

Original Publication

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Unintentional Weight Loss in Older Adults: A Geriatric Interprofessional Simulation Case Series for Health Care Providers

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Abstract

Introduction: Interprofessional teams can provide better care and management of complex geriatric patients. Unintentional weight loss in older patients can lead to significant morbidity and mortality and functional decline. This simulation curriculum focuses on teaching learners from all health care professions how to use the Carolina Geriatrics Workforce Enhancement Program unintentional weight loss tool and flowchart (T&F) to identify, diagnose, and create a plan of care for weight loss in geriatric patients.

Methods: A presentation on use of the T&F and two standardized patient cases utilizing the T&F in an interprofessional team are included. Case 1 presents a 71-year-old male with dementia who has lost 20 pounds, with weight loss secondary to cognitive impairment, denture problems, oral candidiasis, and polypharmacy. Case 2 presents a 67-year-old female with a history of depression and breast cancer who has lost 15 pounds, likely related to alcohol dependence, social isolation, oral cancer, and food insecurity. Pre- and posttests measure knowledge gained through the course. **Results:** Overall knowledge of unintentional weight loss improved in the 14 learners who participated in two pilot sessions. Test scores improved an average of 1.2 points from pre- to posttest. Participants felt that interprofessional teams increased the quality of care provided to patients and job satisfaction. **Discussion:** This tool can be utilized by practitioners from multiple disciplines. By completing the curriculum, learners gain knowledge of how to identify geriatric patients with significant weight loss, determine next steps in diagnosis and workup, and work in an interprofessional group.

Keywords

Interprofessional Education, Simulation, Geriatrics, Malnutrition, Case-Based, Interdisciplinary, Standardized Patient Cases, Unintentional Weight Loss

Educational Objectives

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

1. Describe the importance of identifying and treating geriatric patients with unintentional weight loss.
2. Demonstrate the ability to utilize the Carolina Geriatrics Workforce Enhancement Program unintentional weight loss screening tool in a simulated clinical scenario as part of an interprofessional team.
3. Evaluate as an interprofessional team and recommend treatment for older adult patients with unintentional weight loss in simulated standardized patient cases.
4. Explain the benefit of interprofessional teams in working with geriatric patients.

Appendices

- A. Case 1 Screening Tool.docx
- B. Weight Loss Sim Case 1 .docx
- C. Case 1 Oral Picture.docx
- D. Sim Case 1 SLUMS.pdf
- E. Case 2 Screening Tool .docx
- F. Weight Loss Sim Case 2 .docx
- G. Sim Case 2 Labs.docx
- H. Case 2 Oral Picture.docx
- I. Case 2 PHQ9 Results.pdf
- J. Blank CGWEP Screening Tool.docx
- K. CGWEP Decision Flowchart .pdf
- L. Case 1 Door Hanger.docx
- M. Case 2 Door Hanger.docx
- N. Medication Chart.docx
- O. Unintentional Weight Loss Lecture.pptx
- P. CGWEP Sim Pre-Posttest .docx
- Q. CGWEP Sim Pre-Posttest With Answers.docx

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

Introduction

Interprofessional education (IPE) has been defined as “an intervention where the members of more than one health or social care profession, or both, learn interactively together, for the explicit purpose of improving interprofessional collaboration or the health/well-being of patients/clients, or both.”¹ IPE is essential in preparing health care students to care for older adults, but it is often an overlooked aspect of the learners’ education. Furthermore, the complexity of frail elderly patients with chronic medical problems requires a multidisciplinary approach. This project is sponsored by the Carolina Geriatrics Workforce Enhancement Program (CGWEP), an interprofessional geriatrics fellowship. It is part of a \$2.55 million grant funded by the Health Resources and Services Administration, designed to impact the aging population of North Carolina. Core project components include faculty development, curriculum development, continuing education, student training, and preparation of residents and fellows for effective geriatrics teaching and practice.

Unintentional weight loss, defined as a 5% reduction in body weight within 6 to 12 months without a known cause, is prevalent in 15%-20% of older adults.² Weight loss in patients older than 65 is correlated with increased morbidity and mortality, functional decline, increased rates of hospitalization, and cachexia.² Contributing factors are many and often co-occur; these can include gastrointestinal disease, malignancy, psychiatric conditions, social factors, and medication use. Because unintentional weight loss is often nonspecific and no guidelines exist for evaluation and management, the appropriate workup and treatment vary from patient to patient.²

By 2040, it is projected that persons age 65 and older will represent a fifth of the US population.³ Older patients tend to have more complex medical problems and average more office visits with doctors than younger patients.⁴ Several studies have endeavored to assist providers in the workup and treatment of unintentional weight loss in older adults.^{2,5-9} Two acronyms have been developed to help providers consider the many possible causes of unintentional weight loss in older adults: the 9 Ds of weight loss in the elderly and MEALS ON WHEELS.⁸ Additionally, there is one diagnostic algorithm for the workup of unintentional weight loss, as well as one algorithm outlining common causes of weight loss, though neither are specific to geriatrics.^{10,11} Outcome studies for this problem include pharmacologic management with orexigenic and anabolic medications, which can result in short-term weight gain of approximately three to seven pounds, but none have proven effects on long-term health and mortality. Moreover, side effects of these drugs limit their use in this population.¹²

A search of MedEdPORTAL revealed several peer-reviewed studies that the current curriculum builds upon. These studies include examples of team-based interprofessional collaborative standardized patient encounters.¹³⁻¹⁵ Several of these are geriatrics-specific simulation cases.¹⁶⁻²⁰ Additionally, many studies tackle interprofessional geriatric team-based curricula without use of simulation-based learning.²¹⁻²³ One curriculum in particular was developed to encourage interprofessional consideration of oral health in older adults.²⁴ However, no studies we encountered—simulation-based, interprofessional, or otherwise—considered unintentional weight loss in older adults. Our curriculum adds to the aforementioned studies by providing an interprofessional simulation-based learning model that specifically addresses unintentional weight loss in older adults. To fully understand the breadth of this problem, high-quality research is needed to determine what interventions are effective in addressing unintentional weight loss in this population. Future research should include multiple sites, larger sample sizes, and longer follow-up periods in order to track weight loss trends over time.

We developed and implemented the CGWEP unintentional weight loss curriculum for learners from three disciplines: dentistry, nursing, and medicine. The target audience for this simulation case series is members of an interprofessional team. The curriculum can also be utilized by health professional schools and be made up of learners from a variety of clinical disciplines and levels of education, from undergraduate health care students to practicing health care professionals. Team members may include,

but are not limited to, physicians, dentists, and nurses from all specialties. The audience may be expanded to encompass social workers, care managers, nurse practitioners, physician assistants, physical therapists, occupational therapists, and dental hygienists. All care providers who take part in treatment and well-being of geriatric patients may benefit from evaluating these simulated patient cases and building a greater understanding of interprofessional collaboration.

Due to the complexities involved in treating geriatric populations, interdependencies among health care professions are created. To better understand and mimic the situations that may be encountered, simulation is useful because it creates an environment in which learners from different disciplines can work together. Health care professional students should be trained to work in interdisciplinary teams to learn skills needed for future practice, including communication, collaboration, and conflict resolution. This simulation-based curriculum teaches learners the necessary skills to work in a team, including communication, collaboration, conflict resolution, coordination, brainstorming, joint decision making, and team leadership.²⁵

This curriculum addresses the following Association of American Medical Colleges Geriatric Competencies for Medical Students²⁶:

- 3. Document a patient's complete medication list, including prescribed, herbal and over-the-counter medications, and for each medication provide the dose, frequency, indication, benefit, side effects, and an assessment of adherence.
- 4. Recognize, compare and contrast among the clinical presentations of delirium, dementia, and depression.
- 9. Assess and describe baseline and current functional abilities in an older patient by collecting historical data from multiple sources, making sure to include instrumental activities of daily living, activities of daily living, and capacity/competence assessment, and performing a confirmatory hearing and vision examination.

The following competencies from the Gerontological Nursing Competency Statements are taught in this curriculum²⁷:

- 4. Assess the living environment as it relates to functional, physical, cognitive, psychological, and social needs of older adults.
- 13. Integrate leadership and communication techniques that foster discussion and reflection on the extent to which diversity (among nurses, nurse assistive personnel, therapists, physicians, and patients) has the potential to impact the care of older adults.

The curriculum also addresses the following Accreditation Council for Graduate Medical Education Geriatric Medicine Milestones²⁸:

- 9. Works effectively within an interprofessional team (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel).
- 17. Has professional and respectful interactions with patients, caregivers, and members of the interprofessional team (e.g., peers, consultants, nursing, ancillary professionals, and other support personnel).
- 22. Communicates effectively in interprofessional teams (e.g., with peers, consultants, nursing, ancillary professionals, and other support personnel).

In addition, this curriculum applies multiple competencies from the 2008 American Geriatrics Society meeting of the Partnership for Health in Aging that represented 10 health care disciplines, including dentistry, medicine, nursing, nutrition, occupational therapy, pharmacy, physical therapy, physician assistants, psychology, and social work. The following multidisciplinary competencies are addressed by this curriculum²⁹:

- Domain #1: Health Promotion and Safety
 - 1. Advocate to older adults and their caregivers interventions and behaviors that promote physical and mental health, nutrition, function, safety, social interactions, independence, and quality of life.
- Domain #2: Evaluation and Assessment
 - 1. Define the purpose and components of an interdisciplinary, comprehensive geriatric assessment and the roles individual disciplines play in conducting and interpreting a comprehensive geriatric assessment.
 - 4. Demonstrate knowledge of the signs and symptoms of delirium and whom to notify if an older adult exhibits these signs and symptoms.
- Domain #3: Care Planning and Coordination Across the Care Spectrum (Including End-of-Life Care)
 - 1. Develop treatment plans based on best evidence and on person-centered and -directed goals.
 - 2. Evaluate clinical situations where standard treatment recommendations, based on best evidence, should be modified with regard to older adults' preferences and treatment/care goals, life expectancy, co-morbid conditions, and/or functional status.
- Domain #4: Interdisciplinary and Team Care
 - 1. Distinguish among, refer to, and/or consult with any of the multiple healthcare professionals who work with older adults, to achieve positive outcomes.
 - 2. Communicate and collaborate with older adults, their caregivers, healthcare professionals, and direct-care workers to incorporate discipline-specific information into overall team care planning and implementation.

Simulation learning, which involves using actors who portray patients with certain conditions, is a rapidly developing means of enhancing the clinical education of health professions students.³⁰ In order to be effective, it must integrate a curriculum into the simulation in a way that facilitates transfer of skills needed for clinical practice. These cases allowed participants to work as an interprofessional team while utilizing the CGWEP unintentional weight loss tool and flowchart (T&F) to determine possible causes for weight loss in two individual patients. The setting for each simulation encounter was an outpatient primary care clinic.

Methods

This curriculum, through practice and planning, can be tailored to individual programs and teaching environments. We completed these simulation cases in a simulation lab with standardized patients. Prior to implementing this curriculum on a large scale, we completed it, in its entirety, with a small group (14 learners) in order to identify any issues in our environment. Learners and educators were recruited from three disciplines: medicine, nursing, and dental. For their time, a lunch was provided at the end of the simulation session. The simulation was scheduled in a 3-hour window with extra time provided for delays and lunch.

We provided each learner and instructor with individual folders of material (Table 1) that would assist them in completing the learning session. (For a description of the appendices used in this resource, see Table 1.) We asked learners to complete a 10-minute pretest and then undergo a lecture to teach the CGWEP unintentional weight loss T&F. We have provided the lecture with talking points in the notes section of each slide (Appendix O). This was followed by learners working in teams of three to four interprofessional groups and completing the two standardized patient cases, with debriefing provided by instructors at the end of each case.

Table 1. Folder Material

Appendix	Folder			Simulation Center Material
	Standardized Patient	Learner	Instructor and Facilitator	
A. Case 1 Screening Tool	X	X	X	
B. Weight Loss Sim Case 1	X		X	
C. Case 1 Oral Picture	X			
D. Sim Case 1 SLUMS	X			
E. Case 2 Screening Tool	X	X	X	
F. Weight Loss Sim Case 2	X		X	
G. Sim Case 2 Labs	X			
H. Case 2 Oral Picture	X			
I. Case 2 PHQ9 Results	X		X	
J. Blank CGWEP Screening Tool		X	X	
K. CGWEP Decision Flowchart		X	X	
L. Case 1 Door Hanger				X
M. Case 2 Door Hanger				X
N. Medication Chart		X	X	
O. Unintentional Weight Loss Lecture				X
P. CGWEP Sim Pre-Posttest				X
Q. CGWEP Sim Pre-Posttest With Answers			X	X

Prior to the workshop, a 1-hour training session was held with the standardized patients. For Case 1, two standardized patients were required, one to play the patient and one to play the wife. For Case 2, one standardized patient was required. We utilized the same female actor for both cases (at the time of the workshop, learners were notified that she would be changing characters between cases). In this training session, the material reviewed included an overview of the simulated case, how each actor should participate, and the various material that would be utilized during the case. This session allowed actors to practice their roles and ask any questions they had about the cases.

Equipment/Environment

This activity took place in a simulation, standardized patient laboratory with a classroom and exam room available; materials required included a stethoscope and a penlight, a reflex hammer (optional), an ophthalmoscope/otoscope (optional), and a wheelchair (for Case 1's standardized patient to sit in). Prior to the workshop, individual folders were made for the standardized patients, learners, and instructors/facilitators. Material needed for the simulation center was compiled prior to the start (see Table 1).

Personnel

Simulation staff were needed to ensure that the simulation ran properly and was recorded if desired, as well as to provide support for any issues that might develop. An instructor led the training, provided debriefing, and evaluated learners. Facilitators were needed to observe and give feedback to the IPE team learners. Ideally, there should be one facilitator assigned to each team. Facilitators should come from the disciplines that are being trained. Our instructors were faculty from the University of North Carolina at Chapel Hill (UNC-CH) Schools of Medicine, Dentistry, and Nursing. Each faculty member participated in the lecture, monitored the simulation cases via remote video monitoring, and gave feedback during debriefing sessions.

Learners worked in interprofessional teams of dental, nursing, and medical providers. However, this curriculum can be utilized with any number of disciplines, such as physical therapy, occupational therapy, or social work. Learners were recruited from the UNC-CH Schools of Medicine, Dentistry, and Nursing. Participants were not required to have had any experience with simulation.

The learners underwent a pretest to evaluate knowledge (10 minutes), a lecture reviewing unintentional weight loss and the use of the CGWEP T&F (30 minutes), a review of the Case 1 patient's responses to the weight loss tool as an interdisciplinary team (5 minutes), the Case 1 standardized patient simulation (20-30 minutes), debrief (10-15 minutes), a review of the Case 2 patient's responses to the weight loss tool as an

interdisciplinary team (5 minutes), the Case 2 standardized patient simulation (20-30 minutes), a debrief (10-15 minutes), and a posttest (10 minutes). Total time required was 120-150 minutes.

Assessment

Upon completion of the standardized patient cases, learners were asked to complete a posttest with the same questions as asked on the pretest. We felt it was important for learners to first have a lecture that teaches the tool and then gain comfort and familiarity with the T&F through practice with standardized patient cases.

Debriefing

Below is a list of topics and questions for each simulation case that can be used as guidance to lead debriefing sessions.

Case 1:

- Mr. Smith has several reasons for unintentional weight loss. Which factors did you identify?
- Ensure the learners recognize that cognitive impairment, denture problems and oral candidiasis, and possible polypharmacy could be related to his weight loss.
- What are some possible next steps in caring for Mr. Smith?
- Possible next steps include monitored and assisted feedings, nutritional supplements, referral to a dentist and treatment of oral candidiasis, and tapering off of the Zoloft as this could be related to his increased somnolence. The learners should also recognize that he has lost a significant amount of weight, which could be secondary to more severe causes, but given his wife's wishes for him to avoid intensive intervention and undergo no further cancer screenings, there should be a focus on other causes of weight loss.

Case 2:

- Ms. Carr has multiple factors contributing to her weight loss. Which factors did you identify, and what are some possible steps highlighted in the CGWEP flowchart that could help Ms. Carr?
- The following factors could possibly contribute: alcohol dependence, social isolation, concerning oral lesion, and food insecurity. She also has depression (but this is well controlled) and polypharmacy. (She should consider changing medications, which can be done now or at a later date after addressing other issues.)

Both Cases 1 and 2:

- How did the CGWEP screening T&F assist you in these simulation cases?
- After completing this simulation case and utilizing the CGWEP T&F, what have you learned, and how will this change your practice?
- Highlight the multifactorial aspect of unintentional weight loss in older populations and the benefit of using a tool to help identify these causes.
- What are some strengths about working in an interdisciplinary group?
- What was it like to work in an interdisciplinary team? How could you work better as a group in the future?
- How has this simulation, during which you worked in an interdisciplinary group, changed the way you will practice in the future?

Results

A total of 14 learners (four physicians, five nurse practitioner students, two dental hygienists, and three dentists) participated in two pilot sessions. Participants were recruited to create four separate interprofessional teams. Each team had at least one dental, one nursing, and one physician member. Each learner completed a 10-question pretest prior to the learning session and the same 10-question posttest at the end.

The quizzes were composed of five knowledge questions, aimed at assessing concepts taught during the teaching session, and four questions assessing learners' comfort with and knowledge of working in

interprofessional teams. One question was removed from the quiz after completion of the study due to recognition that multiple answer choices could be correct. The first five questions were graded, and pre- and posttest results were compared. The results of the quiz showed improvement in knowledge on all five questions, with the greatest improvement of knowledge on question 3.

The mean number correct on question 3 was four (29% correct) on the pretest, which improved to a mean number correct of 11 (79% correct) on posttest. Table 2 shows the mean number and percentage correct from pre- to posttest in our 14 learners. Learners were not specifically evaluated on their performance during the simulation as the goal of this curriculum was to introduce the CGWEP unintentional weight loss T&F and provide an opportunity to practice using the T&F in a simulated case.

Table 2. Mean Number Correct (% Correct) From Pre- and Posttest (N = 14)

Question	M (%) Correct	
	Pretest	Posttest
In oral cancer screening of a current smoker and drinker, what areas of the mouth would be most likely for suspicious lesions?	9 (64%)	14 (100%)
What are characteristics of oral lesions that should be evaluated for malignancy?	10 (71%)	13 (92%)
Ms. Clay is a 78-year-old African American female who comes in to see you for weight loss. She has lost 18 pounds in the last 5 months. She has a medical history of hypertension for which she takes Lisinopril 10 mg daily and amlodipine 10 mg daily. She takes fluoxetine 20 mg daily for depression, and 2000 IU of vitamin D daily with Fosamax 70 mg PO weekly for osteoporosis. Her osteoporosis was diagnosed 6 months ago with a DEXA scan. She scores a zero on PHQ-2 and denies pain with eating. She has all her teeth and does not have any lesions on oral exam. What is the most likely cause of her weight loss?	4 (29%)	11 (79%)
What screening tool can be used to assess a patient for depression?	11 (79%)	14 (100%)
Eating too few fruits, vegetables, or milk products is a risk factor for weight loss and/or malnutrition in the elderly.	13 (92%)	14 (100%)

Participants were asked to rate their level of knowledge about the types of services provided by dentists, nurses, and physicians. Overall, participants felt their knowledge of each profession increased by working in interprofessional groups and through the learning session. In regard to which qualities of an effective team member were most important, four of 14 learners (29%) stated flexibility was most important. The majority of participants, nine of 14 (64%), said curiosity was the least important quality of an effective team member. Eleven participants changed their ranking of important qualities from pre- to posttest. Only one learner thought knowledge was the most important quality of a team member. When asked about their future practice and the level of confidence in when to collaborate with various providers, several learners thought their confidence in knowing when to collaborate increased after the session, with the highest confidence in collaboration with physicians and the lowest with audiologists.

Regarding how working in an interprofessional team affects quality of care provided to older adults and job satisfaction, learners said the following:

- “Significantly increase job satisfaction.”
- “Improve differential diagnosis list.”
- “Better outcome because different specialties have different expertise.”
- “Teamwork would provide holistic care of the patient.”
- “Effective interprofessional communication.”
- “Allow for coordinated approach.”
- “Would reduce the amount of duplication in work of different disciplines.”
- “Helps keep patients from ‘falling through the cracks.’”

Discussion

This curriculum teaches learners how to utilize the CGWEP unintentional weight loss T&F. The activity allows learners to gain knowledge of unintentional weight loss in the geriatric population and experience using the T&F to evaluate, work up, and diagnose patients in simulated standardized patient cases. By working in groups on standardized patient cases, participants were able to understand the benefits of interprofessional collaboration, including improved communication, collaborative coordination and brainstorming, and joint decision making.

The use of simulation in health care education has increased over the past several years. Simulation learning allows learners to practice skills in a safe environment, without the concern of causing patient harm. Learners gain skills necessary for their future careers and confidence in their ability to care for patients. Simulation also allows for teamwork and the development of relationships and communication skills. Debriefing sessions provide constructive feedback that can be applied in the future.

Overall, our project was successful in increasing the learners' knowledge of unintentional weight loss in a geriatric population; however, we discovered several ways to improve our curriculum during our pilot simulated sessions. One limitation to our simulation case series was the lack of organized debriefing sessions with talking points to facilitate learning and discussions. In response, we have compiled a list of questions and topics to be used by future learners during the debriefing sessions.

One of our participants, a dental hygienist, pointed out that the original version of question 6 ("Your patient discusses their inability to shop, cook and feed themselves because of physical challenges. What is the next step in management?") was ambiguous and multiple answer choices could be deemed correct. The point of the question was to identify that physical challenges, specifically mobility, were the cause of weight loss. We have since changed the question to the following: "Your patient discusses their inability to shop and cook for themselves because of physical challenges. What is the next step in management?" This change is reflected in the quiz included here.

The sample size of our pilot study was small, but the imperative of utilizing interprofessional teams as learners and as educators limited the size. Space limitations of the simulation center and synchronization of schedules also created size limitations for the pilot study.

Finally, the interprofessional learning groups were limited to only the three disciplines of medicine, nursing, and dentistry. However, the unintentional weight loss tool was designed to be used by health professionals at multiple levels of learning, including students.

We received enthusiastic feedback from our participants during our two pilot sessions. Overall, they felt the curriculum was a great learning opportunity and increased their knowledge on the subject. Some direct feedback examples are below:

- "This tool should be in a textbook!"
- "Great experience to better prepare me to know when to refer and to whom . . . who to ask specific questions about patient[s] and which . . . assessments to use. LOVE this tool! Thank you."

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Ethical Approval

Reported as not applicable.

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