

Original Publication

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Clinical Decision-Making for Older Patients With Multiple Chronic Conditions: A Case-Based Exercise for Medical Students

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Abstract

Introduction: Over half of patients over age 65 in the US have multimorbidity, defined as having three or more chronic diseases, but most clinical research on chronic disease management focuses on single chronic diseases. An expert panel convened by the American Geriatrics Society has provided a framework of guiding principles for clinical decision-making in patients with multimorbidity. This resource describes a session for second-year medical students at the end of their preclinical curriculum, in which students practice using a framework for clinical decision-making for patients with multiple chronic diseases.

Methods: In this 90-minute small-group session, students work with faculty mentors to apply that framework to a hypothetical patient with multimorbidity. They consider patient preferences, review relevant evidence, estimate a prognosis, consider clinical feasibility, and devise a treatment plan that maximizes benefits, minimizes harm, and enhances quality of life. **Results:** Approximately 180 students have completed the multimorbidity session. Outcomes data suggest that the session helps students master key concepts in management of the patient with multimorbidity. **Discussion:** Prior to entering the clinical arena, medical students need to develop foundational skills that have not historically been part of preclinical curricula, such as accurately estimating prognoses, eliciting goals of care, and understanding the limitations of evidence regarding treatment outcomes in older patients. This session, one in a series of case-based exercises designed to train preclinical medical students in core competencies for care of the older patient, is a useful tool for medical educators looking to enrich the geriatric content in preclinical curricula.

Keywords

Geriatrics, Prognosis, Multimorbidity

Appendices

- A. Multimorbidity Case Student Materials.docx
- B. Multimorbidity Case Facilitators' Guide.docx

All appendices are peer reviewed as integral parts of the Original Publication.

Educational Objectives

By the end of this session, learners will be able to:

1. Define multimorbidity.
2. Describe the impact of multimorbidity on individual patients' lives.
3. Incorporate patient preferences, current evidence, prognosis, and clinical feasibility into clinical decision-making for patients with multimorbidity.

Introduction

Over half of patients over age 65 seen in primary care practices in the United States have multimorbidity, defined as having three or more chronic diseases.¹ Most clinical research and practice guidelines on chronic disease management, however, focus on individual chronic diseases. Few trials include patients with multimorbidity, and we therefore have little evidence on the cumulative risks and benefits of combining evidence-based therapies for multiple chronic diseases within the same patient. Clinicians who simply implement clinical guidelines for each disease process, without considering the risks of combined therapies, the potential impact on quality of life, or the lack of benefit in patients for whom life expectancy is limited by other comorbidities, run the risk of causing more harm than benefit.

To guide clinicians facing large numbers of older patients with multimorbidity, the American Geriatrics Society convened an expert panel, which has provided a framework of guiding principles for clinical decision-making in patients with multimorbidity.² This expert panel outlined a series of steps for the clinician to consider when devising a plan of care for an older patient with multimorbidity, including considering patient preferences, reviewing relevant evidence, estimating a prognosis, considering clinical feasibility, and uniting all of these considerations into a treatment plan that maximizes benefits, minimizes harm, and enhances quality of life.

Preclinical curricula for medical students appropriately focus on understanding the pathophysiology and management of single disease processes, one at a time. Before attempting to grapple with the complexities and subtleties of managing multiple chronic diseases concurrently, medical students need to learn the basics of how to manage those diseases individually. However, when medical students enter the wards and clinics, they will encounter many patients with multimorbidity, and they will need to confront the gray areas of medical practice, including when disease-based guidelines should and should not apply.

This resource was designed as a 90-minute small-group session for second-year medical students who are at the end of their preclinical training and are preparing to launch into the clinical arena. Students must have completed basic coursework in pathophysiology and management of common chronic diseases. The session is designed to begin to prepare students for the complexity of multimorbidity that they will encounter when they start their clinical rotations. It follows the stepwise framework of clinical decision-making for patients with multiple chronic conditions that was laid out by the American Geriatrics Society Expert Panel on the Care of Adults With Multimorbidity.²

This session is one of a series of case-based sessions, a number of which have been previously published in MedEdPORTAL, developed to teach core concepts in geriatrics to second-year medical students.³⁻⁵ The previously published sessions were developed to address competencies from a national consensus process outlining minimum competencies in the field of geriatrics that all US medical students should have upon graduation.⁶ The multimorbidity session was designed to address the recommendation that medical students should be able to “accurately identify clinical situations where life expectancy, functional status, patient preference or goals of care should override standard recommendations for treatment in older adults.”⁶

Experience with these previous case-based sessions in geriatrics, used in our institution for the last 7 years, informed our plans for format, content, pacing, and faculty development needs for the multimorbidity case. The format of the multimorbidity case is patterned after a previous curriculum on multimorbidity developed by Thompson, Wong, and Huisinigh-Scheetz,⁷ but the case and the detailed facilitator materials and discussion guides are original.

Methods

The target audience for this session is second-year medical students at the end of their preclinical curriculum who are preparing to begin their clinical rotations. It is designed as a small-group case-based interactive session.

The session is designed to be 90 minutes, according to the following suggested schedule:

- 20 minutes: Instructor introduces the concept of multimorbidity and the five-step framework for clinical decision-making.
- 30 minutes: Students work in groups of six on the discussion questions included with the case.
- 30 minutes: Instructor reviews the questions and answers with the whole group, calling on individuals to share their small group's answers.
- 10 minutes: Instructor provides summary and wrap-up comments.

In our experience, 90 minutes is sufficient time to cover the content at the level included in the facilitators' guide but not so long that students begin to lose focus. Educators implementing this session for more advanced learners or wanting to encourage more in-depth, nuanced discussion may wish to consider allotting a longer time frame.

Prior to this exercise, students should be assigned to groups of approximately six. Ideally, these will be groups that students have worked in before or that they will continue to work with in the future. At our institution, this exercise is part of a series of small-group case-based exercises that occur throughout the first 2 years of medical school. Having students work in the same small groups across several cases allows the students to build rapport and establish a well-functioning team, but this case could also be used as a stand-alone workshop.

Several small groups can meet in the same room, with four to six groups of students and one facilitator per room. We use geriatric physicians as small-group facilitators in each room. While the students are working through the case in their small groups, facilitators circulate around the room and serve as consultants, answering questions as necessary. We find that facilitators are most effective if they take an active role in students' discussions, moving between groups and listening in for a few minutes, asking questions to help guide students toward important points, and then moving on to another group. Although many groups of students have high-quality discussions with little direction from facilitators, some groups tend to rush through questions quickly and answer them in a superficial way, requiring a more hands-on approach from facilitators.

We have extensive experience in our institution with this small-group, interactive, case-based format. We feel that it is optimal for building skills in student teamwork and provides opportunities for individual students to learn to apply knowledge to clinical scenarios. Caring for patients with multimorbidity is a complex clinical task. Students need to acquire knowledge regarding what to consider for patients with multimorbidity, but more importantly, they need to build skill in applying that knowledge. Six students is a small enough group to allow each individual student to actively engage with the material and practice clinical reasoning. Having one faculty member supervising six groups of six students and leading a concluding discussion with all 36 students makes the most efficient use of faculty resources.

This resource includes a document entitled Multimorbidity Case Student Materials (Appendix A), which can be used as a handout for students to use during the session. In our institution, we make this document and all of the supporting references available via an online curriculum management system. This document contains all of the information and resources students will need to complete the exercise, including learning objectives, a session introduction, a description of the case, a list of discussion questions, and a list of references and resources. A second document, Multimorbidity Case Facilitators' Guide (Appendix B), includes everything faculty will need to implement the session. In addition to the full content of the student materials, the facilitators' guide includes a suggested session schedule, additional information that faculty can use as a session introduction, additional references for faculty development, and suggested answers to all of the discussion questions. In our institution, we make the suggested answers to discussion questions available to students via an online curriculum management system after the session is complete.

Results

This session has been implemented for a total of 180 second-year medical students. Six instructors, all of whom have clinical training in geriatrics, have implemented the session. Instructors' experience ranges from first-year fellows in geriatric medicine to senior faculty members in geriatrics. Prior to the session, all faculty who serve as instructors for the session are offered 1 hour of training, which reviews content and teaching methods. Geriatric fellows who will serve as instructors are required to attend the training. Instructors are provided with the references and resources listed at the end of the facilitators' guide. Some clinicians are unfamiliar with the tools for estimating prognoses, so they benefit from reviewing the ePrognosis website⁸ and the life-expectancy figure in the Walter and Covinsky reference.⁹ In the training, we discuss how to apply these prognostic tools to the case.

Feedback on the session from faculty who have served as instructors has been positive. Faculty members have commented on students' high level of engagement and the critical thinking that they exhibit. For example, one faculty member commented,

This curriculum was ambitious and expected considerable engagement from the students. The concepts were carefully developed, and although I thought the material was sophisticated for pre-clinical students, I was pleased to see how well they understood the material by the end of the session.

Although we have not collected formal quantitative feedback from students on this session, the qualitative feedback we have received has been mixed. While some students commented that it was one of their better learning experiences during the term, others found it difficult to focus on big-picture concepts when they were so close to preparing for their National Board of Medical Examiners (NBME) Step 1 exam. In a student focus group, one student commented, “This is not the time to be having the multi-morbidity and aging just like general discussions right now. . . . We’re tired, and we’re just anxious about STEP and ready to work on it.”

The final exam for the course in which this session is imbedded includes case-based NBME-style questions on management of patients with multimorbidity. Student performance on these questions indicates mastery of the learning objectives. For example, most the students who completed the session appropriately considered the time horizon to benefit when determining appropriate hemoglobin A1c targets for an older patient with diabetes (difficulty index: 0.91, discrimination index: 0.12) and appropriately determined that eliciting goals of care should be an initial step in deciding on the best course of treatment for an older patient with a new diagnosis of cancer (difficulty index: 0.99, discrimination index: 0.02).

Discussion

As demographics in the United States shift and the population ages, medical educators need to ensure that they are arming today’s medical students with the tools they need to skillfully care for geriatric patients. Prior to entering the clinical arena, medical students need to develop foundational skills that have not historically been part of preclinical curricula, such as accurately estimating prognoses, eliciting goals of care, and understanding the limitations of evidence regarding treatment outcomes in older patients. This session, one in a series of case-based exercises designed to train preclinical medical students in core competencies for care of the older patient, is a useful tool for medical educators looking to enrich the geriatric content in preclinical curricula.

Faculty feedback on this curricular resource has indicated that it generates a high degree of student engagement, encourages critical thinking skills, and results in student mastery of learning objectives. Outcomes data also suggest that students learn key content of the session and are able to apply those concepts to hypothetical patient-care scenarios. Student feedback on the session has been mixed. Students’ most significant criticism has been that it is difficult to focus on big-picture issues when they are fatigued at the end of their preclinical curriculum and are shifting their attention to the details of basic sciences that they need to master for the NBME exam. Although we feel that evidence of students’ mastery of the content of the session is more important than their immediate satisfaction, we may need to consider moving the exercise to the transition course at the beginning of the clinical curriculum, after students have completed their NBME exam. Presenting the material when students are more primed for clinical learning and more excited about the content may help increase their receptivity and commitment to applying the concepts of the session when they encounter these dilemmas in the context of actual patient care.

We believe that this educational resource on caring for geriatric patients with multiple chronic comorbidities will be a valuable tool for medical educators. It will inform the larger project of improving medical students’ competency in caring for older patients.

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Ethical Approval

Reported as not applicable.

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