

INSTRUCTIONAL DESIGN AND ASSESSMENT

Geriatric Concentration: A New Elective Sequence in an Entry-Level Doctor of Pharmacy Program

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Objectives. The geriatrics concentration elective sequence in the entry-level doctor of pharmacy program at the Mylan School of Pharmacy at Duquesne University was devised, first, to introduce students to the complex pharmaceutical care needs of the elderly; second, to expose students to career options and enhance employability through credentialing in geriatrics; and third, to increase the confidence and motivation for graduates to pursue advanced geriatrics education, training, and specialist certification.

Design. The curriculum consists of a didactic elective sequence of 3 courses (8 total credits) offered in the evenings of the fifth and sixth academic years. Sixth year students must complete at least one specialized experiential rotation and pass a final comprehensive geriatrics certification examination.

Assessment. Preliminary data from university teaching and clinical teaching effectiveness questionnaires in didactic and experiential courses, respectively, are presented. Available data are limited by voluntary student participation in instructor evaluation and by the short amount of time since program inception. Methods tentatively planned for assessing program outcomes are included.

Conclusion. The geriatrics concentration has been positively received in the first 2 years since its inception, as suggested by sustained enrollment figures and preliminary teaching effectiveness evaluation data.

Keywords: geriatrics, curriculum, doctor of pharmacy, advanced practice experience.

INTRODUCTION

One in eight Americans is now 65 years of age or older. The elderly population in the United States numbered 34.5 million in 1999, representing ~12.7% of the population. Their numbers have increased 11-fold in the past 100 years, currently accounting for a 3 times greater share of the total population than at the turn of the century (4.1% in 1900 to 12.7% in 1999). This aging of our society, the "graying of America," will further accelerate during the next 30 years. When the baby boom generation reaches retirement age by ~2030, the numbers of individuals over age 65 years is expected to double to 70 million, representing 20% of the total population.¹

Furthermore, the older population is in itself getting older. The fastest growth within the "over 65" population is among those individuals 85 years of age and older, the so-called "oldest old," whose numbers have increased 34-fold during the past 100 years, and whose

needs relating to increased frailty, susceptibility to chronic illness, and decreasing independence are greatest. The impact of this shifting demographic on our healthcare system and the overall social and fiscal stability of our country will be significant in the years to come.¹

Chronic illness in the elderly is often most cost-effectively managed with medication. Today, the 12.7% of the population over age 65 years consume an estimated 30% to 40% of all prescription medications, and on average use twice as many nonprescription medications, as prescription medications.² Prescription medications are generally targeted to each individual medical problem identified in a given patient and are prescribed to effect a cure, improve symptoms, and stabilize, or at the very least, slow decline in that condition. However, the complexity and number of chronic conditions affecting individuals of very advanced age can lead to excessive numbers of prescribed medications. The risk of adverse reactions to medication has been well documented to increase both with the age of the patient and the number of medications taken.³ Complex drug regimens are more likely to result in drug interactions,

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cause confusion with instructions, and/or create financial hardship for older patients, often resulting in reduced adherence, or patient error, and as a result, less than optimal outcomes to treatment. Age-related alterations in pharmacokinetic and pharmacodynamic variables affecting drug concentration and sensitivity alter predictability of drug response in the elderly and further contribute to adverse drug reactions.^{3,4} Adverse drug reactions (ADRs) have been reported to be the fourth leading cause of death among the elderly, behind only heart disease, cancer, and stroke.⁵ ADRs are a common, costly, and often preventable problem in the ambulatory, hospital, and nursing home elderly population and a major cause of hospital admission and extended length of stay in this age group.⁶⁻²⁰ Most serious adverse drug reactions are dose related, with 85% of incidents occurring in the elderly population.^{18,19} Clearly the provision of comprehensive pharmaceutical care services to the elderly represents economic and professional opportunity as well as significant responsibility for practicing pharmacists.

Based on the above demographic projections, expected medication use by the elderly and drug-related risk will increase dramatically during the next 30 years, increasing the demand for pharmacists with special knowledge and skills in geriatric pharmacotherapy in all areas of professional practice.

Increased emphasis on the importance of geriatrics training and education for pharmacists started in the early 1980s.²¹⁻²⁶ Surveys of health care professionals and students conducted at that time concerning their attitudes toward the elderly and the adequacy of their geriatrics knowledge base revealed that stereotypes and misconceptions were widespread and that major deficiencies were perceived. Both of these factors contributed to less than optimal health care delivery to this growing segment of the population.^{27,28} While pharmacy students' attitudes were generally more positive toward the elderly than the attitudes of many other health professional students surveyed during the 1980s, the findings from a survey of pharmacist practitioners in Canada differed. Croteau et al in 1991, reported that while most pharmacists enjoyed working with the elderly, a high percentage often felt under-prepared for and frustrated with trying to meet the needs and demands of older patients.^{29,30}

A 1982 survey by Simonson and Pratt of the 72 accredited schools of pharmacy at the time indicated that 22% of the schools had no geriatric coursework; 35% offered only courses in which the geriatric content averaged less than 12% of the course content; and 43% offered elective courses with primarily geriatric content (most as clinical clerkship rotations in geriatrics or long-term care).²² Kirschenbaum and Rosenberg conducted a

similar survey in 1995 that included 75 accredited schools of pharmacy in the United States, and revealed that only 4 entry-level and 4 post-BS PharmD programs had a required didactic course devoted entirely to geriatrics; 10 entry level and 8 post-BS PharmD programs offered a required geriatrics clerkship. Most other entry-level and post-BS programs offered a single elective didactic course and/or 1 elective clerkship devoted to geriatrics, with additional geriatric principles integrated throughout the curriculum.²³ As of 1995, the majority of graduating pharmacists still had little or no formal training in geriatric pharmacotherapy and there were limited opportunities for interested individuals to pursue more extensive training or credentialing during entry-level professional programs.

In 1996, the American Geriatrics Society (AGS) issued a position statement recommending that gerontology and geriatric medicine be incorporated into every medical school curriculum.³¹ In 1999, the American Society of Consultant Pharmacists (ASCP) issued a similar position statement supporting increased emphasis on geriatrics in all pharmacy school curricula. This action reflected both the increased need for trained practitioners in the growing long-term care practice setting, and the even greater need for geriatrics-trained community practitioners to meet the needs of the elderly, 90% of whom live in community settings.² Advanced certification in specialty geriatrics pharmacy practice is now available through the successful completion of the Geriatrics Certification Examination offered by the Commission for Certification in Geriatric Pharmacy (CCGP).

While many models for didactic and experiential pharmacy education in geriatrics have been described in the literature, the entry level PharmD program at the Mylan School of Pharmacy at Duquesne University offers a different approach.^{21,23-27,32-37} The specialized pharmaceutical care needs of the elderly have assumed a more visible position in the curriculum with a newly established "Geriatrics Concentration" certificate program approved in 2000. The integrated concentration concept was developed to meet the needs of students with a specific interest in pharmaceutical care of the elderly in a variety of settings such as ambulatory, hospital, or extended care. It was further anticipated that such focused coursework might enhance specialty practice opportunities and/or postgraduate geriatric training and education interests among students. The last goal of the program was to provide encouragement to and increased confidence among graduates to pursue advanced accreditation in geriatrics through completion of the CCGP examination to achieve the status of Certified Geriatric Pharmacist (CGP).

DESIGN

To complete the requirements of the Duquesne University School of Pharmacy geriatrics concentration, students must complete a professional didactic elective sequence consisting of three courses offered during the fifth and sixth years of the entry-level PharmD program; they must also complete at least 1 advanced elective clerkship in an approved geriatrics specialty practice setting. Finally, at the completion of the program, candidates must pass a comprehensive examination, that is similar in format and content to the CCGP Geriatrics Certification Examination.

Didactic Requirement

The first elective didactic course in the sequence, "Selected Topics in Geriatrics," was offered to fifth year students who began the geriatrics concentration during the Spring 2001 Semester; it was also offered as a general professional elective to sixth year students in the entry-level PharmD program who were not enrolled in the geriatric concentration. This 3-credit course consisted of 10 to 12 lectures (3 to 4 hours each). The class met once weekly on Tuesday evenings to permit attendance by sixth-year students taking clerkship rotations 40 hours per week during the day. The course was team taught by 3 clinical faculty members, each of whom had a different geriatric practice background. One faculty member practiced in a primarily inpatient geriatric consulting setting in a teaching hospital, one practiced in an ambulatory clinic setting, and one practiced in a combined long-term care consulting and community pharmacy setting. The course was designed to provide students with an overview of normal aging, drug use in the geriatric population, social and behavioral aspects of aging, functional geriatric assessment with emphasis on the major geriatric syndromes, and selected pharmacotherapy topics not covered in detail elsewhere in the curriculum. The required textbook for the course was *Therapeutics in the Elderly*, third edition.³ Supplemental articles were provided by individual instructors. One instructional strategy used in the course was that of providing lecture-specific, instructor-generated discussion questions to students at the beginning of the semester and requiring the students to complete and hand in their responses to specific questions prior to each lecture.

The goal of this methodology was to facilitate instructor-student dialog and active learning in the classroom. Students were also required to work in small groups outside of class to prepare and deliver a professional inservice presentation on a preapproved topic that would be appropriate for nursing staff in an extended care facility. Twenty percent of the student's grade in the course was determined by scores on assigned pre-class discussion questions (each 5 question assignment

was worth a maximum of 5 points) and by class participation (subjective). Another 30% of the grade was based on the group inservice presentation (a score of 1–10 was assigned to each of 10 evaluation criteria; all students in each presentation group received the same grade). The remaining 50% of the grade was determined by the student's score on a midterm and final examination, with each test consisting of 50 multiple choice questions and accounting for 25% of their final grade. The behavioral objectives of the course and course outline are included in Appendix 1.

The second elective didactic course in the sequence, "Pharmacy in Long-Term Care," was first offered in the Fall 2001 semester to sixth-year students who had completed the first course prerequisite. It continued to be offered as a 2-credit course that met for 2 to 3 hours one evening per week for 10 to 12 weeks. A single clinical faculty member with community and long-term care consulting experience taught the course. The format of the course was interactive lectures based on preassigned discussion questions, text, or supplemental reading assignments. Students were also required to complete a simulated drug regimen review, prepare pharmacy consultation notes on simulated cases involving nursing home patients, and present major findings to the class. The intent of the course was to familiarize students with the role and responsibilities of the pharmacist as a consultant to nursing homes and other long-term care facilities. Major topics covered by the course were drug regimen review and subsequent pharmacist interventions; utilization management; Center for Medicaid and Medicare Services (CMS) requirements and the survey process; and regulatory issues in long-term care. Twenty-five percent of the student's grade was determined by their responses to preassigned discussion questions (5 points possible for each assignment), 25% by their performance on the consultation assignment (subjective), and 25% each on an objective midterm and final examination (50 questions each, multiple choice format). The course objectives and lecture outline are attached as Appendix 2.

The third elective didactic course, "Advanced Therapeutics Cases in Geriatrics," was offered for the first time in the Spring semester of 2002 to sixth year students who had completed the first 2 elective courses during the previous 2 semesters. This course continues to be taught by the 3 full-time clinical faculty described in the first course. It is also offered as a once-weekly, 2- to 3-hour evening class. This 2-credit, case-based, advanced course in geriatrics required that students analyze and problem-solve geriatric pharmacotherapy scenarios of increasing complexity, integrating concepts from the previous 2 courses with additional pharmacotherapy experiences acquired during other advanced

therapeutics coursework in the curriculum and in previous and concomitant clerkship experiences. Students were given actual cases or instructor-generated cases for analysis prior to the first class and required to develop problem lists and propose drug therapy recommendations, justifying those decisions based on the patient database presented, principles of geriatric prescribing and an evaluation of relevant literature. The course emphasized the role of the pharmacist in optimizing the complex pharmacotherapy needs of elderly patients with multiple medical problems in hospital, long-term care, and ambulatory settings. A further goal of the course was to expose students to the role of the pharmacist as an interdisciplinary team member with responsibilities as an advisor and provider of information and consultation to other health care professionals, organizations, and consumers of geriatric pharmacy services. The class was again conducted using an interactive question-and-answer format between the instructor and student, analyzing each case in detail. Additional requirements of the course included reviewing the literature and writing a paper on an assigned topic relevant to geriatric practice and participating in a group presentation of the findings to the class. Written reports of geriatric case assignments (using a standard format supplied by the instructor) and in-class participation accounted for 30% of each students' grade (5 points possible per assignment); a comprehensive 50-question multiple-choice final examination, based on the content of the Commission for Certification in Geriatrics Practice (CCGP) specialty examination, accounted for 50%; and topic presentation/literature review accounted for the remaining 20% (subjective). The behavioral objectives and course outline are presented in Appendix 3.

Experiential Requirement

In addition to didactic course requirements, students had to complete at least 1 advanced 5-week elective clerkship during their sixth year in an approved geriatrics setting. Many students elected more than one such experience. Geriatrics elective clerkships were offered at the practice site of each of the 3 clinical faculty members responsible for didactic coursework.

A geriatrics/internal medicine clerkship elective was offered consisting of a 5-week rotation with a full-time clinical faculty member affiliated with the Senior Services Program at the Mercy Hospital of Pittsburgh. The Senior Services Program inpatient model was developed with the goal of working with the attending physicians and nursing staff of the hospital to provide expert geriatric care for elderly inpatients on all nursing units. Such care is intended to maintain the patient's current level of physical and cognitive function throughout the hospitalization, enhance patient and fam-

ily satisfaction with hospital care, and to establish the Mercy Hospital of Pittsburgh as a recognized center of excellence in the care of hospitalized older patients. A similar model program is the Yale University Medical Center's Elder Life Program.³⁸ A clinical team consisting of a certified registered nurse practitioner (CRNP), a licensed clinical social worker (LCSW), and a pharmacist educator initially assessed and selected patients for the program. Students were involved with the systematic drug regimen review process conducted by the pharmacist educator, and the provision of targeted risk-reduction interventions for an elderly population on an internal medical teaching service. Patients over the age of 65 years with 1 or more predetermined "frailty risk factors," which increased the likelihood of a prolonged stay or readmission as a result of deconditioning, adverse medication event, or social service needs, were eligible for review and intervention. Patients over age 65 years who were taking 8 or more scheduled medications were targeted for medication review and enrolled in the program by the pharmacist. These patients were considered to be at increased risk of iatrogenesis due to drug interactions, polypharmacy, and dose-related adverse effects from the high number of medications that had been prescribed for them.³⁹ Supervised by the faculty pharmacist educator, the students reviewed patient medication profiles daily for appropriateness of prescribing and they made suggestions to prescribers for changes in medication regimens targeted at avoiding adverse drug events, improving patient outcomes to therapy and avoiding unnecessary cost. The numbers of patients reviewed by the pharmacist, numbers of drug-related interventions made, and physician acceptance of those suggestions that resulted in changes in prescribing are currently being collected as indicators of the program's effectiveness. Students learn to screen computerized medication records to identify high-risk orders; to research charts and determine relevant laboratory and medical history; to formulate concise recommendations for improving prescribing, and to follow-up to determine the effectiveness of their interventions.

A geriatrics ambulatory clerkship consisted of a 5-week rotation offered by a full-time faculty member who served as a consultant to a variety of outpatient activities. These included a multidisciplinary geriatric assessment service within Geriatrics Services at the St. Francis Medical Center, anticoagulation monitoring within a private physician's office, long-term care consulting activities at a 120-bed nursing facility, and health prevention and wellness activities sponsored by the Millvale Neighborhood Wellness Service. Within the geriatric assessment service, students reviewed and interviewed patients as part of a multidisciplinary team. The pharmacist's role was to identify and offer sugges-

tions for drug-related problems and patient education needs. Within the physician office practice, students worked with a medical team in the routine care of patients and gained experience with a protocol-driven anticoagulation monitoring service. At the long-term care facility, students learned to conduct drug regimen reviews; observed medication preparation, delivery, and administration; and participated in medication error reporting, psychoactive drug use review, and inservice training programs. During their experience at the neighborhood wellness center, students participated in blood pressure screenings, "Ask the Pharmacist" sessions, and other health care screenings, including stroke screening, lipid testing, and blood glucose screening.

A faculty member-directed consulting pharmacy clerkship in geriatric patient care focused on exposing students to consulting pharmacy practice in skilled nursing homes and personal care homes, and also offered students an opportunity for involvement in a community- and pharmacy-based wellness program targeting seniors. The problems and controversies in treatment of the frail elderly were emphasized in all 3 settings. Principles of geriatric care and evidence-based medicine were used to encourage students to find a literature basis for making recommendations for drug therapy.

In the skilled nursing home setting, students were introduced to the various laws and regulations that have been set by CMS relating to pharmacy practice, assigned to follow the medical management of selected residents, identified residents at high risk for drug-related problems, identified medication-related irregularities according to the quality indicator regulations set by CMS, and provided documentation of those irregularities to the physicians and to the director of nursing in the facility. In the assisted living setting, students were introduced to specialized dispensing systems and drug therapy monitoring activities directed toward maintaining independence and function among residents. Students participated in drug regimen review and targeted physician, staff, and patient educational efforts directed toward improving therapeutic outcomes and reducing risk of ADRs.

Finally, the clerkship exposed students to a progressive community pharmacy practice that offered a comprehensive geriatric wellness program. Health promotion and disease prevention efforts focused on screening community elderly for osteoporosis, cholesterol, cardiac risk reduction, and polypharmacy/adverse drug events.

In addition to the described clerkships offered by faculty members for the geriatric concentration, there are 10 other approved geriatrics clerkships offered by adjunct faculty members in a variety of settings: 5 in long-term care sites, 1 in geropsychiatry at an Alzheimer's center, 2 in hospice/palliative care practices,

and 2 in internal medicine/geriatrics inpatient practices.

All clerkship rotations were graded pass-with-honors/pass/fail in the entry-level PharmD program. Pass/fail determination was made by each clerkship preceptor grading students at the completion of the rotation using predetermined criteria and point assignments for student performance in the areas of practice management, clinical skills, drug information skills, communication skills, and professionalism, with 20% of the student's overall grade determined by their scores in each respective area. A total of 100 points was possible, with a minimum score of 60 points required to pass each rotation. Students scoring 90 points or higher were awarded a "pass-with-honors" distinction.

The final hurdle students had to overcome in order to successfully complete the geriatrics concentration was the requirement that at the conclusion of the last didactic course they pass a comprehensive, objective 50-question examination, modeled after the CCGP Geriatrics Certification Exam (a score of 60% or better was required). This examination also counted as the final examination grade and 50% of the student's overall grade in the "Advanced Therapeutics Cases in Geriatrics" course.

ASSESSMENT

The standard assessment instrument used at Duquesne University as an evaluation of the quality of instruction in didactic courses is the 10-question Teaching Effectiveness Questionnaire (TEQ), administered to students at the end of each course. Participation on the part of students is voluntary. While nontenured faculty members are obligated to have all courses in which they teach evaluated, tenured faculty at the associate professor level and above have the obligation to select at least 1 didactic course per semester in which they have significant teaching responsibility in which to be evaluated. Thus every didactic course is not evaluated every semester. In addition, in team-taught courses, all faculty members who participate are not necessarily evaluated simultaneously. The TEQ instrument uses a 5-point Likert scale to evaluate instructor effectiveness. Higher scores correlate with positive student ratings. Results are provided to faculty and administration to enhance faculty development efforts and facilitate improvement in course instruction, and are summarized and compared with scores received by faculty in other courses taught throughout the School and the University.

Clinical TEQs are constructed similarly, incorporating questions more relevant to the effectiveness of faculty teaching in the practice setting, and administered to students completing all experiential courses. Results are provided to faculty members and administration for the main purpose of improving clinical teaching. Results of

both TEQs and Clinical TEQs for the instructors evaluated in courses in the geriatric concentration were positive, with average scores of 4.5 to 4.9 points out of a possible 5 points for each of the 10 questions asked on both the TEQ and Clinical TEQ. These figures are preliminary, as they represent the compilation of only 2 instructor evaluations in 2 of the 3 didactic courses, and 15 Clinical TEQ's administered in 2002.

While assessing student perception of instructor effectiveness with TEQs and Clinical TEQs, the University does not formally assess student perception of course quality or usefulness. The individual course instructor(s) has the prerogative to design such an instrument for any given course. Planned assessment procedures to evaluate program outcomes include surveys of graduates to determine the percentage of students going on to further education/training programs in geriatrics, the number of students achieving Certified Geriatric Pharmacist accreditation, the successes of graduates achieving positions in LTC/consulting, and the perceived usefulness of the coursework in professional practice.

A detailed assessment of the program is planned for publication once sufficient data exist to make more definitive conclusions.

CONCLUSIONS

Enrollment figures for the first course of the Geriatrics Concentration, "Selected Topics in Geriatrics," were 29, 24, and 16 students in 2001, 2002, and 2003, respectively. Both fifth year and sixth year students were enrolled in this course in Spring 2001 and Spring 2002. During the first 2 years the course was offered, sixth year students were permitted to take the course as a general professional elective. Beginning in Spring 2003, however, that was no longer the case, accounting for lower enrollment figures. Although fifth year students may choose not to continue the sequence after taking the initial course, the majority have continued on to complete the geriatrics concentration, receiving a certificate of completion at graduation ceremonies. To date, 15 students from the Class of 2002 and 19 students from the class of 2003 received certificates. As of Spring 2004, 15 sixth year students have completed the first 2 courses in the concentration and are registered for the third course (Spring 2004). Since the first course offering in 2001, enrollment in the concentration and the concentration completion rate have been consistent with our original projections. Efforts being considered to improve program and course quality include standardizing scoring on homework assignments between instructors; enhancing overall student participation in discussions and grading participation; coordinating content and teaching styles/class format among the 3 in-

structors for enhanced consistency of instruction, and conducting exit interviews of students completing the concentration to solicit their input in future course development and assessing their satisfaction with the overall concentration experience;

The major obstacles encountered in developing this concentration format included time commitment on the part of students and faculty members (particularly evening time); coordination of meetings among 3 clinical faculty members of meetings to develop and design course offerings, each of whom had different practice sites and responsibilities; and consistency of grading and expectations among participating faculty.

The Geriatrics Concentration elective sequence offered in the entry-level Doctor of Pharmacy program at the Mylan School of Pharmacy at Duquesne University is a new and well-received addition to the curriculum. This approach of offering interested students the opportunity to focus their elective course options to "specialize" within the context of an entry-level degree program may be a positive recruitment factor for incoming students. While creating "geriatrics specialists" for long-term care and consulting practice is one goal of this program, we feel that we have also begun to address the greater need to provide ambulatory and institutional pharmacists with enhanced knowledge and skills in geriatrics so that they can better care for the increasingly complex pharmacotherapy needs of the elderly population.

The effectiveness of the program in achieving targeted goals remains to be determined at this point in time. Formal program evaluation is planned in the future, once sufficient data are available.

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Appendix 1. Selected Topics in Geriatrics: Behavioral Objectives

At the completion of this course, the student shall be able to:

1. Discuss the theories of aging.
2. Distinguish normal aging from pathological aging with regard to various organ systems- body composition, renal, cardiovascular, etc. While students are permitted to take this course, "Selected Topics in Geriatrics," without continuing the sequence, the majority of students enrolled have completed the
3. Describe age-related factors that affect selected drug pharmacokinetics.
4. Describe age-related factors that affect selected drug pharmacodynamics.
5. Identify barriers to effective communication between elderly patients and health care professionals.
6. Given a specific scenario, identify strategies to overcome barriers to effective communication between an elderly patient and the pharmacist.
7. Discuss drug use patterns among various subtypes of geriatric patients.
8. Recognize therapeutic categories requiring special monitoring or precautions in the geriatric patient.
9. Discuss general principles of safe geriatric prescribing.
10. Describe the process of comprehensive geriatric assessment and the role of pharmacist in that process.
11. Recognize ethical conflicts that arise when caring for the elderly patient in situations such as terminal illness, dementing or progressive neurological illness, other chronic or progressive illnesses, long-term care or assisted living arrangements involving patient-family conflicts or unrealistic expectations.
12. Recognize and discuss the following major geriatric syndromes (the 'I's of geriatrics): iatrogenesis, inanition, isolation, immobility, instability, impaired senses, intellectual impairment, insomnia, impaction and incontinence, infection.
13. Discuss the influence of social structure on health in the elderly.
14. Describe living arrangements available to seniors with defined levels of care.
15. Discuss the epidemiology of adverse drug reactions in the elderly.
16. For selected disease states, list and describe the rationale for drugs of choice, appropriate doses, special monitoring requirements/precautions in the elderly.

Course Outline:

Week 1: Introduction to the Aging Process: Normal aging vs pathology

Week 2: Drug use in the elderly/ Changes in drug disposition and response.

Week 3: Dementia and related behavioral syndromes

Week 4: Other common geriatric syndromes

Week 5: Midterm

Week 6: Changes in endocrine function- Hormone replacement therapy, osteoporosis

Week 7: Comprehensive geriatric assessment/ residential care options

Week 8: Pain, anemias, skin and pressure sores

Week 9: *Inservice presentations

Week 10: *Inservice Presentations/ Final Exam

Potential Topics

Cardiovascular Disease in the Elderly (CHF, Isolated Systolic Hypertension, Atrial Fibrillation, Stroke)

Peripheral Vascular Disease

Endocrine Disorders in the Elderly (Diabetes, Thyroid Disease)

Respiratory Disease in the Elderly (COPD)

Ocular Conditions in the Elderly (Macular Degeneration, Glaucoma)

Oral and Dental Problems in the Elderly, Urinary Tract Infection in the Elderly

Sexual Dysfunction in the Elderly

Wellness and Prevention in the Elderly

Medicare and Drug Benefits in the Elderly

GERD and PUD in the Elderly

Appendix 2. Pharmacy in Long-Term Care: Course Objectives

At the completion of the course, the student should be able to:

1. Explain the organizational structure of long-term care facilities.
2. Describe the different levels of care provided by a nursing facility.
3. Differentiate long-term care from acute care with respect to identity of providers, outcomes, and delivery systems.
4. Distinguish the responsibilities of consultant pharmacists at each level of care provided by a nursing facility.
5. Compare and contrast pharmacy services provided in acute care and long-term care facilities.
6. Explain the methods of providing pharmacy services (clinical and administrative) needed by patients and facilities that provide long-term care.
7. Describe the economic factors which must be considered to establish and maintain pharmaceutical services for long-term care facilities.
8. Explain the economics associated with providing pharmacy services for long-term care including associated costs and benefits.
9. Describe the history of consulting pharmacy.
10. Identify the legal responsibilities of the consultant pharmacist in each of the following contexts: developing policies and procedures, supervising services, control of drugs, labeling drugs, participation on pharmaceutical service committees.
11. Identify the sections of a policy and procedures manual for a nursing home that relate to provision of pharmaceutical services.
12. Describe the consultant pharmacist's responsibilities in each of the following areas: patient drug regimen review, control of drug use, automatic stop orders, disposal of drugs and supplies.
13. Describe the types of outcomes which would indicate that the services provided by a consultant pharmacist are cost-effective.
14. Define and describe different drug distribution systems used in nursing homes.
15. Explain the medication order cycle in nursing homes.
16. Identify and explain federal and state laws and regulations governing the provision of pharmaceutical services in nursing homes.
17. Name and describe the role of various regulatory government agencies relative to the operation of nursing homes.
18. Describe the consultant pharmacist's responsibility when discrepancies in compliance with regulations are identified.
19. Describe the process for conducting a drug regimen review in long-term care.
20. List and define the five indicators for surveyor assessment of drug regimen review performance.
21. Identify the HCFA requirements for the consultant pharmacist's drug regimen reviews.
22. Discuss how pharmaceutical care of the elderly relates to drug regimen review.
23. Recognize the various communication styles in drug regimen review.

Course Outline

Week 1. History of Long-Term Care, Patient Demographics and Health Characteristics, What Skills are Required of the LTC Pharmacist?

Week 2. Drug Distribution in LTC, Quality Indicators/ Nursing Home Survey Process, OBRA/HCFA Regulations

Week 3. Minimum Data Set in LTC, Prospective DRR in LTC, DRR Documentation, Prospective Payment in LTC.

Week 4. Patterns of Drug Use in LTC, Drug-Related Problems in LTC Residents/ADR's

Week 5. Midterm Exam

Week 6. Formulary Development and Therapeutic Interchange, Generic Substitution

Week 7. DUE/DUR and Disease State Management in LTC.

Week 8. Living Arrangements in Later Life, Home Care and Alternatives to Institutionalization, Social Networks and Human Services.

Week 9. Trends in Senior Care Pharmacy: Home Health Care, Assisted Living, Community Care and Consultant Pharmacy Resources (Internet and Software).

Week 10: Oral Presentations: Consultation Assignment

Week 11: Final Exam

Appendix 3. Advanced Therapeutic Cases in Geriatrics: Behavioral Objectives

Given actual geriatric cases in various clinical settings (hospital, ambulatory, long-term care) involving multiple disease states, students should be able to:

1. Identify and define all therapeutic problems and problems that are of special concern in the geriatric patient.
2. Assess all identified therapeutic problems with respect to their etiology and severity.
3. Prioritize all identified problems to determine the most critical needs of the patient.
4. State specific and measurable therapeutic objectives for each identified problem.
5. Identify all geriatric factors that may affect the recommendation of a particular therapy.
6. Select the most appropriate therapeutic intervention from the available data, including specific drugs, doses and regimens preferred in the geriatric patient.
7. Identify the data that must be collected to monitor for efficacy and toxicity of all proposed therapeutic interventions.
8. Justify all recommended interventions based on a critical evaluation of appropriate literature sources.
9. Provide geriatric recommendations by both written and verbal means of communication.
10. Discuss any controversial areas of therapeutics with regards to the likely benefits and risks to the geriatric patient.
11. Discuss recommendations in a geriatric patient in regards to common problems such as suboptimal prescribing, overuse of medications (polypharmacy), inappropriate prescribing, and underuse of medications (underutilization).
12. Discuss methods to improve suboptimal prescribing in the elderly, such as drug utilization review, formularies and other restrictions, community education, physician education and multidisciplinary team approach.

Course Outline:

- Week 1. Assessing and understanding the geriatrics literature.
- Week 2. Cases in Common Geriatric Problems: Fecal incontinence and Health Maintenance.
- Week 3. Cases in Gastrointestinal Disorders: Peptic Ulcer and GERD/Inflammatory Bowel Disease.
- Week 4. Cases in Neurology: Involuntary Movement Disorders and Stroke.
- Week 5. Cases in Endocrinology: Diabetes and Hypothyroidism
- Week 6. Midterm Exam
- Week 7. Cases in Oncology/ Hematology/ Infectious Disease: Anemia and Cancer/ Sepsis
- Week 8. Cases in Cardiology: Isolated Systolic Hypertension and CHF
- Week 9. Cases in Pulmonology/Rheumatology: COPD and Rheumatoid Arthritis
- Week 10. Cases in Women's Health: Osteoporosis and HRT in the Elderly
- Week 11. Geriatric Literature Review Presentations
- Week 12. Geriatrics Comprehensive Final Exam