This course supports the assessments for Pharmacology. The course covers 5 competencies and represents 2 competency units.

Introduction

Overview
The Institute of Medicine reports that cited medication errors as the most common medical errors, costing billions of dollars and harming up to 1.5 million people every year. Medication errors often result from nurses failing to follow proper procedures.

Medication administration may seem simple, but within busy healthcare environments many issues affect the safety of medication administration. It is important that nurses maintain a solid knowledge of pharmacology and vigilantly follow proper procedure.

Getting Started
Before you begin reviewing the course material, we encourage you to watch the following Getting Started video. This video provides specific information that will help you to successfully complete this course.

Note: To download this video, right-click the following link and choose “Save as...”: download video.

Competencies
This course provides guidance to help you demonstrate the following 6 competencies:

- Competency 724.1.1: Regulations, Standards, & Evidence-Based Practice in Drug Therapy
  The graduate identifies nursing regulations related to drug preparation and administration and identifies federal and state legislative standards and policies regulating the development, preparation, and administration of drugs.

- Competency 724.1.2: Terms & Concepts in Pharmacology
  The graduate recognizes common concepts in pharmacology and correctly uses common terms and abbreviations in pharmacology; applies basic concepts of pharmacology to demonstrate how to appropriately follow a drug order and obtain informed consent, and explains ethical use of medications.

- Competency 724.1.3: Drug Classification
  The graduate recognizes the general actions and characteristics of major drug classes; identifies how different classes of drugs affect the body; and, distinguishes between the different drug names.

- Competency 724.1.4: Role of the Nurse in Drug Therapy
  The graduate recognizes nursing responsibilities related to safe administration of medications; educates the patient and/or family/caretaker in appropriate medication usage, side effects, contraindications, and expected therapeutic effects; recognizes ethical and legal issues surrounding medication administration; and applies the steps of
the nursing process in planning the care of patients receiving drug therapy.

- **Competency 724.1.5: Preparation for Administration of Medications**
The graduate employs accurate dosage calculations and appropriate use of technology to effectively, appropriately, and safely administer drugs and maintain the quality of medication therapy.

**Nursing Dispositions Statement**
Please review the [Statement of Nursing Dispositions](#).

**Preparing for Success**

The information in this section is provided to detail the resources available for you to use as you complete this course.

**Learning Resources**
The learning resources listed in this section are required to complete the activities in this course. For many resources, WGU has provided automatic access through the course.

**Automatically Enrolled Learning Resources**

You can access the learning resources listed in this section by clicking on the links provided throughout the course. You may be prompted to log in to the WGU student portal to access the resources.

**Vital Source E-Texts**

The following textbooks are available to you as e-texts within this course. You will be directly linked to the specific readings required within the activities that follow.


*Note: These e-texts are available to you as part of your program tuition and fees, but you may purchase hard copies at your own expense through a retailer of your choice. If you choose to do so, please use the ISBN listed to ensure that you receive the correct edition.*

**Additional Preparation**

There are many different learning tools available to you within your course of study in addition to the learning resources already discussed. Take the time to familiarize yourself with them and determine how best to fit them into your learning process.

**The Pharmacology Community**

The “Community” is located in the course of study. View the “Course Announcements” for CM office hours and timely notifications. View the “Course Tips” for documents and videos such as: welcome letters and videos, pacing guides, FAQs, and assistance with navigating the resources. Use the “Course Search” to search for documents or videos by name or subject.
Course Instructor Assistance

Course instructors are available to help you. Their job is to aid understanding and to improve your utilization of learning resources. Request their help as needed when preparing for assessments.

Course instructors cannot provide reviews of entire assessments. If you fail an assessment attempt, review the provided feedback, then ask the course instructor specific questions about what you can do to meet the competency standard. You can request course instructor assistance as necessary in preparing for a second attempt at an objective assessment. Instructors cannot guarantee you will pass; however, they can provide the assistance and advice necessary to help you succeed.

The Role of the Nurse in Patient Centered Drug Therapy

The United States has some of the strictest regulations in the world regarding pharmaceutical agents. These regulations are driven by a need for public safety. Even with stringent regulations, some drugs remain dangerous for some patients. It is therefore important to administer drugs cautiously and to be armed with up-to-date knowledge.

The Nursing Process in Relationship to Drug Therapy

Not every drug is safe for every patient. Consumers must use caution before taking any drug, whether prescribed or over-the-counter. Nurses need to understand drug interactions and drug responses in regard to physiology, age, gender, and genomics. This is especially true today with an increase in the use of alternative therapies and dietary supplements that may interfere with a particular drug.

This topic addresses the following competency:

- **Competency 724.1.5: Preparation for Administration of Medications**
  The graduate employs accurate dosage calculations and appropriate use of technology to effectively, appropriately, and safely administer drugs and maintain the quality of medication therapy.

This topic highlights the following objectives:

- Identify the six rights of medication administration.
- Demonstrate application of the six rights of medication administration in a given situation.
- Identify the three checks of medication administration.
- Demonstrate 100% accuracy when performing a medication calculation in a given situation.
- Distinguish between metric, household measurement systems. (Note apothecary isn’t covered in either the text book or the online review.
- Identify technologies that help ensure the safe and appropriate administration of drugs.
Complete: Conversion of Measurement

Complete Lesson 1 in the Evolve Online Self-Study Module:

- Self-Study Module: Drug Calculation Review

Read: Nursing Process and Drug Therapy

Read the following in Pharmacology and the Nursing Practice:

- chapter 1 ("The Nursing Process and Drug Therapy")
- chapter 9 ("Photo Atlas of Drug Administration")

Read: Reducing Errors

Read the following article:

- "Reduction in Medication Errors in Hospitals" by Rajeev B. Patel.

Review: NCLEX

Complete the Evolve Online Resource NCLEX Reviews:

- NCLEX review questions for chapter 1
- NCLEX review questions for chapter 9

The Role of Pharmacological Principles in Nursing

Pharmacology is the study of medications, which includes the specialty areas of pharmacodynamics, pharmacokinetics, and pharmacotherapeutics. It is essential that the nurse understand these concepts in order to provide safe and effective administration of medications.

This topic addresses the following competencies:

- **Competency 724.1.2: Terms & Concepts in Pharmacology**
  The graduate recognizes common concepts in pharmacology and correctly uses common terms and abbreviations in pharmacology; applies basic concepts of pharmacology to demonstrate how to appropriately follow a drug order and obtain informed consent, and explains ethical use of medications.

- **Competency 724.1.3: Drug Classification**
  The graduate recognizes the general actions and characteristics of major drug classes; identifies how different classes of drugs affect the body; and, distinguishes between the different drug names.

- **Competency 724.1.5: Preparation for Administration of Medications**
  The graduate employs accurate dosage calculations and appropriate use of technology to effectively, appropriately, and safely administer drugs and maintain the quality of medication therapy.

This topic highlights the following objectives:
Differentiate the concepts of pharmacodynamics, pharmacokinetics, and pharmacotherapeutics.

Differentiate between different drug orders in terms of their scheduled time for administration and directions.

Differentiate between Enteral, Topical and Parenteral methods of drug administration.

Recognize the parts of a drug order in order to administer a prescribed medication.

Differentiate between agonist, partial agonist and antagonist in terms of the pharmaceutical effect on the body.

Recognize the sequence of processes by which drugs are absorbed, distributed, metabolized, and excreted (ADME) by the body.

Identify methods through which drugs cross plasma membranes.

Identify factors that influence the distribution of a pharmacological agent through the body.

Identify the importance of therapeutic dosage in terms of safety.

Distinguish between the chemical, generic, official, and trade names of drugs.

Recognize the parts of a drug order in order to administer a prescribed medication.

Complete: Evolve Modules

Complete the following Evolve Online Self-Study Modules and Self Study Quizzes:

- Overview of Pharmacology
- Quiz: Overview of Pharmacology
- Pharmaceutics
- Quiz: Pharmaceutics
- Pharmacokinetics: Absorption
- Quiz: Pharmacokinetics: Absorption
- Pharmacokinetics: Distribution
- Quiz: Pharmacokinetics: Distribution
- Pharmacokinetics: Metabolism
- Quiz: Pharmacokinetics: Metabolism
- Pharmacokinetics: Excretion
- Quiz: Pharmacokinetics: Excretion
- Pharmacokinetics: Plasma Drug Concentrations
- Quiz: Pharmacokinetics: Plasma Drug Concentrations
- Pharmacodynamics: Dose Response Relationships and Receptors
- Quiz: Pharmacodynamics: Dose Response Relationships and Receptor
- Pharmacotherapeutics 1: Assessment and Monitoring
- Quiz: Pharmacotherapeutics 1: Assessment and Monitoring
Read: Pharmacologic Principles

Read the following in *Pharmacology and Nursing Practice*:

- chapter 2 ("Pharmacologic Principles")

Review: NCLEX

Complete the Evolve Online Resources NCLEX Review below:

- NCLEX review questions for chapter 2

**The Role of the Nurse in Pharmacy and Lifespan Considerations**

The nurse strives to deliver patient-centered, individual pharmacotherapy while understanding regulations and standards developed to protect patients from harm. A patient’s age, beliefs, or cultural practices may affect their ability to comply with a particular medication regime. Properly assessing the needs of the patient and family is paramount in achieving optimal care.

This topic addresses the following competencies:

- **Competency 724.1.2: Terms & Concepts in Pharmacology**
  The graduate recognizes common concepts in pharmacology and correctly uses common terms and abbreviations in pharmacology; applies basic concepts of pharmacology to demonstrate how to appropriately follow a drug order and obtain informed consent, and explains ethical use of medications.

- **Competency 724.1.4: Role of the Nurse in Drug Therapy**
  The graduate recognizes nursing responsibilities related to safe administration of medications; educates the patient and/or family/caretaker in appropriate medication usage, side effects, contraindications, and expected therapeutic effects; recognizes ethical and legal issues surrounding medication administration; and applies the steps of the nursing process in planning the care of patients receiving drug therapy.

This topic highlights the following objectives:

- Recognize the role that polypharmacy plays in treatment of the elderly.
- Identify potential dangers in the use of drugs during pregnancy and lactation.
- Identify characteristics of child patients that might impact the administration of drugs.
- Identify how the concept of holistic pharmacotherapy impacts a nurse’s role in the administration of drugs.

Read: Medication Across the Lifespan
Read the following in *Pharmacology and Nursing Practice*:

- chapter 3 ("Lifespan Considerations")

**Review: NCLEX**

Complete the Evolve Online Resource NCLEX Review:

- NCLEX review questions for chapter 3

**A Look at Cultural, Ethical, and Legal Considerations**

The United States is a large and diverse nation with consistently changing demographics. The nurse needs to consider cultural differences, as well as legal and ethical factors, in order to provide medications appropriately and safely.

This topic addresses the following competencies:

- **Competency 724.1.1: Regulations, Standards, & Evidence-Based Practice in Drug Therapy**
  The graduate identifies nursing regulations related to drug preparation and administration and identifies federal and state legislative standards and policies regulating the development, preparation, and administration of drugs.

- **Competency 724.1.4: Role of the Nurse in Drug Therapy**
  The graduate recognizes nursing responsibilities related to safe administration of medications; educates the patient and/or family/caretaker in appropriate medication usage, side effects, contraindications, and expected therapeutic effects; recognizes ethical and legal issues surrounding medication administration; and applies the steps of the nursing process in planning the care of patients receiving drug therapy.

This topic highlights the following objectives:

- Recognize how cultural influence can influence the success of pharmacotherapy.
- Define the four phases of drug approval established by the food and drug administration.
- Identify legislative sources for standards regulating the development, preparation, or administration of drugs.
- Outline the process involved in the development of a new drug.
- Recognize important facets of the U.S. Controlled Substance Act of 1970.
- Differentiate between the five drug scheduled categories defined in the U.S. Controlled Substances Act (1970).
- Recognize the importance of evidence based practice in the development, preparation, and administration of drugs.

**Read: Considerations**

Read the following in *Pharmacology and Nursing Practice*:

- chapter 4 ("Cultural, Ethical, and Legal Considerations")
Read: Placebos and Evidence

Read the articles linked below:

- "Deception in Research on the Placebo Effect"
- "Evidence-Based Medicine in Pharmacy Practice"

Review: NCLEX

Complete the Evolve Online Resource NCLEX Review:

- NCLEX review questions for chapter 4

Safe Medication Administration
The nurse is often the final barrier between the patient and a pending medication error. Preventing medication errors is a system-wide challenge, but understanding factors that contribute to errors empowers the nurse to improve the system and maintain patient safety. The importance of learning and adhering to the nurse’s role in medication therapy cannot be overstated.

This topic addresses the following competencies:

- **Competency 724.1.2: Terms & Concepts in Pharmacology**
  The graduate recognizes common concepts in pharmacology and correctly uses common terms and abbreviations in pharmacology; applies basic concepts of pharmacology to demonstrate how to appropriately follow a drug order and obtain informed consent, and explains ethical use of medications.

- **Competency 724.1.4: Role of the Nurse in Drug Therapy**
  The graduate recognizes nursing responsibilities related to safe administration of medications; educates the patient and/or family/caretaker in appropriate medication usage, side effects, contraindications, and expected therapeutic effects; recognizes ethical and legal issues surrounding medication administration; and applies the steps of the nursing process in planning the care of patients receiving drug therapy.

This topic highlights the following objectives:

- Use common terms or abbreviations appropriately in a given pharmacology situation.
- Identify common errors that lead to improper administration of drugs.
- Utilize the NCC MERP Index to analyze a given error in the administration of a drug.
- Identify strategies for reducing errors in the administration of drugs.
- Recognize legal issues involved in administering medication in a given patient situation.
- Recognize safety issues associated with administering medication in a given patient setting.
- Select appropriate documentation of administered medications in a given situation.
- Identify the proper procedures to follow when a medication has been administered to the wrong patient.

Complete: Medication Errors
Complete the Following Evolve Online Self-Study Module and Self Study Quiz:

- Pharmacotherapeutics 4: Medication Misadventures
- Quiz: Pharmacotherapeutics 4: Medication Misadventures

Read: Prevention and Response

Read the following in Pharmacology and Nursing Practice:

- chapter 5 ("Medication Errors: Preventing and Responding")

Be sure to review Appendix Pharmaceutical Abbreviations.

Review: NCLEX

Complete the Evolve Online Resource NCLEX Review:

- NCLEX review questions for chapter 5

Education and Substance Abuse

Patient education is an essential part of assuring appropriate use of medication. Accurately assessing patient’s learning needs is critical. Additionally, it is important for nurses to be aware of the signs and symptoms of addiction and the complex problems faced when trying to treat a patient suffering from addiction.

This topic addresses the following competency:

- Competency 724.1.3: Drug Classification
  The graduate recognizes the general actions and characteristics of major drug classes; identifies how different classes of drugs affect the body; and, distinguishes between the different drug names.

This topic highlights the following objective:

- Distinguish between Drugs, Biologics, and Alternative Therapies

Read: Education and Abuse

Read the following in Pharmacology and Nursing Practice:

- chapter 6 ("Patient Education and Drug Therapy")
- chapter 7 ("Over-the-counter Drugs and Herbal and Dietary Supplements")

Review: NCLEX

Complete the Evolve Online Resource NCLEX Reviews:

- NCLEX review questions for chapter 6
Gene Therapy and Pharmacology

Our growing understanding of the genetic processes is changing health care, as well as the development and use of medication. It is important to understand, when administering medications, that efficacy is influenced by genetics.

This topic addresses the following competency:

- **Competency 724.1.4: Role of the Nurse in Drug Therapy**
  The graduate recognizes nursing responsibilities related to safe administration of medications; educates the patient and/or family/caretaker in appropriate medication usage, side effects, contraindications, and expected therapeutic effects; recognizes ethical and legal issues surrounding medication administration; and applies the steps of the nursing process in planning the care of patients receiving drug therapy.

This topic highlights the following objective:

- Recognize how gender can influence the success of pharmacotherapy.

**Read: Genes and Medication**

Read the following in *Pharmacology and Nursing Practice*:

- chapter 8 ("Gene Therapy and Pharmacogenomics")

**Review: NCLEX**

Complete the Evolve Online Resource NCLEX Review:

- NCLEX review questions for chapter 8

**Final Steps**

Congratulations on completing the activities in this course. This course has prepared you to complete the assessments associated with this course.

**Assessment Information**

Follow the directions below to schedule and complete the pre-assessment and objective assessment for this course.

**Complete the Pre-Assessment**

The Pharmacology pre-assessment has the code PAAA. You can access the pre-assessment by clicking on the “Assessment” tab.

Once you have completed the pre-assessment, you will receive access to a coaching report indicating how you performed on particular topics covered. A link to the coaching report is available in the “Assessment” tab.
Complete the Objective Assessment

The Pharmacology Objective Assessment has the code AAC 1. Your Program Mentor must approve you to schedule the Objective Assessment. You must notify your Program Mentor of your score on the Pre-Assessment to gain approval to schedule the Objective Assessment.

Once you gain approval you can schedule the Objective Assessment via the “Assessment” tab.