



ASHP - Pharmacy Informatics Competencies for Health System Pharmacists

1. Foundations of Informatics

- 1.1 Demonstrate the ability to utilize personal computing devices.
- 1.2 Define basic informatics terminology (data, database, information, knowledge, interface, integrate, interoperability, spreadsheet, file, operating system).
- 1.3 Explain the methods of interfacing and integration of information systems.
- 1.4 Utilize electronic communication with other health care professionals (internet/intranet).
- 1.5 Discuss the impact of data quality on health outcomes.
- 1.6 Describe measures used to ensure privacy, security and confidentiality of health information.
- 1.7 Describe the structure and function of an Electronic Health Record (EHR).

2. Medication Use Process

2.1 Prescribing

2.1.1 Computerized Prescriber Order Entry (CPOE) and e-Prescribing

- 2.1.1.1 Describe the structure and key elements of CPOE and e-Prescribing.
- 2.1.1.2 Create and send e-Prescriptions and medication orders via CPOE.
- 2.1.1.3 Discuss technical and personnel challenges unique to e-Prescriptions and CPOE.
- 2.1.1.4 Discuss the rationale for structured data for e-Prescribing and CPOE.
- 2.1.1.5 Discuss legibility issues of written, verbal, and electronic prescriptions (e-Prescribing).
- 2.1.1.6 Evaluate the impact of alerts on workflow and health care outcomes.

2.1.2 Clinical Decision Support (CDS)

- 2.1.2.1 Discuss the efficient and responsible use of clinical decision support tools to solve patient-related problems.
- 2.1.2.2 Discuss the legal, ethical and regulatory issues associated with clinical decision support.
- 2.1.2.3 Review clinical decision support options for prescribers.
- 2.1.2.4 Describe the functionality, strengths, and weaknesses of clinical decision support tools.

2.2 Transcribing

- 2.2.1 Discuss the stepwise process to determine prescription appropriateness.
- 2.2.2 Search electronic resources for evidence based medicine, clinical tools, and drug information.
- 2.2.3 Evaluate the clinical decision support options to provide the most appropriate information in the transcription process.
- 2.2.4 Reconcile between product availability and product selection in received prescriptions.
- 2.2.5 Discuss options to communicate with the prescriber regarding received prescriptions.
- 2.2.6 Discuss options for and document interventions related to prescriptions (electronically and/or on paper).

2.3 Dispensing

- 2.3.1 Discuss the interface and integration of clinical and distributive functions, including the synergy that translates into safe and effective medication therapy.
- 2.3.2 Discuss technologies used to automate the medication delivery process.
- 2.2.3 Discuss the importance of prescription labeling as it relates to patient safety, including readability.
- 2.3.4 Describe the value of bar-coded and radiofrequency identification for the medication dispensing process.
- 2.3.5 Evaluate and discuss the process of using bar code technology during inventory, drug preparation, and dispensing.
- 2.3.6 Print and scan bar codes, while noting the challenges of scanning due to label size/shape, barcode symbology or scanner functionality.
- 2.3.7 Observe automated medication tracking systems from receiving through patient medication administration.
- 2.3.8 Discuss the role, limitations, and benefits of dispensing automation for safe medication storage, preparation and dispensing.
- 2.3.9 Review information relating to IV robotics and automated IV workflow systems on how the technology prepares drug products while increasing safety.
- 2.3.10 Observe the process of loading/unloading/maintenance of medications within automated dispensing machines (ADMs).
- 2.3.11 Observe the impact on nursing workflow which results from the use of ADMs.
- 2.3.12 Evaluate the functionality available with ADMs (filters, interfaces and barcode scanning/verification of medications).
- 2.3.13 Review telepharmacy workflow to check a drug preparation remotely.
- 2.3.14 Review operational reports and metrics; identify methods to improve drug preparation/dispensing workflow

2.4 Administration

- 2.4.1 Discuss the the barcode medication administration process.
- 2.4.2 Describe the challenges, opportunities, and roles of technology at administration (e.g., BCMA, smart pumps, eMARs) to improve medication management and patient safety.

2.5 Education

- 2.5.1 Evaluate and create educational materials for patients and their families (support groups, kiosks, self/home monitoring, smart houses, etc)
- 2.5.2 Evaluate and create educational materials for pharmacists.
- 2.5.3 Evaluate and create educational materials for other health care providers.

2.6 Monitoring

- 2.6.1 Document patient intervention(s) within the organization's pharmacy intervention system.
- 2.6.2 Review the real-time monitoring system that provides a work queue of patient(s) needing review and intervention.
- 2.6.3 Discuss clinical documentation within the larger context of electronic health records.
- 2.6.4 Discuss the rationale for structured clinical documentation as it relates to longitudinal medication monitoring.
- 2.6.5 Write clinical surveillance rules to identify potential adverse drug reactions and adverse drug events.
- 2.6.6 Enter a medication occurrence or adverse drug event report in organization's reporting system and determine how the reports are a follow up.
- 2.6.7 Review ambulatory EHR patient profiles to incorporate information into an acute care EHR medication history.
- 2.6.8 Discuss/observe medication monitoring technologies for use at the patient's residence.
- 2.6.9 Observe the use of electronic clinical monitoring tools within community pharmacy software systems.
- 2.6.10 Discuss the remote and mobile technologies utilized to retrieve clinical information for use while on patient care rounds.
- 2.6.11 Conduct a telepharmacy consultation that allows for interaction with a patient from a remote location.

2.7 Safety

- 2.7.1 Evaluate the prevention of medication errors through the use of technology within the medication use process.
- 2.7.2 Apply the principles of evidence-based medicine to the medication use process.

3. Leading/Managing Change and Interdisciplinary Communication

- 3.1 Discuss the role of information systems in health care management.
- 3.2 Describe strategic and financial planning for clinical information systems.
- 3.3 Explain the vendor/client relationship and demonstrate the ability to evaluate/implement/support/maintain pharmacy information systems.
- 3.4 Describe leadership models, processes and practices as it relates to Informatics.

- 3.5 Apply project management and change management principles/methods to Informatics projects.
- 3.6 Collaborate with other health care professionals to optimize Informatics projects within the institution.
- 3.7 Document and report health care quality benchmarks within the institution.

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