practice. • Describe the four types of pharmacy distribution models. • List strategies for employing technology and automation. • Describe common types of technology and automation used in pharmacy practice. • Discuss the benefits and challenges with the use of technology and automation.
14	<p>Title: Optimizing automation: Data, Safety, and Future Implications</p> <p>Once technology has been implemented to improve efficiencies and safety, a plan must be developed to maintain, optimize, and enhance the technology. Many regulations exist to ensure that technology is complimentary to patient care. The impact of technology on pharmacy workflow must be assessed to determine appropriate staffing and possible new roles for pharmacy personnel. The vendor-client relationship can also improve assist in managing and enhancing technology optimization.</p>

	<p>Objectives:</p> <ul style="list-style-type: none"> • Describe the essential elements for selecting technology or automation for use in the health care system. • Describe the safety, regulatory, and quality components for technology and automation. • Identify the principles for effective management and oversight of technology to ensure its safe use. • Describe the data model and the reporting capabilities for technology and automation. • Discuss the role of a vendor and the vendor relationship. • Describe the future roles for pharmacy personnel with the adoption of technology and automation.
15	<p>Title: Production Support: How To Manage Changes And Resolve Incidents</p> <p>Once technology has been implemented, many issues develop that need to be addressed by the pharmacy informaticist. Working with vendors and other team members to resolve issues and close service tickets in a timely manner is optimal. Optimizing the use of technology will improve acceptance by all members of the healthcare team.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Match important testing types to specific testing purposes. • Summarize options for handling formulary preferred product changes. • List the considerations when determining batch production times. • Describe the appropriate times to contact a customer during problem resolution.
16	<p>Title: Keeping The Business Running. Financial and Compliance Concerns</p> <p>Managing database issues and customization of the drug files may allow for great acceptance of the technology that has been implemented. The complexities of managing the master drug file to ensure appropriate CDS alerting and patient billing is often difficult to maintain. Enhancing technology to ensure optimal patient safety recommendations is an important consideration by many HIT teams.</p>

	<p>Objectives:</p> <ul style="list-style-type: none"> • Describe one advantage and one disadvantage of each charge capture point. • Explain the role of a Charge Description Master (CDM) Number. • Name one guideline for the safe use of automated dispensing cabinets made by multiple national bodies. • List three considerations when applying TallMan lettering changes to the CPOE order catalog.
17	<p>Title: Smart Pump Integration</p> <p>Integrating smart pumps with the electronic medical record can improve patient safety, create efficient workflows, and ensure consistency in practice. A number of best practices and operational considerations must be addressed to successfully manage smart pump integration. Lessons learned from a successful integration process will be discussed in this module.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Discuss clinical and operational considerations for implementing smart pump integration. • Describe the safety benefits with integrating smart pumps and the electronic medical record.
18	<p>Title: Handle with Care: Packaging Patient Transitions with Informatics</p> <p>As patients transition between health care locations, providers, or onto different levels of care within the same location; deliberate coordination of patient care activities is essential to provide appropriate patient care. Developing an effective informatics solution associated with transitions of care is essential.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Identify common issues with information transfer between different care settings. • Explain informatics solutions that integrate the processes of medication histories, reconciliation, and discharge communication.

19	<p>Title: Informatics in Pediatrics</p> <p>Pediatric patients are not little adults and pose a number of fundamental clinical differences that affect how we safely administer medication. Challenges associated with BCMA and smart pump utilization will be outlined and best practices relevant to informatics in pediatrics will be discussed.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Describe the fundamental clinical differences between pediatric and adult populations and its relevance to informatics practice. • Identify best practices for utilization of smart pumps in a pediatric institution, including database design and maintenance. • List challenges associated with BCMA in a pediatric population and strategies to maintain patient safety.
	<p>Quiz/test requirement: After each module, the participant will be required to take a quiz and achieve an 80% score before proceeding to the next module.</p>
	<p>Project requirement: Upon completion of all 19 modules, participants will be required to submit a proposal for a project designed to demonstrate knowledge attained through the program. Once the proposal is approved, the project will commence and have results and outcomes that can be submitted upon completion of the project. Once the modules and project are complete, the participant will receive a Pharmacy Informatics Certificate.</p>