



Short communication

The prescribing cascade game: Applying geriatric pharmacotherapy principles in the classroom

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Abstract

Introduction/background: Older adults have a higher rate of prescription drug use and are at an increased risk for medication-related problems. A fundamental principle of geriatric pharmacotherapy is recognition of the prescribing cascade. Given the aging of the United States population, the importance of preparing student pharmacists to address the medication challenges of this population is critical.

Rationale and objectives: This article describes the Prescribing Cascade Game created to engage students in the classroom. The objective of this study is to assess students' perceptions of the activity's effectiveness in achieving the desired outcomes of enjoyment and engagement in the learning process as well as their understanding, application, and retention of material.

Methods and materials: The Prescribing Cascade Game consisted of six prescribing cascades each containing four steps. In total, 24 index cards were used to create the game, each representing one of the cascade steps. Student groups were provided with one card and instructed to identify three groups in possession of cards containing the steps necessary to complete their cascades. A 5-point Likert scale was used to assess students' perceptions of the activity.

Results: In total, 71 students participated in the game. The majority indicated they were engaged in class and enjoyed participating. Student perceptions of additional survey components including understanding, application, and retention of material relevant to the activity were also positive.

Discussion/conclusion: The Prescribing Cascade Game was well received by second-year pharmacy students and will continue to be incorporated as an instructional method to engage students in the learning process.

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Introduction/background

The impact of the “Baby Boomers” (those born between 1946 and 1964) on United States (U.S.) demographics will place increased demands on the health care system to meet the needs of an aging population. In 2010, people 65 years and older accounted for approximately 13% of the U.S.

population. By 2030, it is projected that this proportion will increase to nearly 20%. Additionally, elderly people are living longer than ever before.¹ It is projected that the “oldest old” population (those 85 years and older) could grow to 18.2 million by 2060; a significant increase from 5.5 million in 2010.²

The 2008 Institute of Medicine's report “Retooling for an Aging America: Building the Healthcare Workforce” concluded that the current U.S. health care workforce is insufficient in the number of trained professionals prepared to face this “silver tsunami.” The report cites that less than 1% of pharmacists are certified in geriatrics, based on those who have taken the Commission for Certification in

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Geriatric Pharmacy's (CCGP) Certified Geriatric Pharmacist (CGP) examination.³ Older adults have a higher rate of prescription drug use than that of the general population and are at an increased risk for experiencing medication-related problems (MRPs).⁴ Therefore, the importance of preparing student pharmacists with the education and training to competently address the medication challenges of this population is critical.

A fundamental principle of geriatric pharmacotherapy is recognition of what has been termed the “prescribing cascade.”⁵ Physiological changes associated with aging (i.e., altered pharmacokinetics and pharmacodynamics) place elderly patients at an increased risk for experiencing adverse drug events (ADEs).⁴ The prescribing cascade begins when an ADE is misinterpreted as a new medical condition, and a second medication is then prescribed. This places the elderly patient at risk of developing additional adverse effects as a result of the (potentially) unnecessary treatment.⁵ The possibility of an ADE should be considered any time a new symptom emerges in an elderly patient in an effort to prevent MRPs in this population. Providing experiences for student pharmacists to apply their knowledge and identify examples of potential prescribing cascades may help to instill this concept and optimize drug therapy regimens for their future patients.

Rationale and objectives

Given the vast amount of easily accessible medical information available with today's technology, pharmacy educators face the challenge of preventing the perpetuation of bulimic learning whereby students memorize large amounts of information for examinations and then purge that information with little focus on long-term retention or application of skills required for the provision of patient care.^{6,7} Implementing active learning strategies in pharmacy education is an effective way to promote student engagement in the learning process. Engaged students who are responsible for their learning tend to be more motivated and demonstrate higher levels of understanding, application, and retention of information.^{8,9} Both the Accreditation Council for Pharmacy Education (ACPE) standards and the Center for the Advancement of Pharmacy Education (CAPE) outcomes support the integration of active learning strategies into existing pharmacy curricula.^{10,11}

Multiple possible methods exist for implementing active learning in the classroom and pharmacy educators have embraced a variety of processes (e.g., audience response systems, muddiest point, Socratic questioning, case studies, and games).^{8,12} This article describes the development, implementation, and students' perceptions of the Prescribing Cascade Game in the classroom setting. The intent of this activity was to engage students in the learning process. The objective of this study is to assess students' perceptions of the activity's effectiveness in achieving the desired outcomes of student enjoyment and engagement as well as their understanding, application, and retention of material. Although the use of games in pharmacy education is well documented,^{13–18} a review of the literature did not reveal strategies similar to the one presented.

Materials and methods

The University of Charleston School of Pharmacy curriculum includes five hours of didactic coursework in “Geriatric Considerations” within the spring semester of the second professional program year. This content is included in the first of three eight-credit-hour pharmacotherapy courses and is intended to serve as an overview of key concepts that students can apply to relevant disease states as they progress through the curriculum. Students are expected to prepare for class by reviewing handouts posted two weeks prior to lecture dates. The handouts identify required readings, learning objectives, key points, and items that will be discussed during class for each topic.

Geriatric syndromes, pharmacokinetic and pharmacodynamic alterations, medication-related problems, and potentially inappropriate medications are covered within the first four contact hours of “Geriatric Considerations”; various active learning strategies are incorporated throughout these lectures. The fifth hour is used to solidify understanding of the prescribing cascade and provide students an opportunity to apply their baseline knowledge gained through preceding required readings (Table 1) and class discussions. Because the content is included within the introductory topics of the first pharmacotherapy course, students have limited exposure to pharmacotherapy concepts. Therefore, prescribing cascades were intentionally chosen to include the potential adverse effects of medications discussed in the required readings or those that students could reference using available drug information resources.

Table 1
Required readings

Lee JK, Mendoza DM, Mohler MJ, Morris SJ. Geriatrics. In: Chisholm-Burns MA, Schwinghammer TL, Wells BG, Malone PM, Kolesar JM, Dipiro JT, eds. <i>Pharmacotherapy Principles and Practice</i> . 2nd ed. New York, NY: McGraw-Hill Companies, Inc; 2010:7–21.
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