

**PHARMACOLOGY
SUPPLEMENTAL EDUCATIONAL OUTCOMES
BASED on CAPE 2004**

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PHARMACEUTICAL CARE Provide pharmaceutical care in cooperation with patients, prescribers, and other members of an interprofessional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, economic, and professional issues, emerging technologies, and evolving biomedical, sociobehavioral, and clinical sciences that may impact therapeutic outcomes.

- I. Acquire, comprehend, synthesize, apply and evaluate information about the pharmacology of therapeutic agents in order to design, implement, monitor, evaluate, and adjust pharmaceutical care plans that are patient-specific and evidence based.
 - A. Recognize the pharmacological classification to which a therapeutic agent belongs.
 - B. Determine therapeutic applications for an individual therapeutic agent based on its pharmacological classification. Recognize how drugs within a pharmacological class differ from one another with regard to mechanism of action, pharmacokinetic parameters and side effects.
 - C. Given patient-specific information, select optimal therapeutic agents based on their binding sites and molecular mechanisms of action which account for relative drug potencies, efficacies and therapeutic outcomes.
 - D. Select optimal drug therapy within a pharmacologic class based on knowledge related to absorption, distribution, metabolism and excretion.
 - E. Address and prevent side effects and toxicities from therapeutic agents and xenobiotics by applying knowledge of mechanisms of toxicity
 - F. Address and prevent drug-drug interactions, drug-food interactions, and drug-nutraceutical interactions by applying knowledge of pharmacodynamic and pharmacokinetic principles.
- II. Based on differences in pharmacological properties among drugs, recommend changes in pharmacotherapeutic regimens that eliminate drug interactions, reduce side effects, increase compliance and improve therapeutic outcomes.
 - A. Based on individual patient characteristics and medical conditions, determine alternative pharmacotherapeutic options by evaluating site and mechanism of action, pharmacokinetics, adverse effects and drug interactions
 - B. Modify drug therapy regimens based on the evaluation of pharmacological properties of drugs that are related to adverse drug reactions, drug-drug interactions, nutritional effects, and lack of efficacy.
 - C. Apply the knowledge of pharmacology to review medication usage to optimize therapeutic outcomes.
 - D. Apply knowledge of drug mechanism of action to reduce the incidence of duplicate therapy and polypharmacy in patients

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- III. Use appropriate scientific terminology to convey pharmacological and basic therapeutic concepts.
- A. Effectively communicate the pharmacological rationale for therapeutic decisions at an appropriate level of understanding for patients, caregivers, and other health care professionals.
 - B. Respond accurately and appropriately to questions related, either directly or indirectly, to biological activity of therapeutic agents, posed by patients and other health care professionals.
- IV. Develop evidence-based disease prevention programs for patient populations
- A. Suggest appropriate use of pharmacologic agents in the prevention of disease or the modification of normal bodily function.
 - B. Recognize potential problems in disease prevention initiatives by utilizing the knowledge of pharmacological principles.

The supplemental outcomes were developed by Educational Outcomes and Objectives Supplements Task Force Members: Marc W. Harrold, Duquesne University (chair); The supplemental outcomes were developed by Educational Outcomes and Objectives Supplements Task Force Members: Marc W. Harrold, Duquesne University (chair); Peggy Piascik, University of Kentucky; Melody Ryan, University of Kentucky; and others.

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