

Ability Based Outcomes
Ferris State University College of Pharmacy
2007

I. Patient-Specific and Population-based Disease Management

Provide patient-specific and population-based disease management 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, cultural, political and professional issues, emerging technologies, and evolving pharmaceutical, biomedical, sociobehavioral, and clinical sciences that may impact therapeutic outcomes.

- Level 1: Gather, organize and evaluate information in order to provide patient-specific and population-based disease management.
- a. Identify the concept, components, behaviors and values associated with patient-specific and population-based disease management (including determinants of illness, factors influencing the use of health services).
 - b. Gather relevant information / collect data (via observation, interview, computer and other data bases) needed to provide patient-specific and population-based disease management.
 - c. Describe the biological sciences (physiology, pathophysiology, biochemistry, microbiology, immunology, etc.) associated with the patient-specific and/or population-based disease management plan.
 - d. Describe the pharmacology, medicinal chemistry, pharmaceuticals, and pharmacokinetics of prescription, non-prescription and dietary supplements used in the patient-specific and/or population-based disease management plan.
 - e. Describe pathophysiologic and pharmacotherapy alterations specific for special population patients (e.g., pediatric, geriatric, pregnant, cystic fibrosis, sickle cell anemia, celiac disease, genetic disorders, and others).
 - f. Explain the components of physical assessment.
 - g. Explain the use of devices and other means for detecting and/or monitoring diseases.
 - h. Describe the routes of administration and the appropriate drug delivery dosage form for the management of a specific patient (e.g., pediatric, geriatric) or therapeutic problem.
 - i. Assess pharmaco-economic data to select the dosage form, amount, and manufacturer of a drug product.
 - j. Describe the dispensing process as it relates to different medication use systems
 - k. Describe the various medication administration techniques.
 - l. Identify the categories of drug-related problems and medical errors.
 - m. Describe the value of documenting patient-specific and/or population-based disease management activities.
 - n. Identify the common drug and disease oriented pharmacy references and distinguish between primary, secondary, and tertiary literature.
 - o. Identify appropriate online information resources.
 - p. Describe the nature, classification, and specific aspects of a drug information request.
 - q. Retrieve professional, lay and scientific literature and identify appropriate media to 1) communicate drug information effectively to patients, their families, and other involved health care providers and 2) make evidence-based therapeutic decisions.
 - r. Retrieve information useful in making dispensing and compounding decisions.
 - s. Describe the relevant cultural and societal influences on patient-specific and population-based disease management with emphasis on the appropriate or inappropriate use of drug therapy.
 - t. List or describe different milestones in the history of pharmacy.
 - u. Describe the rationale for the shift in practice from product to patient-centered care.

Level 2: Analyze patient information in order to provide patient-specific and population-based disease management.

- a. Establish goals and desired outcomes for the patient-specific and/or population-based disease management plan.
- b. Interpret and prioritize data/evidence needed to formulate and implement a patient-specific and/or population-based disease management plan to achieve desired outcomes.
- c. Relate the biological sciences (physiology, pathophysiology, biochemistry, etc.) to a patient-specific and/or population-based disease management plan.
- d. Relate the pharmaceutical sciences (medicinal chemistry, pharmacology, pharmaceuticals) to a patient-specific and/or population-based disease management plan.
- e. Relate alterations specific for special population patients to dosage calculation and adjustments, and drug monitoring in special-population patients.
- f. Compound, prepare, and dispense prescription products accurately and safely.
- g. Perform basic physical assessment.
- h. Analyze information from devices and other means for detecting and/or monitoring diseases.
- i. Select the most appropriate drug delivery dosage form/device for the patient based on pharmacotherapy, age, disease, bioequivalence, route of administration, stability, incompatibility, and cost.
- j. Calculate equivalent dosages for drug products which vary according to their manufacturer, delivery system, route of administration and/or salt form.
- k. Calculate dosage regimens using pharmacokinetic principles.
- l. Develop a monitoring plan that evaluates achievement of pharmacotherapeutic goals.
- m. Identify drug-related problems and medical errors.
- n. Articulate patient-related and system-related factors contributing to adherence.
- o. Explain methods of documenting patient-specific and/or population-based disease management activities.
- p. Determine the appropriate information to evaluate to respond to drug information requests.
- q. Exhibit the ability to utilize appropriate online information resources.
- r. Analyze professional, lay and scientific literature and identify appropriate media to 1) communicate drug information effectively to patients, their families, and other involved health care providers and 2) make evidence-based therapeutic decisions.
- s. Discuss the application of study results to expanded patient populations.
- t. Explain how differences in approach to social, cultural, linguistic, political and scientific issues among people can affect behaviors related to disease management and health policy.
- u. Apply knowledge of the historical underpinnings of pharmacy to principles of interprofessional practice.

Level 3: Implement, monitor, evaluate, adjust, document and communicate the patient-specific and/or population-based disease management plan.

- a. Apply pharmaceutical sciences, pathophysiology, and pharmacotherapy to individual patients.
- b. Integrate the elements of physical assessment into the patient-specific and/or population-based disease management plan.
- c. Apply pharmacokinetic principles to patient-specific situations.
- d. Evaluate alterations specific for special population patients when implementing the patient-specific and/or population-based disease management plan.
- e. Evaluate and apply information from devices and other means for detecting and/or monitoring diseases when implementing and monitoring the patient-specific and/or population-based disease management plan.

- f. Implement the patient-specific and/or population-based disease management plan (including monitoring for achievement of pharmacotherapeutic goals).
- g. Effectively collaborate with and communicate the patient-specific and/or population-based disease management plan to prescribers, patients, care givers, and other involved health care providers to engender a team approach to patient care.
- h. Assume responsibility for drug-related patient outcomes.
- i. Compound, prepare, and dispense prescription products with consideration of patient specific parameters and medication safety.
- j. Administer medications by appropriate routes.
- k. Predict and prevent drug-related problems and medical errors.
- l. Use various methods to enhance patient adherence.
- m. Evaluate and interpret professional, lay and scientific literature and identify appropriate media to 1) communicate drug information effectively to patients, their families, and other involved health care providers and 2) make evidence-based therapeutic decisions.
- n. Assess the utility and accuracy of a response to a drug information request and the impact of the response on patient-specific and/or population-based disease management.
- o. Provide inservice education with the appropriate content to physicians, nurses, and other health care professionals.
- p. Provide pharmacologic and non-pharmacologic education with the appropriate content to patients or care givers.
- q. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact patient-specific/population-based therapeutic outcomes.
- r. Contribute opinions, insights, information and leadership assertively and appropriately during the health care team decision-making process.

II. Health Promotion

Promote health improvement, wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an interprofessional team of health care providers. Provide first aid and pharmacy services in disaster and poison control situations.

Level 1: Describe the basic elements of emergency care and health promotion.

- a. Describe emergency situations requiring medical care and the role of pharmacists in these situations, including: first aid, disasters and poison control
- b. Describe the use of drugs in disaster planning
- c. Identify various therapeutic alternatives, both pharmacologic and non-pharmacologic, which can be used to treat emergency situations.
- d. Identify the basic concepts of health promotion (including determinants of health, factors contributing to health promotion, factors influencing the use of health services).
- e. Explain the use of devices and other means for providing health promotion services.
- f. Describe social, professional, ethical and legal issues involved in the delivery emergency care and health promotion.
- g. Identify sources of information and explain the information provided by public health agencies (e.g. epidemiology, economics, substance abuse, genetic screening, policies and guidelines, etc.).
- h. Describe the signs and symptoms of substance abuse.

Level 2: Provide emergency care and develop health promotion services.

- a. Obtain first aid and basic life support (BLS) certification.
- b. Demonstrate the ability to provide emergency care (i.e. first aid, BLS, ACLS, poison control interventions).
- c. Obtain immunization certification.
- d. Design a prevention or detection program in a target population.

- e. Recognize problems, based on signs, symptoms, and pertinent history, that require referral to another health care provider.
- f. Evaluate the results of primary literature studies within the context of an individual or population related to emergency care or health promotion.

Level 3: Provide health promotion services in accordance with social, professional, ethical, and legal guidelines.

- a. Critique a disaster preparedness plan for both natural and man-made disasters
- b. Teach the basic concepts of disease prevention, including ethical, legal and social issues, to the general public and other health care professionals
- c. Conduct or provide programs designed to provide public education and/or promote public awareness of disease prevention and health collaboratively with others.
- d. Perform services designed to screen, prevent, and/or detect various disease or pathologic conditions collaboratively with others.
- e. Provide appropriate and professional referral for potential or actual substance abuse in patients and colleagues.
- f. Provide appropriate triage of patient problems, based on signs, symptoms and a patient history that require referral to another health care provider.

III. Systems Management

Manage and use resources of the health care system, in cooperation with patients, prescribers, other health care providers, and administrative and supportive personnel, to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use. This includes: managing human, physical, medical, informational, and technological resources; apply patient- and population-specific data, quality assurance strategies, and research processes to assure that medication use systems minimize drug errors, adverse reactions and optimize patient outcomes. This also includes designing medication use systems in accordance with legal, ethical, social, economic, and professional guidelines.

Level 1: Specify elements necessary for purchasing, preparing, dispensing, distributing and administering medications and maintaining adequate inventory control. State the components necessary to manage DIFFERENT TYPES OF pharmacy operations with consideration of management principles, law and ethics. Identify elements of and describe the importance of adverse drug reaction (ADR)/medication errors reporting, drug use evaluation (DUE), and a formulary system.

- a. Describe the important laws enacted at the federal and state level that influence the use of prescription and non-prescription drugs and dietary supplements in the U.S.
- b. Describe the storage, packaging and quality control tests performed to assure that the dosage form meets USP requirements.
- c. Describe the basic structure and function of the U.S. health care system, and currently available medication distribution systems.
- d. Describe the role of indigent care prescription drug programs in the delivery of medications for those in need, without prescription benefit insurance or adequate financial means.
- e. State relevant metrics that assist the pharmacy manager in identifying the success of their business plan, operational budget, prescription benefit plan contracts and delivery of services.
- f. Describe the fundamental methods used to develop HRQOL instruments and establish their reliability and validity.
- g. Define informatics and its role in the delivery of pharmacy services and health care, now and in the future.
- h. Describe different marketing principles that apply to pharmacy operations.
- i. Describe the important principles of time and project management.

- j. Describe the fundamentals of jurisprudence related to the U.S. legal system.
- k. Outline the difference between administrative, civil and criminal law for the relevant state.
- l. Describe the principles of business contract law.
- m. List some of the historical events that have shaped the practice of pharmacy in the U.S.
- n. Discuss the rationale (both historical and contemporary) for the shift in pharmacy practice from product focus to patient care focus.
- o. Describe the different roles and responsibilities of professional and technical personnel in different type of pharmacy operations and clinical micro-systems.
- p. Define the major management principles applicable to the operations of a pharmacy practice including logistics (supply chain management), human resource and financial management.
- q. Identify the key components of a drug utilization evaluation.
- r. Identify the basic concepts of risk management and their relationship to drug distribution systems.

Level 2: Identify and analyze characteristics associated with purchasing, preparing, dispensing, distributing and administering medications and maintaining adequate inventory control. Demonstrate advanced skills in managing pharmacy operations, human resources, logistics fiscal management, law and ethics. Develop systems for the reporting of medication errors and ADR's, for the conduct of DUE, and for the maintenance of a formulary system.

- a. Interpret basic federal and state rules and regulations that influence pharmacy practice (administrative, criminal, civil) related to prescription and nonprescription drugs.
- b. Select and prepare drug products based on USP standards, bioequivalence and therapeutic equivalence studies; and state the relevant storage requirements.
- c. List the advantages and disadvantages of relevant health care and drug distribution system for the management of a specific patient (e.g., pediatric, geriatric) or therapeutic problem.
- d. Describe the role and function of prescription benefit plans including relevant federal (e.g. Medicare, Medicaid) and state plans.
- e. List the patient-specific parameters that would be important in determining eligibility and need for indigent patient care programs.
- f. Describe the role of a formulary and the different pharmacoeconomics tools used in formulary and prescription benefit management.
- g. Search and find an appropriate HRQOL instrument for use in evaluating the impact of a therapeutic intervention.
- h. Identify the organization and setting specific parameters that dictate decisions on the application of principles of human resource, financial and logistics management.
- i. List different informatics tools that are relevant to the delivery of patient centered pharmacy services, product distribution and relevant health care services.
- j. List the obstacles to outcomes-based continuity of care for patients that are relevant to pharmacy practice.
- k. Describe different marketing principles as they would apply to contemporary pharmacy operations.
- l. Evaluate the strategies used to effectively manage a project related to a pharmacy operation.
- m. List the site and patient specific characteristics that dictate the role of the pharmacist in health delivery systems as well as clinical micro-systems.
- n. Interpret principles of jurisprudence in the context of exposure to pharmacy practice settings in the experiential.
- o. Identify the medication use system specific characteristics that are susceptible to flaws in prescribing, dispensing and use.
- p. Describe relevant civil and criminal law that influences practice and malpractice in pharmacy.
- q. Identify the relevant contract law that influences the different aspects of managing a pharmacy.

- r. List the important milestones that have contributed to the evolution of pharmacy practice in the U.S.
- s. List the site specific characteristics that influence managerial decisions related to the operations of a pharmacy practice including logistics (supply chain management), human resource and financial management.
- t. List the important characteristics, which must be considered when evaluating, selecting and implementing automated technology.
- u. Describe the role of root cause analysis and other risk management techniques as they relate to medication errors and ADR's; and design a basic drug utilization evaluation.
- v. List the operation-specific parameters that determine the safety of medication distribution and practice services.

Level 3: Apply information regarding purchasing, preparing, dispensing, distributing and administering medications and purchasing other supplies to optimize pharmaceutical care. Apply management principles to effectively manage a pharmacy operation, including resources, facilities, and equipment. Actively participate in the management of medication use through the reporting of medication errors and ADR, conducting and presenting DUE, and preparing and delivering formulary recommendations.

- a. Make recommendations on the appropriate preparation, storage and quality control (including the relevant USP standards) for any preparation made in a pharmacy.
- b. Assist patients in interpretation and use of federal, state and private prescription insurance programs.
- c. Identify the specific programs that a patient would access for indigent care programs given the necessary patient-specific parameters.
- d. Apply the appropriate pharmacoeconomic tool to the situation, as relevant to formulary and prescription benefit administration.
- e. Interpret HRQOL information from the primary literature in pharmacy and medicine.
- f. Recommend managerial interventions to address issues in human resource, financial and logistics management with consideration of the unique characteristics of the practice setting.
- g. Recommend relevant informatics tools that are relevant to the delivery of patient centered pharmacy services, product distribution and relevant health care services.
- h. Using marketing principles, develop and a plan for any contemporary pharmacy operation or service with consideration of segments of the market including payers, patients and other providers.
- i. Plan a simple project related to a pharmacy operational change or implementation.
- j. Comply with relevant administrative, civil and criminal law related to the practice of pharmacy and be prepared to successfully complete the State of Michigan law exam.
- k. Identify the role of negligence law in professional malpractice; and interpret all relevant Michigan case law that is relevant to shaping the common law duties of a pharmacist.
- l. Employ fundamental contract law principles in managing different aspects of a pharmacy operation.
- m. Critique and conceptualize basic pharmacy services that rely more heavily on the patient care versus product specific aspects of service; provide greater continuity of pharmacy care; and consider the implications of unique patient populations (e.g. pediatrics, geriatrics, hospice, etc.)
- n. Critique contemporary pharmacy distribution systems for improvements in design related to the safety and efficiency of prescription dispensing, and optimal utilization of human resources (professional and technical), including the use of automated technologies.
- o. Critique contemporary pharmacy service delivery systems for the appropriate use of logistics (supply chain management).
- p. Using risk management principles, develop a plan to minimize medication errors for a particular practice setting.
- q. Conduct and evaluate the results of a drug utilization evaluation.

IV. Communication

The student shall read, write, speak, listen and use data, media and computers to communicate effectively with various audiences for a variety of purposes.

Level 1: Demonstrate basic communication skills and assess the quality of communication performance in situations involving reading, listening, writing, speaking, and use of data, media, and computers.

- a. Write and speak accurately and clearly during communications with patients, health professionals, peers and teachers.
- b. Use data, media, and computers to assist in communications with patients, health professionals, peers and teachers.
- c. Interpret ideas, thoughts, and feelings communicated through reading.
- d. Identify personal strengths, weaknesses, barriers, and preferences in all modes of communication.
- e. Identify the basic components of conflict resolution.
- f. Exhibit a caring and respectful attitude and demonstrate empathy while establishing rapport and communicating with the patients and/or caregiver.
- g. Describe methods to relate the information to other health care professionals and patients/caregivers, including the appropriate media.
- h. Demonstrate sensitivity and tolerance within multicultural interactions and settings.
- i. Document patient management activity in a patient profile or medical record to facilitate communication and collaboration among healthcare providers.

Level 2: Demonstrate improvement in basic communication skills and exhibit creativity in communication situations through the use of reading, listening, writing, speaking, and use of data, media, and computers.

- a. Use writing, speaking, data, and media creatively to convey convincing messages, both individually and in groups.
- b. Use computer technology creatively to convey information and proposals in narrative, graphic, and tabular modes.
- c. Given a specific situation describe the best mechanism for conflict resolution.
- d. Establish collaborative relationships with other healthcare professionals that foster a team approach to patient care.
- e. Effectively communicate drug and health information at appropriate levels for patients and healthcare professionals.
- f. Use active listening techniques during any verbal exchange of information.

Level 3: Communicate clearly, accurately, compassionately, confidently, effectively and persuasively using a variety of methods (i.e. reading, listening, writing, speaking, and the use of data, media, and computer skills) and with a variety of target audiences.

- a. Choose communication methods appropriate to the purpose of the interaction.
- b. Choose communication methods that are sensitive to the cultural background of the target audience.
- c. Write, read, listen, speak and use data, media, and computers during communications effectively in a variety of contexts.
- d. Interpret ideas, thoughts and feelings communicated through reading, listening, data, media, and computers with sensitivity to the cultural background of the sender.
- e. Use conflict resolution when managing human resources.
- f. Adapt communication methods to the situation and appropriate member of the health care team to engender a team approach to patient care.
- g. Construct messages appropriate to the target audience to deliver information clearly and in a manner in which the message is heard.
- h. Assess the target audience to ensure the correct message was received.

- i. Use appropriate communication skills to assure efficient, cost-effective utilization of human, physical, medical, informational, and technological resources in the provision of patient care.
- j. Choose appropriate communication methods to identify and resolve medication use problems.
- k. Communicates and collaborates with health care providers, policy makers, members of the community and administrative and support personnel to identify and resolve public health problems.
- l. Respond appropriately, and in the correct format (written or verbal) to questions posed.
- m. Apply effective communication skills in inter-professional relationships to improve the clinical, economic, and humanistic outcomes of patients.
- n. Educate and/or counsel patients, caregivers or other health care providers about the proper use of medical goods and devices to ensure effective use.
- o. Educate and/or counsel patients, caregivers or other health care providers about drug therapy.
- p. Provide appropriate evaluation and feedback to peers/educators and other health care providers.
- q. Use appropriate persuasion techniques when providing recommendations to patients, educators, peers and other health care providers.
- r. Assess health literacy and counsel/teach in an appropriate format based on the assessment.

V. Problem Solving

The student shall find and analyze information and shall make informed, rational, and ethical decisions.

- Level 1: Describe critical-thinking processes and the scientific method and apply them in developing solutions to simple problems.
- a. Systematically gather and record relevant information (e.g., read, listen, observe, recall and reflect).
 - b. Identify assumptions, biases, and prejudices relevant to the issue.
- Level 2: Identify and analyze ideas and problems of increasing complexity, generate defensible solutions, and establish criteria for evaluation of solutions.
- a. Use the results of statistical analyses, probability studies application, and advanced electronic information searching and processing to analyze information.
 - b. Develop interdisciplinary approaches to problem analysis.
 - c. Identify realistic outcomes. Construct criteria for evaluation of chosen solutions.
 - d. Identify and analyze core scientific and systems-based knowledge as part of the problem solving process.
 - e. Analyze information by summarizing, identifying principles of organization; by identifying the relationships between premises and conclusions; by distinguishing facts, inferences, theories, and opinions; and by identifying assumptions.
 - f. Assess accuracy, fairness, significance, relevance, completeness, and persuasiveness of information and its sources.
 - g. Evaluate the conclusion according to identified criteria.
- Level 3: Make decisions regarding complex problems that require an integration of one's ideas and values within a context of scientific, social, cultural, and ethical issues.
- a. Frame problems and solutions within appropriate social, scientific, cultural, intellectual, and ethical contexts.
 - b. Articulate specific criteria for determining success or failure of solutions.
 - c. Display openness to new ideas and a tolerance for ambiguity and incompleteness.
 - d. Identify approaches to modify solution implementation.

- e. Modify solutions when monitoring indicates a need.
- f. Prioritize problems based on identifiable criteria or standards.
- g. Evaluate literature to formulate evidence based recommendations.
- h. Synthesize information and create a solution, hypothesize, draw conclusions, conjecture alternatives, or decide a course of action.
- i. Provide support for arguments, solutions and results.
- j. Use appropriate technology to analyze information.

VI. Professionalism

The student shall articulate the influence of values on ideas and actions and shall demonstrate the ability and inclination to take responsibility for ethical conduct in personal and professional settings. The student shall demonstrate the ability and inclination to learn on one's own, to pursue new knowledge, to self-assess, to respond appropriately to assessment by others, and to modify one's ideas in light of new discoveries.

Level 1: Recognize the role of values in personal and professional interactions. Maximize learning through the use of effective personal learning strategies.

- a. Identify which values influence one's own behavior in social and professional settings.
- b. Identify which values influence the behavior of other individuals and groups in social and professional settings.
- c. Describe the process by which values influence behavior in social and professional settings.
- d. Describe how values inform and are conveyed by artistic works and sociocultural activities.
- e. Display an appreciation / respect for the legal system.
- f. Articulate a personal approach to learning, including time management strategies, optimal locations for study, and utilization of available instructional resources.
- g. Identify strengths and weaknesses within one's personal approach to learning.
- h. Explain the necessity of lifelong learning to maintain professional competence and personal growth.
- i. List different ethical principles that guide ethical decision-making in pharmacy and medicine.
- j. Describe the values that are integral to patient-centered care and the profession (e.g., honesty, justice, empathy, altruism, compassion, autonomy).
- k. Describe the important characteristics of leadership and their importance in health care innovation, pharmacy management and pharmacy systems design.

Level 2: Evaluate personal and professional conduct according to ethical theories and principles. Improve personal performance through assessments by self and others.

- a. Articulate the reasons that one's profession has adopted specific values.
- b. Display professionalism in the classroom.
- c. Interpret assessment feedback to identify own areas of strengths and areas needing refinement or remediation.
- d. Self assess the effectiveness of learning performance.
- e. Formulate strategies to address performance areas, including one's approach to learning, in need of refinement or remediation.
- f. Initiate action to correct identified errors or learning difficulties without prompting.
- g. Use key ethical principles in the resolution of ethical dilemmas (e.g. autonomy, beneficence, non-maleficence, justice, honesty).
- h. Evaluate the role of leadership and leadership styles on health care innovation, pharmacy management and pharmacy systems design.

- Level 3: Adopt or construct ethical principles and use them as a guide for one's actions.
Complete learning activities on an ongoing basis for personal and professional development based upon self-determined areas of deficiency and/or interest.
- a. Display professionalism in pharmacy practice.
 - b. Regularly self-assess learning needs for ongoing personal and professional growth.
 - c. Engage in activities on a regular ongoing basis for professional development.
 - d. Employ the principles that are integral to patient-centered care and the profession (e.g., honesty, justice, empathy, altruism, compassion, autonomy).
 - e. Employ ethical principles and a systematic decision making process to resolve ethical dilemmas within complex personal, societal, and professional situations.