

# JOURNAL OF PHYSICAL THERAPY EDUCATION

EDUCATION SECTION • AMERICAN PHYSICAL THERAPY ASSOCIATION • Volume 28 • Number 2 • 2014

- **Editorial:**  
Questions and Answers
- **Guest Editorial:**  
Preparing Students to Provide Services to Older Adults
- Forecasting Health Care Delivery for Older Adults in the Midst of Change: Challenges and Opportunities for the Physical Therapy Profession in an Evolving Environment
- Building the Physical Therapy Workforce for an Aging America
- Infusing an Optimal Aging Paradigm Into an Entry-Level Geriatrics Course
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- Professional Practice Opportunities: Preparing Students to Care for an Aging Population
- A Model for Designing a Geriatric Physical Therapy Course Grounded in Educational Principles and Active Learning Strategies
- Development of Geriatric Curricular Content Within a Physical Therapist Assistant Education Program





American Physical Therapy Association

# JOURNAL OF PHYSICAL THERAPY EDUCATION

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# *Congratulations*

2013

*Journal of Physical Therapy Education*

## AWARD WINNERS

We all are fortunate that two Education Section members have provided a mechanism through which we can recognize outstanding contributions to the literature each year. The Editorial Board of the *Journal of Physical Therapy Education* take great pleasure in selecting the awardees each year, while gratefully remembering these donors.

### **The Stanford Award**

was created by Katherine Shepard, PT, PhD, FAPTA, in honor of her former faculty colleagues at Stanford University, to recognize the author(s) of a manuscript containing the most influential educational ideas published in the *Journal of Physical Therapy Education* for the calendar year.

The Stanford Award for 2013 is given to:

Brenda Boucher, PT, PhD, CHT, OCS, FAAOMPT, Eric Robertson, PT, DPT, OCS, FAAOMPT,  
Rob Wainner, PT, PhD, OCS, ECS, FAAOMPT, and Barbara Sanders, PT, PhD, SCS, FAPTA

for their Method/Model Presentation entitled: "Flipping' Texas State University's Physical Therapist Musculoskeletal Curriculum: Implementation of a Hybrid Learning Model"  
*Journal of Physical Therapy Education*, Volume 27, No. 3, Fall 2013

### **The Feitelberg Journal Founders' Award**

was created by Samuel B. Feitelberg, PT, MA, FAPTA, in honor of the efforts of the over 100 colleagues whose contributions of time and money created the *Journal of Physical Therapy Education*, to acknowledge excellence in publication by a first-time author in the *Journal of Physical Therapy Education* for the calendar year.

The Feitelberg Founders' Award for 2013 is given to:

Ziádee Cambier, PT, DPT

for her position paper entitled: "Preparing New Clinicians to Identify, Understand, and Address Inappropriate Patient Sexual Behavior in the Clinical Environment"  
*Journal of Physical Therapy Education*, Volume 27, No. 2, Spring 2013

# Questions and Answers

Jan Gwyer and Laurita Hack

*There are years that ask questions and years that answer.*

Zora Neale Hurston, *Their Eyes Were Watching God*

The 2014 special issue of the *Journal of Physical Therapy Education* focuses on the continued need to enhance our education of students in the area of geriatric practice. Our guest editors, John O. Barr, PT, PhD, FAPTA, and Rita Wong, PT, EdD, FAPTA, are recognized experts in the field of geriatrics and educating learners to deliver patient centered care for their geriatric patients. The Section on Geriatrics (now known as the Academy

for Geriatric Physical Therapy) and the Section on Education have long collaborated on this issue, driven by the shared commitment to motivate students' passion and skill development for care for older adults.

This special issue poses questions that have been asked and answered in years past. Guest editor of the 2001 special issue on education for geriatric services, Elizabeth Domholdt, reminds educators to celebrate “the diversity of older adults in the United States—from fit to frail, from wealthy to poor, from connected to isolated.”<sup>1(p3)</sup> Domholdt entreated physical therapy educators not to stereotype older adults, but rather to accept the challenge of teaching learners about the complexity of care required of them. Thirteen years later, Barr and Wong have selected authors whose work expands the evidence for diversity in the geriatric population. Both

guest editors have contributed significantly to the Expert Perspective papers that provide the background for geriatric health demographics, policy, and educational curricula. The other authors provide examples of deep learning experiences for students with older adults. Picture these rich, situated learning experiences: For the student, these are surely the years for questions, but with a committed teacher's help, these may also be the years that answer.

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# Stimulating muscles & minds.

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# Preparing Students to Provide Services to Older Adults

John O. Barr, PT, PhD, FAPTA, and Rita Wong, PT, EdD, FAPTA, Guest Editors, Special Issue

Older adults currently represent at least 40% of the clinical caseload for physical therapists,<sup>1</sup> and their health needs promise to increase substantially over the next 20 years. As early as the mid 1980s, physical therapy educators had recognized that geriatrics content in physical therapist education program curricula was both limited and fragmented.<sup>2</sup> Curricular inadequacies and concerns about student interest in working with older adults were noted to have continued into the late 1990s,<sup>3</sup> prompting a special issue of the *Journal of Physical Therapy Education* (JOPTE) in 2001 that highlighted curricular initiatives to better prepare physical therapist graduates to work with older adults. This struggle to ensure adequate preparation of physical therapy practitioners continues and is a reflection of the struggles across the broader health care community.

In 2008, a landmark Institute of Medicine report, “Retooling for an Aging America: Building the Health Care Workforce,”<sup>4</sup> warned of a looming crisis—the inadequate number and preparation across the spectrum of health care workers providing services for older adults. This report prompted immediate reaction by a range of health profession groups, including the Partnership for Health in Aging (PHA) and the American Physical Therapy Association (APTA) Section on Geriatrics (SOG) (now known as the Academy of Geriatric Physical Therapy). The PHA developed and disseminated the *Multidisciplinary Competencies in the Care of Older Adults at the Completion of the Entry-level Health Professional Degree*<sup>5</sup> in 2010. The SOG subsequently produced and made directly available to all SOG members and PT program directors the more profession-specific *Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study*<sup>6</sup> in 2011 (see page 91 of this issue).

While the specialty sections of APTA sometimes seem to operate in isolation from each other, the Section on Education and the Academy of Geriatric Physical Therapy have worked collaboratively on multiple occasions over the past 30 years, facilitating research, publications, joint conference presentations,

and now this second special issue of *JOPTE* devoted to improving geriatrics education in our profession.

Physical therapist management of older adults often requires complex decision making, as a host of internal and external factors must be taken into account. Age bias, fear of working with older patients, and difficulty recognizing and prioritizing multiple interacting factors all can impact the preparation of students for this major area of clinical practice. A primary goal of this special issue was to provide a forum for faculty to share educational strategies, approaches, and experiences that address these barriers. We hope you will agree that this goal has been achieved. This special issue begins with 2 “Expert Perspective” papers and continues with articles that provide examples of creative and effective educational strategies to enhance the real-life preparation of physical therapy practitioners to work with older adults.

Guccione and associates open this issue by providing a demographic and sociopolitical backdrop, focusing on potential and impending changes in health care financing, utilization, and delivery of care to older adults. These authors examine the challenges and opportunities inherent in these changes and their likely impact on the physical therapy profession as it strives to meet societal needs related to our aging population. Next, Wong and colleagues describe efforts over several decades to improve the entry-level educational preparation of PT and PTA students to work with older adults, including the recent development of entry-level essential competencies. These authors believe that educator utilization of these competencies, and of their model that summarizes educational setting characteristics, practice expectations and curricular themes, are critical to the preparation of a physical therapy workforce that is well-qualified and inspired to work with older adults.

The subsequent 7 articles, providing examples of learning activities and curricular approaches to decrease barriers and better prepare physical therapy practitioners for working with older adults, have common themes. One concept threaded through all

articles is the importance of face-to-face interactions with older adults as a mechanism of overcoming biases and developing a deeper understanding of the unique needs of and exciting opportunities for working towards optimal aging with older adults. The articles describe a variety of creative learning opportunities in sufficient detail for others to evaluate applicability to their own unique educational environment and to guide development of comparable learning activities in their programs.

In 2 articles (Nowakowski et al, Reicherter et al) these face-to-face interactions were part of an integrated clinical experience (ICE); for 4 others (Avers, Ruckert et al, Palombaro et al, Wedge et al) these were learning activities within a stand-alone geriatrics-focused course; and for another (Mercer et al) they were part of a volunteer activity. In 6 of the 7 articles, the face-to-face learning activities with older adults were sequenced prior to full-time clinical practicum experiences. Each author describes an education setting that has used its unique strengths and community resources to develop community engagement activities focused on the older adult. Additionally, all authors were familiar with *Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study*,<sup>6</sup> and most used these competency expectations in the assessment of their learning activities. The article by Wedge et al focuses exclusively on the education of physical therapist assistants, identifying some of the unique struggles of physical therapist assistant education programs to incorporate geriatrics content into their curricula.

There appears to be little disagreement that management of the older adult is a large and important component of physical therapy practice, and that our physical therapist and physical therapist assistant educational coursework must include geriatrics. The struggle is more often how to incorporate meaningful content across the wide range of care issues applicable to the older adults, given already crowded curricula. The articles provided in this special issue provide a wide range of examples of thoughtful and effective

strategies to build powerful learning activities. And, the majority of these activities were accomplished with small modifications to or enhancements of existing courses by faculty members who value the importance of geriatric-specific content and were creative problem solvers in coming up with specific activities that fit their unique environments. We hope you enjoy this special issue and are inspired to be a creative problem solver yourself.

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# Forecasting Health Care Delivery for Older Adults in the Midst of Change: Challenges and Opportunities for the Physical Therapy Profession in an Evolving Environment

Andrew A. Guccione, PT, PhD, DPT, FAPTA, Jody Frost, PT, DPT, PhD, and John O. Barr, PT, PhD, FAPTA

**Background and Purpose.** Providing a backdrop for the companion article in this issue by Wong et al, “Building the Physical Therapy Workforce for an Aging America,” this paper focuses on how potential changes in the utilization and delivery of care to older adults pose challenges and opportunities for the physical therapy profession. The purposes of this paper are to: (1) inform the physical therapy education community about age-related population factors that deserve emphasis in physical therapy education curricula; (2) describe the evolving nature of health care financing and service utilization that will effect changes in health care delivery; and (3) identify the challenges and opportunities in the clinical practice of physical therapy that may arise in the profession’s efforts to meet societal needs related to our aging population more effectively and efficiently.

**Position and Rationale.** The profession of physical therapy in the United States (US) needs to be nimble in an evolving environment that will change health care financing and delivery over the next decade

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*The authors declare no conflicts of interest.*

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and must continue to exercise sure-footed steps forward in clinical practice and education to maximize the contributions that the profession can make to the growing population of older adults. Our rationale includes: the changing landscape of aging in the US; the changing pattern of health care services utilization; changing models of health care delivery for older adults; and current and potential innovations in organization and delivery of services.

**Discussion and Conclusion.** In working with older adults, patient/client instruction and performance of functional activities in the environment of the home and community will become more important in coming years. Physical therapists must position themselves for a leadership role among health professions, mastering a broad skill set, and adapting to fit the evolving organizational structure of health care financing for older adults.

**Keywords.** Entry-level education, Faculty development, Geriatrics.

## BACKGROUND AND PURPOSE

In 2008, the Institute of Medicine’s (IOM) Committee on the Future Health Care Workforce for Older Americans released its report “Retooling for an Aging America: Building the Health Care Workforce.”<sup>1</sup> As a call for fundamental reform in the way that the workforce is both trained and utilized in the care of older adults, this report advocated a 3-pronged approach to an aging America: enhancing the geriatric competence of the entire workforce; increasing recruitment and retention of geriatric specialists and caregivers; and improving the way care is delivered to this population. This paper focuses on

the third prong, by discussing how potential changes in the delivery and utilization of care to older adults poses both challenges and opportunities for the physical therapy profession, and describing the demographic sociopolitical backdrop for the companion paper by Wong and associates, “Building the Physical Therapy Workforce for an Aging America,”<sup>2</sup> that addresses the first 2 components of the IOM report related to the profession of physical therapy, particularly the education of the workforce.

Leaders in physical therapy education are committed to preparing physical therapists and physical therapist assistants to provide services to older adults in the United States, therefore must prepare students entering the workforce with the abilities to negotiate a drastically altered health care landscape, especially when working with older adults. The purposes of this paper are to: (1) inform the physical therapy education community about important age-related population factors that deserve emphasis in physical therapy education curricula; (2) describe the evolving nature of health care financing and service utilization that will effect changes in health care delivery; and (3) identify the challenges and opportunities in the clinical practice of physical therapy that may arise in the profession’s efforts to meet societal needs related to our aging population more effectively and efficiently.

## POSITION AND RATIONALE

It is our position that the profession of physical therapy in the United States (US) needs to be nimble in an evolving environment that will change health care financing and delivery over the next decade. The profession must also continue to exercise sure-footed steps forward in clinical practice and education that can maximize the contributions that the



profession can make to our growing population of older adults.

### **The Changing Landscape of Aging in the United States**

In the past decade alone, the number of persons whose age is 65 years or older in the US grew faster than the rest of the population.<sup>3</sup> In 2010, 40.3 million people counted in the US Census were 65 and older, representing 13% of the entire population.<sup>3</sup> By 2030, it is estimated that the number of people 65 and older will reach to 72 million.<sup>4</sup> By 2050 the number of individuals who are 65 years of age and older should reach 88.5 million, with about 19 million over the age of 85 who will account for over 4% of the population.<sup>4</sup>

With aging comes increased risk of managing one or more chronic diseases, often associated with disabilities. In the United States, over 45% of adults age 65 or over have 2-3 chronic conditions.<sup>5</sup> Arthritis, hypertension, diabetes, coronary heart disease, cancer, and chronic obstructive pulmonary disease appear most frequently as various dyads or triads of multiple chronic conditions among men and women in this age group.<sup>5</sup> For non-institutionalized Americans, ambulatory disability (ie, serious difficulty in walking or climbing stairs) affects the highest proportion of the population. Stratified by age, 16% of 65-74-year-olds and 33% of those 75 years of age and older have an ambulatory disability.<sup>6</sup> This segment of the population with multiple chronic conditions that impede daily function offers a critical opportunity for the profession, as many of these individuals are living and still working in the community and are not the typical geriatric patients seen in acute care, home care, or nursing home settings.<sup>7</sup>

There is a dynamic tension in the political landscape between government entitlements and individual responsibility, specifically with respect to which side of this equation should shrink and which should grow. If, for example, the Medicare cap on physical therapy were lifted, then presumably services to older adults would increase to cover needs that went unmet because of the cost to the individual. If government entitlements shrink and individual responsibility grows, potentially there could be a shift in the number of older adults who *choose* to receive physical therapist services as out-of-pocket paid expenses after the defined benefits of Medicare or a private insurance plan are exhausted. Furthermore, with particular respect to federally funded benefits, disproportionate spending at the end of the life span could leave far less to distribute across the health status continuum of older adults, including those function-

ally limited, chronically ill older adults who rely solely on Medicare. Ultimately, physical therapist services will become a value proposition, paid for only when value is evident, regardless of whether the federal government, the private insurer, or the individual pays the proportionately largest amount.

In addition, trends in labor force growth rates show that the individuals born in the United States between 1946 and 1964, known as the Baby Boomers, continue to participate in the labor force as they approach and pass the typical retirement age and are expected to continue this pattern for at least the next decade.<sup>8</sup> Even with this extended participation in the labor force among older adults, the shift from defined-benefit employee health and retirement plans to increased employee health premiums and defined-contribution retirement plans that began in the 1990s places more responsibility on the employee for health insurance premiums, diminishing the financial resources for working older adults as well as retirees who can be concerned that their resources will not be sufficient to support them over the long run. Thus, some older adults must make a deliberate decision to pay for any health services that may be capped as a benefit, entail large copayments with each treatment received, or pose substantial out-of-pocket expenses for the episode of care. This will further complicate the decisions that older people need to make about their health care purchases and force them to determine whether the value of a given service makes it essential or optional.

### **The Changing Pattern of Health Care Services Utilization**

Until recently, the US health care system was primarily an episodic *medical* care system, built around segmented networks of hospitals and primarily fee-for-service community-based providers, including physical therapists. Access and availability have been largely dependent on one's insurance benefits and locality. Services tended to be fragmented because the system lent itself toward fragmentation by episodic "start and stop" service provision with little contact among providers and little opportunity for coordination of care to maximize health outcomes. Patients fell through the organizational cracks because these flaws were systemically part of health care delivery. However, market response to the Patient Protection and Affordable Care Act (PPACA),<sup>9</sup> as well as some provisions of the law itself, may force some of these organizational faults to shift. The emphasis on identifying the drivers of increasing and unsustainable health care expenditures, as well as changes in the vertical and horizontal

integration of health care services under the auspices of accountable care organizations (ACOs), have placed increased attention on well-managed care transitions that are expected to decrease costs and improve quality by promoting early problem detection and preventing costly hospitalizations and readmissions.

One of the primary roles for physical therapists has been the diagnosis and treatment of functional deficits in the context of remediating impairments, lessening the functional burden of disease, and improving quality of life. However, the knowledge and skills that physical therapists have contributed to the general well-being of older adults, particularly community-based frail individuals, has now been placed in the context of the financial sustainability of health care delivery systems. Physical therapists who can prevent problems before or as they arise, and diminish the need for inpatient hospitalization, are more likely to be seen as valued collaborators if the profession can empirically demonstrate that physical therapist services can reduce costs to the system. While the previous rehabilitation paradigm focused on individual patients returning to the community after receiving high-quality care, the new paradigm of rehabilitation will center on patient populations remaining in the community *and* using fewer system resources. The quality of the service is assumed to stay the same. However, it is not enough that the physical therapist service be cost-effective in and of itself. The reach of cost-effectiveness as an outcome variable of health care has been extended beyond individual service provision to include the value of the service to reducing costs of the whole system.

### **Changing Models of Health Care Delivery for Older Adults**

The PPACA,<sup>9</sup> signed into law on March 30, 2010, is seen by many as having the potential to transform the health care system. In actuality, there is still a great deal of uncertainty as to exactly how the new law will be implemented or changed as many of its provisions will take effect in 2014 and later. Key provisions removed many barriers to health insurance such as preexisting conditions and life-time limits, linked Medicare payments to quality measures, expanded coverage options for Medicare beneficiaries, opened the door to preventive services under Medicare, and offered the possibility of innovation in community-based wellness programs.

Although there are some who are convinced that the long-term savings realized from improving the quality of health care while reducing the need for more costly

medical intervention will be sufficient to pay for an expanded array of services, there are equally as many who doubt that all of the provisions of PPACA will roll out as originally intended if spiraling health care costs are not controlled in the short term. Furthermore, despite earlier indications that disability among adults was on the decline, more recent analyses suggest a more troubling picture. It appears that there is increased disability among the first waves of Baby Boomers entering older adulthood compared to previous generations, particularly among non-white, obese, and socioeconomically disadvantaged subgroups, all factors which independently increase the risk of disability as well.<sup>10</sup> While these facts could herald an opportunity for the profession, there is no certainty that the emerging description of an aging America is also the final word on the first decades of the 21st century. In actuality, the only certainties on which most nearly everyone can agree is that third-party payment for health care services is likely to decrease and reporting requirements are likely to increase. Therefore, physical therapists must expect that they will be asked to do more with less to provide the right service to the right people at the right time. High quality, evidence-based service provision is assumed; cost-effectiveness with both short- and long-term savings to the system is expected.

### **Innovations in Organization and Delivery**

Although the PPACA<sup>9</sup> is regarded as a major breakthrough in moving away from a procedure-focused medical care system towards a wellness-oriented health care system, there have been small scale attempts over the past 40 years to demonstrate the clinical effectiveness and cost utility of organizing an array of physical, psychological, and social health services to older adults living in the community. Many of the most innovative programs emphasize care coordination and the importance of interprofessional team practice. The Eldercare Workforce Alliance, of which the American Physical Therapy Association is a member, partnered with the National Coalition on Care Coordination to produce an issue brief that reviews the critical elements of care coordination, as well as emerging models.<sup>11</sup> However, it is critical to note that many of these emerging models imply that physical therapists are part of the team, yet fail to explicitly name our profession as part of the team.

**Established models of rehabilitation for frail older adults.** The following programs are recognized as exemplary models for organization and delivery of care to older adults.

They also include elements of interprofessional practice. On Lok is considered by many to be the first program of its kind to offer comprehensive health and social services in a single point of care to community-based frail older adults who were eligible for nursing home placement.<sup>12</sup> Shortly after its inception, On Lok was eligible for Medicaid reimbursement, taking on the challenge of providing coordinated comprehensive services to low income and impoverished older adults. Subsequently, On Lok became the model for multiple replication projects across the country in which the organization assumed the financial risk for providing care to enrollees for a fixed capitated payment. Over the past 25 years, On Lok evolved to become the entity now known as the Program of All-Inclusive Care for the Elderly (PACE). PACE was recognized by Medicare as a financially viable alternative to traditional Medicare plans, known as special needs plans (SNPs), along with other Medicare Advantage plans.<sup>12</sup>

Physical therapists are extensively involved in PACE programs due to the health and functional status of individuals enrolled in this type of program. A key admission requirement is that the person be eligible for nursing home placement. Therefore, only frail older adults with substantial limitations in performing activities of daily living are served by the clinical team of providers across the professional spectrum. Although the point of care and the highly coordinated team approach may be innovative, the goals of care and the methods of one-on-one service delivery, dictated by the needs of the patient, are similar to what one would expect for physical therapists working in other geriatric settings.

Some SNPs such as Evercare, operated under the auspices of United Healthcare, have targeted specific market segments, such as chronically ill individuals, who experience or are at great risk for functional decline, as well as palliative and hospice care.<sup>13</sup> Evercare provides services at home, in assisted living residences, and in nursing homes. A major emphasis of Evercare's approach is care coordination and problem surveillance by nurse practitioners. Again, due to the health and functional status of the individuals enrolled in this type of health insurance plan, physical therapists play a major role in providing services to remediate impairments, improve function and support quality of life, such as they perform under other insurance models.

**Models of rehabilitation for community-based older adults.** Fifteen years ago, Rimmer<sup>14</sup> presented a model of health promotion for adults with chronic illness and disability that described a major community-based role for physical therapists in secondary preven-

tion. Secondary prevention, intervening early in disease progression to limit its effects on morbidity, is a role that unfortunately remains largely marginalized in contemporary physical therapist practice.<sup>15</sup> Rimmer's model distinguishes between clinically supervised health promotion, which a small but increasing number of physical therapists routinely provide as an extension of rehabilitation, and community-based health promotion programs, typically run by fitness professionals who are not licensed as health care providers.<sup>16</sup> Specifically, Rimmer notes that implementing a therapist-to-trainer model strengthens these sorts of programs by bringing the physical therapist's clinical expertise in treating this population to bear on the design of post-rehabilitation fitness programs as they are implemented in the community.<sup>17</sup> Reintegrating older adults back into the community by facilitating their transition to non-health care, community-based fitness facilities promotes the full inclusion of individuals with disabilities in environments intended for the general population. Furthermore, these programs can diminish some of the accessibility and affordability barriers to maintaining a healthy lifestyle while living with a chronic condition.<sup>18</sup> Actively embracing emerging models of service provision such as these offers an unparalleled opportunity for innovative leadership in community-based health promotion. Participation of PT educators and clinicians in community-based exercise and fitness programs has the potential to extend the success of a rehabilitation program by promoting behavioral change and adherence to prescribed exercise and physical activity recommendations that are critical to the health status of older adults, particularly those living with chronic illnesses.<sup>19</sup>

**Evolving payment priorities.** At one time, it was assumed that an increased number of older adults would translate to more physical therapy (and thus, more physical therapists and physical therapist assistants). Such growth is not likely to occur in an environment where sustainability is the overriding financial concern. While the specifics of reimbursement and payment policy are uncertain at the moment, the move begun in the 1990s toward managed care and away from procedure-oriented fee-for-service will continue.<sup>20</sup> Moreover, it is reasonable to anticipate that government programs will seriously consider capitation for complete episodes of care, including rehabilitation services, as a potential strategy in devising an alternative payment system mandated by Congress and that private insurers would follow suit if such an alternative payment system were implemented. A high value has already been placed on services that decrease overall costs

as capitated systems are incentivized toward savings. Although physical therapists and patients tend to recognize the intrinsic value of physical therapy as it reduces impairments, increases function, and promotes quality of life, the profession should expect increased emphasis on its extrinsic financial value to save money. Physical therapist services that increase the costs of care without reducing or eliminating other health care costs will not be seen as valuable by health care systems, whatever their intrinsic value to patients. This value will be easiest to ascertain in closed systems, such as self-insured hospital groups or employer-based insurance programs.

The emerging market shift does not necessarily entail a complete end to outpatient fee-for-service private practices, or even sound the death knell for self-pay practices. The number of older adults with potentially disabling conditions is clearly increasing, and the relevance of physical therapy to the function and health of this population is generally accepted. Older adults with financial means will continue to seek out services they find beneficial. However, given the real and relatively high costs of providing physical therapist services, there are limits as to what the market will bear. The older adult patients with the most health care needs are likely to have lesser economic means to pay for them. Therefore services that are relatively infrequent, produce long-term results, and make best use of personnel mix to lower costs are likely to benefit from changing demographics and economic incentives. However, the profession also needs to consider that similar services from less educated (and therefore less costly) providers are likely to increase at the same time, and the quality/cost ratio will remain in delicate balance for consumers and payers. Simply put, our profession will have to provide the right service to the right patient using the right personnel at the right time in the right way for the right outcome at the right price.

## DISCUSSION AND CONCLUSION

There are 3 components to physical therapist practice as described in the *Guide to Physical Therapist Practice*<sup>21</sup>: documentation and care coordination, patient/client-related instruction, and procedural interventions. The last of these, treatment for the older adult patient, is not the major challenge for the profession, presuming adequate academic education and clinical training in geriatric physical therapy as described by Wong and associates.<sup>2</sup> Physical therapists experienced in working with older adults know how to diagnose and treat those with multiple comorbidities and return them to the highest level of function. Howev-

er, the teaching component of physical therapist intervention could change drastically in an evolved health care delivery system in the decades ahead, particularly given the emphasis placed on patient self-management, use of technology, and incentivizing to limit utilization. The patient in this system of the future is likely to be ethnically and racially more diverse, sicker with multiple chronic conditions, and generally less well-educated, which also means likely to have less economic means. English may not be the first language, and cultural preferences in diet, attitudes toward exercise and physical activity (outside of paid labor), and living conditions such as neighborhood amenities may not support behavioral changes necessary to living well as an older adult at risk for deterioration of health and functional status. These individuals may not be well-integrated into traditional channels of health care or have designated health care providers.

Evidence-based practice is more critical than ever, clinically and economically. The profession cannot meet the challenges ahead unless it sets aside a disposition to do what has always been done, commits to providing only those services whose efficacy is established, and promotes interventions whose effectiveness has been tested. Furthermore, goal-setting must fully incorporate the patient's perspective. While movement dysfunction is central to diagnosis and intervention by physical therapists, developing the capacity for movement (ie, movement under controlled clinical conditions) is not patient-centric. Physical therapists and physical therapist assistants must recognize that patients regard performance of functional activities in the natural environment of the home and the community as the standard for functioning. Moreover, such a shift in perspective will increase the attention given to the patient's physical and social environment as factors that influence disability.

Physical therapists must also position themselves for a leadership role among the array of professions who are attempting to corner the "post-rehabilitation" market, while recognizing that market forces will favor less expensive personnel over more highly educated providers. Thus, physical therapists may need to grow more comfortable designing programs that can be implemented by supervising non-licensed personnel. Without uncontestable evidence that more expensive personnel, including physical therapist assistants, are safer or more effective than less expensive personnel, economics will prevail over professional provincialism. While it has become fashionable to speak of population-based physical therapy, on a practical level

much of physical therapy is appropriately delivered as a service to individuals. Generally, physical therapist services are not population-based in the same respect as immunization services are population-based. Innovation by physical therapists in health promotion by leading community-based fitness programs for older adults, especially individuals with chronic illness, will be a critical first step of physical therapy into public health. However, our profession has generally been reluctant to engage in population-based policy formulation or in planning services that meet the needs of any population segment, particularly if such policy or planning might engage service providers outside of physical therapy.

The profession is very aware of this impending evolution. The American Physical Therapy Association (APTA) has taken steps in recent years to address workforce and service delivery issues related to our aging population. As a member of the Eldercare Workforce Alliance, APTA has worked in a national coalition concerned with both the immediate and future workforce crisis in caring for older adults, by focusing on the workforce shortage, training and compensation, and advancing models of care.<sup>22</sup> Additionally, as a member of the Partnership for Health in Aging, APTA was active in the development of *Multidisciplinary Competencies in the Care of Older Adults at the Completion of the Entry-level Health Professional Degree*,<sup>23</sup> and has endorsed the Partnership for Health in Aging Statement on Interdisciplinary Team Training in Geriatrics.<sup>24</sup> In 2010, APTA explored innovative practice models being utilized to deliver physical therapist services in the US and found a diversity of models being employed in a range of settings, including university-based, many having direct implications for older adults.<sup>25</sup> Recently, APTA hosted the Innovation Summit: Collaborative Care Models, which brought together physical therapists, physicians, policy makers, and representatives from large health systems to discuss both current and future roles for physical therapists in integrated care models.<sup>26</sup> In early 2014, APTA intends to initiate Innovation 2.0 to provide both guidance and funding to innovators who are developing or promoting the roles of physical therapists in collaborative care models.<sup>27</sup>

To effectively manage the emerging health care crisis, the workforce engaged in the practice of physical therapy with older adults will need to master a broad skill set. Perhaps most importantly, physical therapists who are ready to value the teaching components of practice as much as, or perhaps even

more than, direct treatment components, are primed to serve older adult populations in the coming decades. Future cohorts of older adults will need to understand how physical activity promotes high-level functioning and health across the lifespan, how exercise can improve balance and decrease falls and fractures, and how increasing functional well-being can diminish the impact of clinical and subclinical depression in the aftermath of sudden illness or injury such as stroke, heart attack, or other chronic illness. However, physical therapists who succeed in the coming decades will need to develop a keen appreciation of the theory and practice of behavioral changes as the system shifts greater responsibility to the individual for managing one's own health.

There are certainly barriers to the adaptation and evolution needed by our profession to thrive in this challenging environment. Physical therapy is deeply embedded in traditional reimbursement models that are rapidly eroding. Whether physical therapists are prepared to accept a largely capitated system remains uncertain. The profession has typically approached its role in the well-being of older adults through a fee-for-service system focused on treating disease. The profession has simultaneously ignored the underserved market of health promotion services for older adults with chronic illness. There is no doubt that the profession of physical therapy can provide knowledge and skills to support health maintenance and health promotion for older adults as a fundamental component of a restructured health care delivery system. The question is whether our profession is willing to move away from unsustainable economic models of health care delivery and adapt our expertise to fit the evolving organizational structure of health care financing for older adults.

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# Building the Physical Therapy Workforce for an Aging America

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**Background and Purpose.** A landmark 2008 Institute of Medicine report concluded that the health care workforce is not prepared to deliver effective and efficient health care services to older adults, and the numbers of health care practitioners specializing in geriatrics are insufficient to meet the needs of this population. The purposes of this paper are to: (1) advocate for the use of essential competencies developed by the American Physical Therapy Association (APTA) Section on Geriatrics (now known as the Academy of Geriatric Physical Therapy) to guide curriculum development for physical therapist (PT) and physical therapist assistant (PTA) education programs; (2) describe key modifiable barriers to educating PTs and PTAs to meet the health care needs of older adults in the US; and (3) recommend curriculum strategies and enhancements to achieve student readiness to deliver effective and efficient services to older adults at completion of their education.

**Position and Rationale.** Similar to graduates in other health professions, graduating PTs and PTAs are under-prepared to deliver effective and efficient physical therapy services to older adults. The *Essential Competencies in the Care of Older*

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*Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study, and emerging PTA documents, should guide curriculum development and assessment efforts. Course work, including clinical education, must carefully and deliberately include sufficient and targeted learning activities to ensure students acquire the requisite knowledge, attitudes, and skills. Faculty attitudes must convey value for the impact physical therapy can have in achieving optimal aging. Students should interact with a variety of older adults, from fit to frail, including those with multimorbidity.*

**Discussion and Conclusion.** Since older adults will comprise the largest percentage of patients/clients across most practice settings, all PT and PTA graduates must be competent in their care. To enhance PT and PTA education, we suggest a curricular approach that includes important characteristics of the educational setting, practice expectations and competency domains, and critical curricular themes. Modifiable factors influencing decisions regarding geriatric-focused curricular content are highlighted. Through the explicit and concerted efforts outlined in this paper, we believe that the physical therapy profession will be better prepared to meet the workforce needs created by an aging America.

**Key Words:** Entry-level education, Faculty development, Geriatrics.

## BACKGROUND AND PURPOSE

A landmark Institute of Medicine (IOM) Report in 2008, "Retooling for an Aging America: Building the Healthcare Workforce,"<sup>1</sup> provided a discouraging assessment of the readiness of the health care workforce to meet the needs of the rapidly growing older adult population and stressed the critical need to enhance educational preparation in geriatrics. The IOM report examined workforce

data and educational preparation across the spectrum of health disciplines, concluding that (1) the health care workforce in general is inadequately prepared to deliver effective and efficient health care services to older adults, and (2) the numbers of health care practitioners choosing to specialize in geriatrics is critically insufficient to meet the needs of the population.

This is not the first call for greater emphasis on geriatrics in health professional education. This need was widely discussed in the late 1970s and early 1980s.<sup>2,3</sup> The IOM's 1978 report "Aging and Medical Education"<sup>4</sup> focused on the changing demographics and the need to better prepare clinicians for these changes. The implementation of geriatric education centers (GECs)<sup>5</sup> by the US Public Health service in 1983 was spurred by the recognition of this growing and unmet need for better preparation of health care practitioners in geriatrics.

In 1990, the APTA's Department of Accreditation, recognizing the critical need for enhanced geriatric content, received an Administration on Aging grant to support a project aimed at enhancing the aging-related content and learning experiences in physical therapist (PT) and physical therapist assistant (PTA) education programs. A survey was conducted, resource manual produced, and a cadre of physical therapy professionals with advanced knowledge in geriatrics were trained as onsite reviewers for the accreditation of PT and PTA academic programs.

Despite the effort of many over the years, the gap between the need for and the existence of a well-prepared workforce remains large. A crisis is now upon us. Older adults are currently the predominant group using the health care system. Older adults access the health care system at 3 times the rate of other age groups, have longer hospital stays, have more office visits, and spend more money on health care than other age groups.<sup>6</sup> Given our population demographics, this growth will continue for at least the next several decades. A workforce well prepared to deliver

quality health services in a resource-efficient and clinically effective manner is essential to meet the health care needs of the population. Quality health care for older adults will not be achieved through the services of specialists alone. All health professionals must have a solid preparation in the management of older adults, and students seeking entry to health professions programs should recognize that the majority of them will regularly work with older adults.

The patient demographics within physical therapy mirror other health professions. In the 2011 "Analysis of Practice for the Physical Therapy Profession: Entry-Level Physical Therapists"<sup>7</sup> commissioned by the Federation of State Boards of Physical Therapy, a large and representative sample of PTs reported the percentage of their typical caseload by age bracket (18 or younger, 19-65, 66 or older). The summary data indicated that, on average, 47% of patients managed by PTs are 66 years of age or older. This compares to 37% of patients between 19-65 and 13% of patients 18 years or younger. The parallel document for the PTA, the "Analysis of Practice for the Physical Therapy Profession: Entry-Level Physical Therapist Assistants,"<sup>8</sup> reports that, on average, 63.6% of the patients treated by PTAs are 66 years of age or older, 28.8% are between the ages of 19-65, and 5.5% are 18 years of age or younger. Thus, the older adult constitutes an even higher percentage of the PTA's caseload.

Bardach and Rowles<sup>9</sup> reported on the contemporary status of geriatric education across 7 health care disciplines, including physical therapy. They noted that the major guidelines and criteria provided by the accrediting and licensing organizations associated with these health professions all included broadly worded statements expecting graduates to demonstrate competence in the care of individuals "across the lifespan" or "across the continuum of care." Very little, if any, further clarification was provided. After interviewing faculty across all 7 fields, Bardach and Rowles concluded that contemporary geriatric education across these health fields continues to struggle with lack of time in the curriculum, lack of faculty qualified in geriatrics, lack of faculty advocates for geriatric content, poor reimbursement for practitioners working in geriatrics, student exposure to geriatrics limited to sick older adults, and lack of student interest in geriatrics. This list of barriers has not changed substantially over the past 30 years.<sup>10,11</sup>

The purposes of this paper are to: (1) advocate for the use of the essential competencies statements developed by the American Physical Therapy Association (APTA) Sec-

tion on Geriatrics (SOG) (now known as the Academy of Geriatric Physical Therapy) to guide curriculum development for entry-level PT and PTA education programs; (2) describe key modifiable barriers to educating PTs and PTAs to meet the health care needs of older adults in the US; and (3) recommend curriculum strategies and enhancements to achieve student readiness to deliver effective and efficient services to older adults at the completion of their entry-level education.

## POSITION AND RATIONALE

Our position is that, similar to graduates from other entry-level health professions programs, graduating PTs and PTAs are under-prepared to deliver effective and efficient physical therapy services to older adults. Lack of explicitly stated competency expectations to guide curriculum development, paucity of geriatric specialists in positions to influence curricula, low perceived value for the impact of working with older adults, and little desire among graduating students to work with older adults all contribute to under-preparation of physical therapy graduates for working with older adults, and under-representation of new graduates in practice settings perceived as geriatric-focused.

The recently developed *Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study* (EC-PT, see page 91 of this issue)<sup>12</sup> and emerging documents specific to the PTA (EC-PTA) should be adopted by all PT and PTA education programs to guide curriculum development and assessment efforts. To achieve these essential competencies, entry-level course work, including clinical education, must carefully and deliberately include sufficient and targeted learning activities to ensure students acquire the requisite knowledge, attitudes, and skills to care for older adults. Academic and clinical faculty must display attitudes that convey value for the impact that physical therapy can have on helping older adults achieve optimal aging, and share this with their students. As part of their formal training, students should interact with a variety of older adults, from fit to frail, in meaningful community and clinical education experiences.

## Competencies in the Care of Older Adults

Following the IOM's call to action in its 2008 report,<sup>1</sup> many leaders across health fields renewed their efforts to build health care workforce readiness for the care of older adults. Several interprofessional coalitions emerged. The Eldercare Workforce Alliance (EWA)<sup>13</sup> is one such coalition. This coalition of 28

national organizations, including APTA, addresses workforce shortages, training and compensation, and advancing models of care associated with the health care needs of the older adult.

A second influential coalition spurred by the report was the Partnership for Health in Aging (PHA), initially comprised of 21 professional organizations, including APTA. A major step in determining workforce readiness is identifying expected competencies of the workforce. The PHA took on the task of bringing together a variety of health professions to develop a set of core competencies applicable across health professions. This core set of competencies was developed over a 2-year period of time with the participation of all 21 professional organizations. The document *Multidisciplinary Competencies in the Care of Older Adults at the Completion of the Entry-Level Health Professional Degree* (multidisciplinary competencies),<sup>14</sup> emerged from the work of this coalition. These competencies were endorsed by 31 professional organizations, including APTA, in 2010.

Internal medicine and family medicine have recently identified core geriatric competencies for all residents and medical students, as well as more specific competencies for those entering geriatric-focused residencies.<sup>15</sup> The American Association of Colleges of Nursing has added recommendations for geriatrics as part of the baccalaureate competencies in nursing that supplement the essentials of nursing.<sup>16</sup> Nurse practitioners are striving to ensure an effective blend of generalist and specialist preparation in geriatrics. A national movement is underway to combine adult nurse practitioner (ANP) and geriatric nurse practitioner (GNP) programs to ensure a broader and deeper preparation of the ANP in geriatrics, given that older adults are the largest patient population of the ANP.<sup>17</sup> Leaders in the specialty areas of hospice and palliative medicine and in geriatrics have identified common knowledge areas about the older adult in their fellowship programs and have delivered educational sessions across specialties.<sup>18</sup>

The Commission on Accreditation in Physical Therapy Education (CAPTE) expects graduates of CAPTE-accredited PT or PTA education programs to be competent in participating in generalist practice. Both PT<sup>19</sup> and PTA<sup>20</sup> evaluative criteria describe this competence in participating generalist practice very broadly. The CAPTE criteria, as well as several other APTA core documents commonly used to guide curriculum development and practice expectation assessments,<sup>21-23</sup> all speak to the importance of addressing lifespan, continuum of care,

**Box 1. Examples of Physical Therapist Curriculum Competencies (CC) Associated With Management of Older Adults as Stated in Commission on Accreditation in Physical Therapy Education (CAPTE) Evaluative Criteria for Physical Therapist Educational Programs.**

CC-4: The physical therapist professional curriculum includes clinical education experiences for each student that encompass:

- Management of patients/clients representative of those commonly seen in practice across the lifespan and the continuum of care;
- Practice in settings representative of those in which physical therapy is commonly practiced;

CC-5: The curriculum is designed to prepare students to meet the practice expectations listed in CC-5.1 through CC-5.66:

- CC-5.18: Identify, respect, and act with consideration for patients'/clients' differences, values, preferences, and expressed needs in all professional activities.
- CC-5.30: Examine patients/clients by selecting and administering culturally appropriate and age-related tests and measures.

cultural competence, and patient values and preferences. However, these documents provide only limited guidance in determining specific knowledge, attitudes, and skills required to achieve competence relative to any specific age group, including the older adult. Box 1 provides examples of the 2013 CAPTE evaluative criteria for PT noteworthy for applicability to the older adult.

The Section on Geriatrics led the physical therapy profession's efforts to develop essential competencies in geriatrics by its active participation in the PHA workgroup that developed the multidisciplinary competencies<sup>14</sup> and in creating the taskforce that translated these multidisciplinary competencies into the PT-specific EC-PT.<sup>12</sup> A parallel taskforce of PTA educators, also supported by the SOG, is currently formulating a list of essential competencies individualized to the PTA, the EC-PTA, also based on the American Geriatric Society's (AGS) multidisciplinary competencies<sup>14</sup> (Board of Directors, APTA Section on Geriatrics, meeting minutes, June 9, 2011).

The 6 members of the SOG taskforce that developed the EC-PT were chosen because of their reputation as experts in PT education and geriatric physical therapy. For each of the 23 competency statements included in the multidisciplinary competencies,<sup>14</sup> the SOG taskforce drafted additional expectations (termed "subcompetencies") specific to the PT at entry-level. Consensus was first

achieved between 2 taskforce members working in pairs on specific multidisciplinary competencies and then consensus was achieved across the taskforce. At the 2010 APTA Combined Sections Meeting, a group of 35 volunteers (PT educators and clinicians) reviewed the draft competencies and provided feedback addressing face and content validity. The taskforce modified the document based on this feedback and shared the changes with the volunteers via e-mail with a request for further review and feedback. The taskforce considered all feedback and modified the document accordingly. The final EC-PT document was approved by the SOG Board of Directors, published both online<sup>12</sup> and in the Section's magazine *GeriNotes*,<sup>24</sup> and was mailed to the directors of all PT education programs in the US. The EC-PT is organized around 6 overarching domains of care and 23 bolded statements from the multidisciplinary competencies. Listed under each of the related multidisciplinary competencies are 61 PT-specific subcompetencies.

**Complexity of Care: Integrating Heterogeneity and Multimorbidity Into Patient Management**

Heterogeneity and the presence of multiple comorbid conditions (multimorbidity) characterize the older adult population,<sup>1,25-27</sup> often adding substantial complexity to decision making regarding prognosis, treatment

options, and prioritizing goals to optimize benefit. Leaders in geriatrics have expressed concerns that this complexity is inadequately considered by health care practitioners when making clinical decisions.<sup>1,25,28</sup> Indeed, complexity was identified as 1 of 3 essential knowledge domains in the Advancing Care Excellence for Seniors (ACES) framework that serves as a curriculum guide for the National League for Nursing toward enhanced quality of care for older adults.<sup>28</sup> Concern for comorbidity and patients with complex medical profiles is addressed in EC-PT competencies 3A.1 and 3B.1.

Our observation is that most PT and PTA educators recognize and agree that older adults generally have multiple chronic health conditions and complicating contextual factors impacting their health and prognosis. However, this has not necessarily prompted these same faculty to include consideration of multimorbidity and contextual complexities into their non-geriatrics courses. And, in our many interactions with PT and PTA educators, it is our observation that, "geriatric" courses and/or geriatric-specific units within courses generally focus on topics such as managing frailty, confusion, geriatric syndromes, and medically unstable older adults. There often appears to be few opportunities for skill development in the management of the typical older adult who, despite several comorbid conditions and complicating contextual factors, is living independently, is actively engaged in his or her community, and is strongly motivated to continue to remain active and engaged.

**Addressing ageism and its influence on patient management.** Development of clinical skills is frequently occurring against the backdrop of ageism and negative perceptions about the geriatric work environment. Although, as a group, PT students generally achieve neutral or positive scores on tests of attitudes toward older adults,<sup>29,30</sup> they also hold many negative stereotypical beliefs about the capabilities and motivation of older adults<sup>31</sup> and express very low interest in working in settings perceived as primarily geriatric.<sup>11,32</sup> Students who perceive older adults, by virtue of being older, as being unmotivated, set in their ways, unwilling to listen to their advice, and having low potential for functional improvement, show little interest in learning more about best practices in geriatrics and strategies for success in working with this population. Student PTs and PTAs are anxious to demonstrate their success as a clinician and often gauge that success by the extent to which their patients improve under their care. As such, students express low interest for working with patients who progress

slowly or who are unlikely to return to a high level of community independence.<sup>33</sup>

Students desire a vibrant work environment with many opportunities to participate on teams, to expand their skills and experiences, and deliver high-quality care; they generally do not view the geriatric setting as rich in these experiences.<sup>11,32,34</sup> A conundrum in overcoming age bias in traditional physical therapy settings is that the majority of older adults access physical therapy for short episodes of care when experiencing serious functional limitations lowering their quality of life. Many of these older adults will achieve therapeutic goals resulting in positive outcomes, yet some will have progressive health conditions that continue to impact function. Others, with an acute condition overlying several chronic conditions, progress more slowly than younger cohorts.

These interactions, particularly if occurring in settings viewed by the student as uninspiring and depressing, are likely to reinforce negative stereotypes rather than dispel them. Without exposure to older adults who are aging well, students' perceptions of old age and the range of prognostic possibilities are shaped only by experiences with older adults who are aging poorly.

### Qualified Faculty

The 2008 IOM report<sup>1</sup> emphasizes the need for more geriatric specialists across professions, not only to deliver clinical services, but also to guide clinical practice, lead change, and educate generalist practitioners. In physical therapy, this lack of specialists is particularly evident among academic faculty. Geriatrics is not listed among the top 10 primary areas of core faculty content expertise on CAPTE's summary data of faculty in PT education programs.<sup>35</sup> Interestingly, pediatrics is identified as the fourth most common primary area of content expertise among PT faculty. Perhaps even more alarming is that only 4.3% of this faculty cohort identified geriatrics as even a secondary area of expertise. Similar data on primary and secondary content expertise for PTA faculty is not reported.<sup>36</sup>

This lack of academic faculty with expertise to guide geriatrics suggests a lack of advocates with sufficient expertise to guide curriculum development efforts related to aging and the older adult. By default, this limitation also places more responsibility on clinical instructors, working directly with students and their older adult patients, to ensure students attain essential competencies in this area. Yet the economics of geriatric care, accompanied by restrictive payer policies, pose unique challenges and barriers to ensuring the clinical instructor has the

requisite expertise and sufficient time to adequately guide learning activities and assure readiness for practice in geriatrics. The quality of health care services provided and the willingness of health professions students to seek employment in settings focused on older adults are strongly influenced by practitioner attitudes toward older people.<sup>29,32,34,37-39</sup> Faculty (academic and clinical) with expertise in aging and geriatrics are critical for modeling positive attitudes toward working with older adults, and advancing student preparation for working with older adults.

### Targeted Clinical Experiences

Clinical education is critical in developing competent, entry-level practitioners ready to work with older adults. Breaking down stereotypes, guiding students through complex decision making with real patients, demonstrating a patient-centered approach, and teaching communication and patient education strategies are best applied through active engagement with older adults under the guidance of a skilled practitioner. Advancing economic constraints in the health care environment make it increasingly difficult for academic programs to maintain partnerships with geriatric-focused clinical sites, particularly at the intensity level required to achieve requisite competency.

Reduced reimbursement for rehabilitation services juxtaposed with increased productivity expectations severely limit the time available for clinicians to supervise students in the real-world clinical setting. In some instances, reimbursement is restricted to services provided by licensed personnel,<sup>40</sup> making student supervision and teaching more of a distraction than a core value for many facilities with a heavy investment in services for older adults. In all settings, geriatric health care providers are being asked to deliver more services with fewer practitioners. Staffing changes are frequent and full-time professionals are increasingly being replaced by per diem staff. Cost containment efforts push earliest possible discharge from high-cost, acute care facilities into lower cost environments, placing greater pressure on skilled nursing facilities, rehabilitation facilities, and home care to accept a greater number of patients, and patients with a higher level of acuity and complexity. These external factors all impact PT and PTA education programs' ability to place students in clinical rotations where they are able to work and interact with older adults. Although it is clear that positive and enriching geriatric-focused clinical education experiences can be delivered,<sup>34,41,42</sup> issues associated with reimbursement for services provided for older adults by students

and productivity expectations have made it increasingly difficult to replicate these examples broadly.

### PT and PTA Post-Entry Opportunities to Enhance Skills in Geriatrics

A number of postprofessional opportunities exist for enhancing competence in geriatrics. The American Board of Physical Therapy Specialties (ABPTS) offers specialty certification in 8 different practice areas, including the geriatric clinical specialist (GCS) certification. Available to PTs since 1992, the GCS is the second most popular area for specialization (representing 10.9% of all ABPTS certified specialists in 2013); specialization in orthopedics (representing 59.3% of all ABPTS certified specialists in 2013) is by far the most popular area for ABPTS specialty certification.<sup>43</sup>

A limited number of post-entry-level clinical residencies, credentialed by the American Board of Physical Therapy Residency and Fellowship Education, provide PT clinicians (most often a PT within the first 2 years of practice) with focused and mentored learning experience combined with didactic content and individual evaluation toward achievement of advanced skills in the specialty practice area.<sup>44</sup> As of the end of 2013, there are only 11 credentialed physical therapy residency programs in geriatrics in the US, and 2 programs seeking approval.<sup>45</sup> This is among the lowest number of physical therapy residencies of any of the established residency tracks. In contrast, there are 73 credentialed orthopedic residencies, with another 13 developing; 25 residencies in neurologic physical therapy and 28 in sports physical therapy, each with 3 additional residencies in development; and 14 in pediatrics, with 2 developing. To date, no credentialed fellowship programs exist for geriatric physical therapy. The reasons for the lagging development of geriatric residencies and fellowships are unclear. One can speculate that the lack of openness of recent graduates to working with older adults and financial constraints of geriatric practice settings contribute to their slow development.

To further enhance physical therapists' clinical decision-making skills and expertise in the design and delivery of effective exercise programs for aging adults, the Section on Geriatrics of APTA established its Certified Exercise Experts for Aging Adults (CEEAA) program. From 2009 through 2014, almost 900 physical therapists will have become CEEAA-certified.<sup>46</sup>

A new designation for the PTA was first introduced in 2008, Recognition of Advanced Proficiency in Geriatrics for the PTA. Currently, around 40 PTAs hold this designa-



tion.<sup>47</sup>

## DISCUSSION AND CONCLUSION

The health professions in the US are not going to meet the health needs of older Americans solely by increasing the numbers of specialists in their disciplines. Less than 1% of physicians,<sup>27</sup> pharmacists, physician assistants, nurse practitioners, or PTs<sup>43</sup> are board-certified or credentialed in geriatrics.<sup>1</sup> General practitioners need a high level of competence in working with older adults, whether they are ill, disabled, or well. This does not negate the importance of specialist preparation in geriatrics. The specialist has been, and will continue to be, the expert who helps infuse meaningful geriatric content into entry-level curricula; the role model who demonstrates best practices and positive attitudes toward older adults and geriatric clinical practice; a guide to the incorporation of best practices into the clinical environment. However, the general practitioner, as well as practitioners who see their specialty in non-geriatric practice areas (orthopedics, neurology, cardiovascular and pulmonary, etc), are in reality all frontline practitioners for many older adults who make up a large percentage of their caseload. They must all be prepared to work with older adults.

Despite the importance of the topic, remarkably little has been done to explicitly examine the extent to which PT and PTA education programs incorporate geriatrics into their curricula. In a 1985 survey of all PT programs in the US, Granick et al,<sup>48</sup> concluded that geriatric content was fragmented, most typically offered as 10-15 clock hours of didactic content threaded throughout one 3-credit course. Only 10% of programs indicated they included a specific geriatrics course as part of the required curriculum. According to a 1990 APTA national survey of PT and PTA program directors, funded by the Administration on Aging, 17% of PT education programs indicated they had a stand-alone full-semester course on geriatrics and 75% threaded geriatrics through the curriculum. Additionally, only 21% of PT education programs and 30% of PTA education programs indicated that at least 75% of their students complete a geriatric clinical experience.<sup>49</sup> In a 1995 study focused on PT student intentions to work with older adults, Dunkle and Hyde<sup>11</sup> found that 44% of PT students indicated that aging-related content was threaded throughout the their curriculum, 42% indicated it was delivered in a stand-alone course, and 7% indicated it was delivered in both threaded and stand-alone coursework. However, the authors noted that students in the same cohort differed in their responses about how

the content was delivered, thus questioning reliability of the responses.

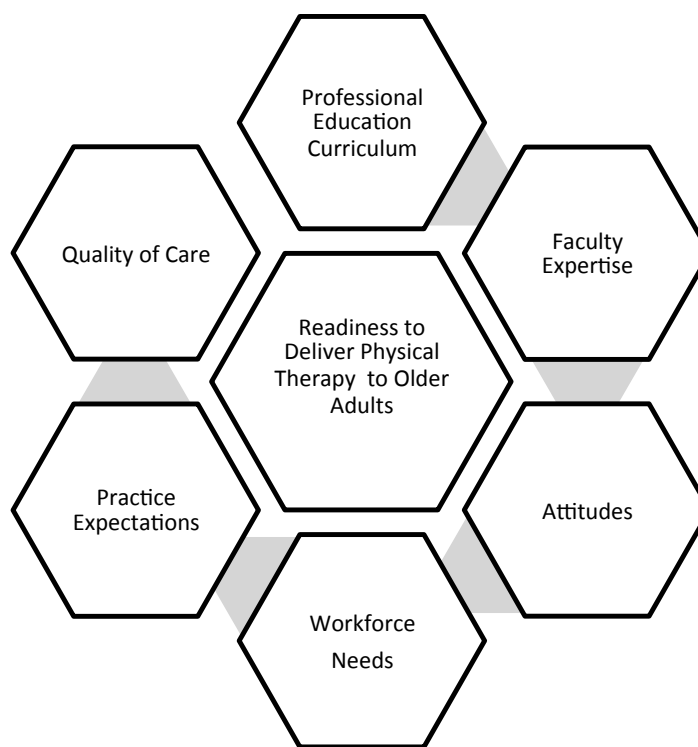
In 2001, a special issue of the *Journal of Physical Therapy Education* (JOPTE) was devoted to curricular initiatives to better prepare physical therapy graduates to work with older adults. Included was an article that surveyed the explicit aging-related content in PT education programs in the US. This article concluded that, despite substantial improvements in didactic geriatric content since the mid 1980s, inadequacies continued.<sup>50</sup> The themes running through the 2001 special issue were similar to the themes described 15 years earlier<sup>48</sup> and to the themes we continue to struggle with today: preparing students for the heterogeneity and complexity of the older adult patient/client, diminishing resources, interdisciplinary teams, health education and health promotion for older adults, neutral or

negative attitudes among students and faculty, and difficulty accessing geriatric-focused clinical education opportunities.<sup>51</sup>

Very little published work was located that examined the status of geriatrics in PTA curricula. Personal communications from PTA educators active in their regional clinical education consortia and in national special-interest groups for PTA educators indicated that the issues faced by PTA programs are similar to those identified by PT programs. Additionally, more stringent limitations to academic and clinical hours or credits imposed by most community colleges and by CAPTE makes adding content particularly difficult (oral and written communication, June 2013: Holly Clynch, PT, DPT, GCS; Fran Wedge, PT, DScPT, MSc; Maggie Thomas, PT, MA).

Figure 1 provides a “big picture” schemat-

**Figure 1. Modifiable Factors Influencing Decisions Regarding Geriatric-Focused Content in Physical Therapy Education Programs**



*Readiness of graduates to deliver physical therapy services to older adults is influenced by internal and external factors, of which many are modifiable.*

*Professional education curriculum guided by accreditation standards yet highly influenced by institutional mission and faculty complement.*

*Faculty expertise across the continuum of patient care and spectrum that optimally represents needs for physical therapy services.*

*Attitudes displayed by academic and clinical faculty that convey value for working with older adults.*

*Workforce needs as reflected in demographics of the society.*

*Practice expectations are influenced by expectations of the profession and patients' needs.*

*Quality of care assures that the patient's needs to achieve optimal aging are afforded the first priority.*

ic of the many factors influencing program decisions about the extent to which geriatrics is emphasized in their program. These factors are both internal and external to the program and all are, to some extent, modifiable. Programs and faculty have a major influence on the readiness and interest of their graduates to provide best practice to older adults across the continuum of fit to frail.

Both PT and PTA professional education curricula have 2 closely linked components, didactic and clinical. The entry-level PT program is typically a 3-year full-time graduate program with a minimum of 30 weeks of supervised clinical practice,<sup>19</sup> culminating in the Doctor of Physical Therapy degree. The PTA program is typically a 2-year full-time program with a minimum of 13 weeks and maximum of 18 weeks of supervised clinical practice<sup>20</sup> culminating in an associate degree as a physical therapist assistant.

Although at different levels of depth and expectation for autonomous decision making, both PT and PTA education programs tend to first introduce relevant foundational materials in the biological, physical, behavioral, and social sciences; and then apply and build upon this content in the clinical sciences. Clinical sciences content, a major portion of most programs, is often organized around single body systems (musculoskeletal, cardiopulmonary, neurological, etc). Thus, clinical reasoning skills within these courses are narrowly focused on a single body system. Alongside these clinical science courses, and more variably presented, are the contextual factors and various roles of the PT or PTA. Clinical synthesis or clinical integration across content is often sequenced toward the end of the program of study, focusing on management of complex patients, which may include examples of older adults.

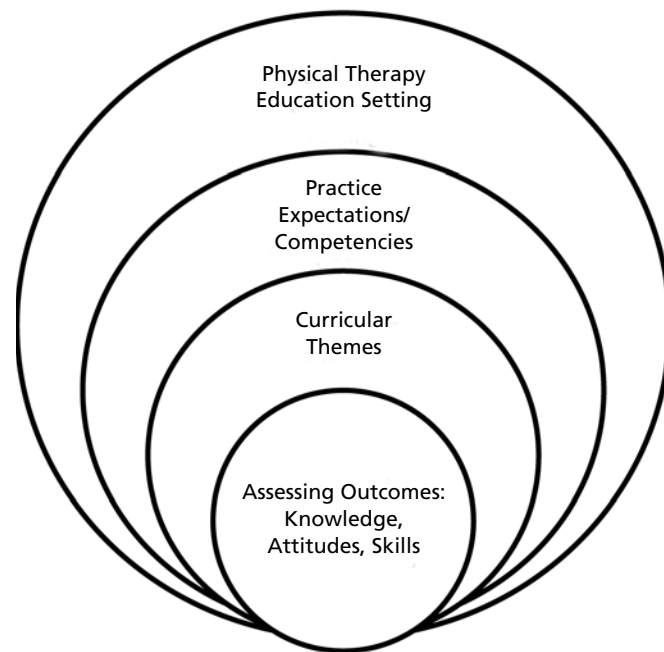
Clinical education experiences are critical to the development of competent, entry-level practitioners. Typically, the majority of full-time clinical experiences occur toward the end of the academic program. Although an academic faculty member stays in close contact with the clinical instructor and provides support as needed, the clinical instructor is the primary person designing, implementing, and assessing individualized student learning experiences and performance in the clinical environment. In addition to the required full-time clinical experiences, many programs also include integrated clinical experiences. These experiences occur on a part-time basis during semesters in which students are taking a full didactic course load. These are often early or specialized experiences for students to engage with patients and experience clinical practice concurrent with didactic

learning.

Given the marginal success over more than 30 years to better prepare practitioners for working with older adults, it is critical that a very overt and deliberate approach be adopted. Figure 2 depicts the major elements of a curricular model and their interrela-

tionships. The characteristics of the educational setting described in Figure 2 provide a snapshot of the essential atmosphere and values of the program. Program faculty must be knowledgeable and committed to the inclusion of unbiased and integrative content that effectively addresses each essential com-

**Figure 2. Key Elements of a Curricular Approach to Guide the Preparation of Students in the Management of the Older Adult**



**Characteristics of the Educational Setting**

- Embraces the concept that competent generalist practice requires high skill in care of older adults
- Seeks out and applies well-grounded practice expectations/essential competencies to guide curriculum development about aging and care of the older adult
- Threads aging-related content throughout curriculum; and, provides focused “stand-alone” content at critical points to integrate and apply across content areas
- Engages in regular and ongoing curriculum review to assure threaded content remains adequately represented and contributes effectively to practice expectations
- Employs knowledgeable faculty who serve as positive role models for working with older adults
- Facilitates opportunities for positive student interaction with older adults across functional levels
- Provides clinical education experiences in settings supportive of best practices in care of older adults
- Regularly encourages reflection-on-action/ reflection-in-action to examine attitudes and stereotypical beliefs and their impact on the value placed on older adults and intentions to work with older adults

**Practice Expectations/Competency Domains**

- Health Promotion and Safety
- Evaluation and Assessment
- Care Planning and Coordination Across the Care Spectrum
- Interdisciplinary and Team Care
- Caregiver Support
- Health Care System and Benefits

**Critical Curricular Themes**

- Stresses optimal aging across functional levels, regardless of age
- Rejects ageism and stereotypical beliefs about older adults
- Reinforces medical and contextual complexity; effective decision making with complex older adults
- Utilizes a patient-centered approach sensitive to patient-directed care decisions
- Employs effective communication with older adults, other team members, caregivers, and families

petency. Faculty must hold each other accountable for including threads of geriatrics throughout courses, as applicable; academic and clinical faculty must regularly role model clinical reasoning and decision making that incorporates complexity, demonstrates respect for the patient, and utilizes a patient-centered approach; all faculty must seek out and implement creative approaches for positive student interactions with a wide range of older adults.

The practice expectation and competency domains identified in Figure 2 are the 6 overarching domains that anchor the EC-PT and soon-to-be completed EC-PTA. These competencies are intended to represent practice expectations of every graduate, not just those expressing interest in specializing in geriatrics. The essential competencies documents interpret the CAPTE generic terminology of “across the continuum of care” and “across the lifespan.” These competency statements can be particularly useful for new faculty, for any faculty member preparing a new course, as an essential component of curriculum review efforts, and as a student and clinician self-assessment tool. Building these competencies into curriculum and course development efforts is critical to ensure student competence and readiness to treat older adults upon entry to practice.

The critical curricular themes were chosen carefully. They are all closely interconnected and all include knowledge, attitudes, and or skills deemed essential in preparing students to deliver effective and quality care aimed at fostering optimal aging. The concept of *optimal aging*, a refinement of Rowe and Kahn’s<sup>52</sup> concept of *successful aging*, is defined as “the capacity to function across many domains—physical, functional, cognitive, emotional, social, and spiritual—to one’s satisfaction and in spite of one’s medical conditions.”<sup>53(p26)</sup> This vision of the fundamental goal of our interventions and interactions with older adults naturally leads to a patient-centered and patient-directed approach in which the practitioner provides expert guidance and patient/family education but allows the patient/family to make care decisions; requires practitioners to be aware of and guard against decision making based on age biases and stereotypical beliefs about older adults; considers and interprets the impact of medical and contextual complexity on prognosis and plan of care; and has the skills to effectively communicate with older adults for informed and effective decision making.

The pervasiveness of age bias as a factor affecting practitioner attitudes about older adults is well described.<sup>30,33,34,54,55</sup> Increasingly, evidence in the social and clinical sciences

## Box 2. Guiding Principles of American Geriatric Society’s Expert Panel on Care of the Older Adult With Multimorbidity<sup>25</sup>

- Elicit and incorporate patient preferences into medical decision-making
- Recognize the limitations of the evidence base, interpret and apply the medical literature specifically to older adults with multimorbidity
- Frame clinical management decisions within the context of risk, burdens, benefits, and prognosis (eg, remaining life expectancy, functional status, quality of life)
- Consider treatment complexity and feasibility when making clinical management decisions
- Use strategies for choosing therapies that optimize benefit, minimize harm, and enhance quality of life

indicates that education can shape attitudes related to ageism when combined with positive experiences in enriching clinical education placements.<sup>39,56</sup> An implicit, and often explicit, message in many of these studies is that students and practitioners have particularly strong biases against working in settings where a large percentage of the patients are not just old, but are old and frail. Practice settings that provide services to a wide range of patients, including many older adults, don’t tend to be viewed as geriatric. The term geriatric often conjures up images of very frail older adults in nursing home settings.

The frail older adult is, indeed, one category of patients that PTs and PTAs work with frequently. However, we also work with very fit older adults and older adults who are functionally independent but may be struggling to maintain that independence. Schwartz<sup>57</sup> labels these categories: “fun,” “function,” “frailty,” and “failure.” Framing initial conceptualization of older patients around each of these categories, and using these categories to drive discussion and reflection about patient goals, prognosis, intensity, and functional focus of the plan of care and interventions, can help students recognize the heterogeneity across the older adult population, allow for more explicit reflections on age bias within each category, and reasonably narrow down discussions of goal setting within each category.

Ensuring that practitioners consider the heterogeneity of older adults has been identified as an imperative across health professions. In response to concerns that practitioners do not adequately consider complexity and multimorbidity in their decision-making frameworks, an AGS expert panel<sup>25</sup> recently produced a clinical reasoning framework based on 5 guiding principles for managing patients with multimorbidity. These guiding principles are listed in Box 2. These simple and straightforward principles serve as reminders of critical decision-making steps to assure multimorbidity and con-

textual complexity is given adequate focus in patient management. The AGS advocates a decision-making process that is flexible, anchored in patient preferences, patient-driven, reflective, inclusive, and pragmatic in applying evidence to guide decision making. Students should be required to incorporate these steps into their clinical reasoning paradigm.

Ironically, stereotypes about who falls into the category of “old” versus “not old” can also detract from the delivery of best practice for physically active and independent older adults who are often not perceived as old. This can be beneficial in that the older adult is less likely to be undertreated because of stereotypical views about performance capacity or motivation of “old” people. However, if the perception of someone as not being old is accompanied by assumptions that no consideration or adaptations need to be made related to aging-related physiological changes, multimorbidity, or contextual complexity, then delivery of best practice can also be compromised. Faculty should overtly discuss the importance of considering the potential complexity of all their older patients, provide concrete decision-making strategies, and give examples of how to effectively accommodate patient complexity without compromising the goal of optimal aging. Best practice requires unbiased decision making that does not ignore complexity inherent in many of our older patients but, rather, gives the patient options for best plans of care that maximize function given the unique and inherent complexity of this individual. Both academic and clinical educators must carefully consider their own conduct, learning experiences, and terminology used in conjunction with older adults.

The EC-PT highlights the importance of effective communication and interpersonal and interprofessional relationships in the care of the older adult. The titles of 3 of the 6 organizing domains of the essential competencies highlights this emphasis: Care Planning and Coordination Across the Care

Spectrum, Interdisciplinary and Team Care, and Caregiver support. All 6 domains have specific subcompetencies addressing interpersonal communication skills and interprofessional collaboration. Ensuring students have the skills to feel confident communicating with patients, families, and other health care professionals under a variety of circumstances is imperative. The importance of interdisciplinary team training was highlighted in 2011 with the APTA endorsement of the PHA *Position Statement on Interdisciplinary Team Training: An Essential Component of Quality Health Care for Older Adults*.<sup>58</sup> The need for strong interdisciplinary/interprofessional (ID/IP) team care relates back to the medical and contextual complexity of many older adults and the health care system itself. Minimizing patient complications and adverse events is enhanced by a team that communicates well, understands the roles of various team members, and recognizes the needs of the individual patient, particularly during transitions in care. Didactic preparation and clinical opportunities that allow students to experience positive team interactions and its benefit on patient outcomes are often exemplified through service learning activities that expose students to older adults as well as make them a member of an ID/IP team.<sup>31,37,38,41,42</sup>

Individual patient-practitioner communication, also critical, requires explicit discussion and practice, particularly with complex patients.<sup>32,59</sup> Lack of confidence and inexperience interacting with older adults with communication impairments (eg, vision, hearing, speaking, cognition) is often identified as one of the underlying reasons students are uncomfortable working with older adults. Communication can also be impacted by generational differences that require students to recognize and be sensitive to different generational norms and to truly respect the decisions of their older patients, even if the decisions are counter to the student's recommendations.<sup>60</sup> Students often voice frustration when a patient decides on a course of action that seems less than optimal to them.

The themes of patient-centered care and effective communication are often intertwined. Weaving this content through courses and providing opportunities for simulations and role playing help prepare students. Clinical experiences need to carefully and overtly address communication skills. Directed experiences such as integrated clinical activities that provide opportunities to communicate with individuals with communication limitations (eg, hearing loss or dementia) and receive reflective feedback can be very beneficial in developing skills and building confidence.

Student beliefs, values, and attitudes can be positively influenced by professional role models and by reflective interactions with older adults.<sup>11,29,31–34,39,41</sup> Dispelling stereotypes and immersing students in enriched geriatric environments with positive role modeling and supportive instructors is key to turning the tide of interest. Academic and practice communities should join forces to create clinical education opportunities for students that will positively impact student decisions to seek positions where they will work with older adults. Such collaboration can only help to close the gap between demand and supply for health professionals that are qualified and motivated to work with older adults across the continuum of fit to frail.

This paper provides a review of recurring efforts over several decades to encourage more comprehensive preparation of students for working with older adults. Despite these efforts, the health care workforce, including that for physical therapy, remains underprepared. The essential competencies for PTs are critical to curriculum development and preparation of a physical therapy workforce that is qualified and willing to work with older adults. Cooperation among academic and clinical communities is essential to ensure positive learning experiences to accomplish this. We provide a model that summarizes the characteristics of the educational settings, required practice expectations, and curricular themes related to the management of the older adult that should be utilized by all PT and PTA education programs. This paper also notes major modifiable factors that can influence the readiness of graduates to meet the health care needs of older adults. Through the explicit and concerted efforts outlined here, we believe that the physical therapy profession will be better prepared to meet the workforce needs created by an aging America.

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# Infusing an Optimal Aging Paradigm Into an Entry-Level Geriatrics Course

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**Background and Purpose.** Health care students, including physical therapist students, do not often make career choices that involve working with older adults. They may possess negative perceptions and attitudes that adversely affect the quality of care and their career choices. Optimal aging is an optimistic, positive paradigm that may foster positive perceptions of aging among students when compared with a decay and decline paradigm. This paper describes an innovative approach to infusing optimal aging into a mandatory 2-credit doctoral entry-level physical therapy geriatrics course.

**Method/Model Description and Evaluation.** Strategies to improve attitudes toward aging focused around active, regular engagement with older adults using physical therapy tasks within an optimal aging framework. The 3 course goals were: (1) to develop a desire to WANT to work with older adults, (2) for the student to appropriately apply sufficient intensity and specificity in the exercise prescription to avoid under-treating patients, and (3) for the student to distinguish the important from less important issues and facts during a history. The Knowledge of Aging Quiz assessed the core principles of optimal aging. Attitudes toward older adults were measured using the 14-item University of California, Los Angeles Geriatrics Attitude Scale (GAS). Two additional questions also were used: (1) "To what degree do you WANT to work with older adults?" and (2) "In the future, I would

consider a specialty in geriatric physical therapy."

**Outcomes.** Quantitative outcomes were collected from all 33 students taking the course. The students' knowledge of aging improved ( $P = .02$ ) but GAS scores, positive at the beginning of the course, did not improve ( $P = .60$ ). Scores on willingness to work with older adults and interest in specializing in geriatrics were significantly more positive at the end of the course ( $P < .05$ ). None of the students who said they were unwilling to work with older adults at the start of the course remained unwilling at the end of the course. Eighty-six percent of students who completed the university course evaluation form expressed improvement in their confidence in treating older adults.

**Discussion and Conclusion.** An optimal aging approach to geriatrics combined with active engagement with aging adults may have promise for increasing physical therapist students' knowledge of aging and greater willingness to work with older adults.

**Key Words:** Geriatrics, Education, Attitudes, Positive aging.

## BACKGROUND AND PURPOSE

The "aging tsunami" is a popular way of describing the rapid growth of the world's aging adult population. Not only are the sheer numbers of older adults increasing, but individuals are living longer than ever before. Individuals aged 85 years and over are the fastest growing segment of the United States population.<sup>1</sup> Health care workers, specifically physical therapists, are needed to prevent mobility disability so common to aging adults. There also is a need for physical therapists to provide intervention for the many acute and chronic conditions prevalent with aging. However, having enough trained physical therapists who want to work with the aging population is a concern. Between 2010 and

2020, physical therapy employment is projected to increase by 39%, largely attributed to growing aging population.<sup>2</sup> Of additional concern are studies that show that working with older adults seems to be the least favored career choice among graduating health care students.<sup>3-11</sup>

Health care students' perceptions and attitudes may play a role in a lack of preference to work with aging adults.<sup>12</sup> For example, nurses perceive older adults as more vulnerable, sick, hopeless, and dependent.<sup>13</sup> Perceptions and attitudes are of concern because negative attitudes about aging affect career choices made by health care students and professionals.<sup>3,6,8</sup> If negative perceptions exist, health care students and professionals may not choose to work with older adults, perpetuating the shortage of health care professionals, including physical therapists, to work with aging adults.

The views health care professionals have toward the geriatric population are vital to the services they provide and to the quality of health care older adults receive.<sup>3,5,14</sup> Negative attitudes toward older adults, termed *ageism*, are known to decrease the quality of care for aging individuals.<sup>15,16</sup> For example, many serious medical conditions in older people may be regarded as a natural part of getting older, and treatment may be minimized when compared with treatment for the same condition in a younger individual.<sup>15</sup> Ageism can promote misdiagnosis, offer less options for age-related hearing<sup>17</sup> and vision loss,<sup>18</sup> and promote premature dependence on family or the government.<sup>15</sup> Physicians may be less aggressive in recommending preventive measures to older adults, a contributing factor in older adults being less likely to receive vaccinations and other preventive recommendations, such as for smoking cessation,<sup>15</sup> or to receive substance abuse counseling. Nurses with negative attitudes toward older persons often favor using physical and chemical restraints rather than less restrictive behavioral management strategies.<sup>19</sup> Furthermore, inappropriate care for disease management for ag-

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ing adults is prevalent. Surgeons can be less willing to operate on older patients who may greatly benefit from surgery. Alternatively, surgeons may not consider the consequences of surgery and recovery time while recommending surgery.<sup>15</sup> The consequences of polypharmacy in older adults are well-documented.<sup>20</sup> People over the age of 75 are one third less likely to receive aggressive radiation or chemotherapy than younger patients.<sup>21</sup> Finally, negative attitudes may result in less aggressive goal setting,<sup>22</sup> and from the author's experience, under-treatment and suboptimal application of exercise by physical therapists.

Health care behaviors and career choices are guided by attitudes,<sup>23,24</sup> and one role of education is to shape values and attitudes.<sup>25</sup> However, when education has been used to change negative perceptions of aging, the results are equivocal,<sup>27</sup> and may even increase negative perceptions.<sup>26,27</sup> These equivocal results may come from a focus on decline, losses, and the inevitability of dependency and death, referred to as the "decline and loss" paradigm or "usual aging."<sup>28</sup>

Theories of aging taught in introductory gerontology courses often depict later life only as a series of losses.<sup>29</sup> Since positive attitudes are associated with a positive inclination to work with aging adults,<sup>24</sup> exploring ways to view aging from a successful aging perspective may be warranted.

Successful aging theory is a paradigm shift that emphasizes the positive aspects of aging.<sup>29</sup> Successful aging theory states that how an individual ages results from active choices rather than a passive chronological passing of years. Successful aging can be hopeful and optimistic, rather than hopeless and limiting, thus promoting higher expectations for the aging individual. However, critics of the successful aging paradigm fault it as too optimistic based on the original authors' description as an "absence" of disease or disability associated with high cognitive and physical functioning and an active engagement with life.<sup>30</sup>

Optimal aging, on the other hand, incorporates the typical challenges of aging (ie, physical, functional, cognitive, emotional, social, and spiritual). Optimal aging focuses on functioning across these domains to one's satisfaction and in spite of one's medical conditions.<sup>30</sup> Instead of the traditional preoccupation with disability, disease, and dependency, the optimal aging paradigm emphasizes adaptation and resilience that permit older individuals to continue to function effectively, both physically and mentally in older age. Thus, optimal aging goes beyond longevity and good health. Optimal aging focuses on the modifiable aspects of the aging process and the development of

meaningful interventions that improve older adults' quality of life. Physical therapists have a substantial role in promoting optimal aging.<sup>28</sup> If entry-level geriatrics education was presented from an optimal aging perspective rather than from a decline and loss paradigm, students may see the potential for prevention and intervention.<sup>13,16</sup>

A review of the health sciences education literature identifies several strategies to increase interest in working with older adults. Some of these strategies include improved gerontological knowledge of students and faculty<sup>31</sup> (particularly training faculty in gerontology<sup>32</sup>), incorporating the positive aspects of healthy aging and the meaning of successful aging,<sup>29,31</sup> and modeling a positive attitude toward older adults.<sup>29</sup> Another author found experiences with healthy older adults early in the curriculum resulted in positive attitude changes.<sup>33</sup> These experiences can be important because positive experiences promote positive attitudes.<sup>3,34,35</sup> For example, introducing students to healthy older adults (eg, having the students participate in a senior mentor program) was more likely to improve student attitude than interventions that exposed students to older patients in the clinical environment.<sup>36</sup>

While there are some published descriptions of educational interventions promot-

ing a positive aging approach in nursing and medical education, this approach has not yet appeared in the physical therapy literature. Therefore, this paper describes the implementation of an educational intervention using an optimal aging approach for an entry-level geriatrics course designed to promote positive attitudes toward older adults and, by extension, to improve the willingness to work with older adults. The course, delivered for the last 5 years, is a work in progress, and this account describes only 1 year because of the lack of quantitative outcome measures for previous years.

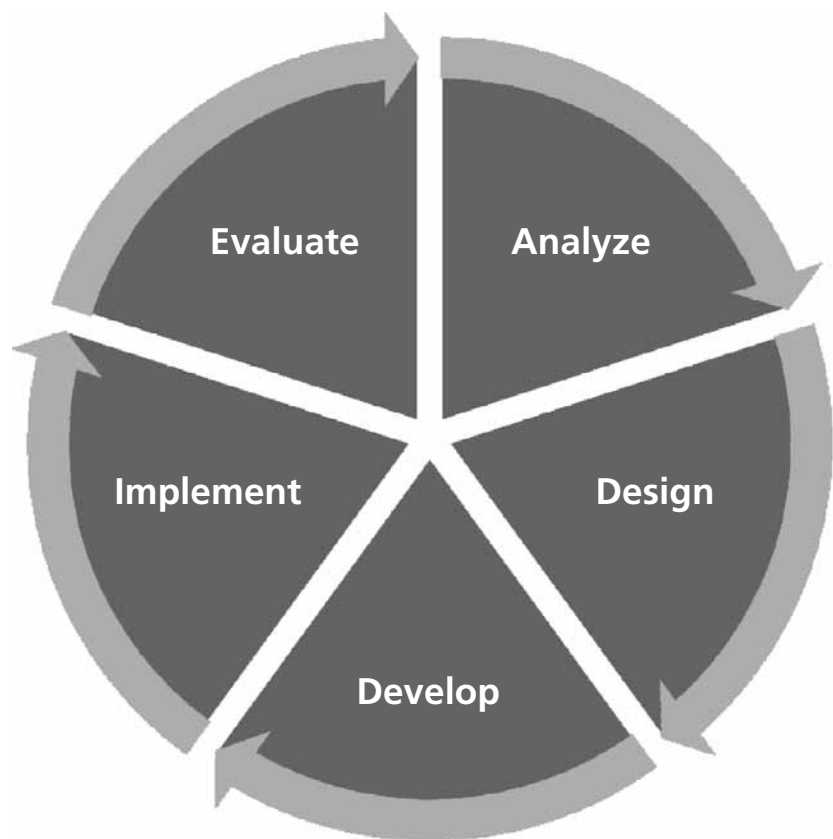
## METHOD/MODEL DESCRIPTION AND EVALUATION

An instructional design approach provided the framework for designing this course. The ADDIE model of instructional design<sup>37</sup> is a common, if simplistic, approach to designing a course. The model encompasses 5 stages (analysis, design, development, implementation, and evaluation) as illustrated in the Figure. These stages illustrate how optimal aging was designed into the course. Each stage is described in detail below (Figure 1).

### Analysis

The analysis stage is the construction of the overall design of the course and the develop-

Figure 1. ADDIE Instructional Design Model





ment of course goals and objectives. It also includes analysis of the characteristics of the audience and learning environment.<sup>37</sup> The “Geriatrics for Physical Therapists” course was a mandatory 2-credit course in the fall semester of the third year of the Doctor of Physical Therapy program consisting of 33 entry-level students who had completed 16 weeks of full-time clinical experiences in 2 different settings. The fall semester was the last semester of the students’ didactic curriculum preceding the last 2 full-time, 12-week clinical internships prior to graduation. In addition to the 2-credit geriatrics course, the students took 3 credits of medical ethics, 3 credits of cardiovascular and pulmonary content, 2 credits of applied clinical decision making, and 3 credits of management principles for a total of 13 credits. The geriatrics course met once, for 2.5 hours per week, over a 14-week period, and was taught by the author, who has a national reputation in geriatrics. She was assisted in class by a clinician with a geriatric clinical specialist certification.

In addition to the 2-credit geriatric course, the curriculum contained small amounts of focus on older adults as a specific entity prior to the last academic semester. For example, in the first semester, a 4-week, 2-hour a week experience in acute care or skilled nursing was implemented to practice transfer skills. During the same semester, the opportunity to participate in a balance class for healthy older adults, taught by the author, was introduced and was available each fall and spring semester throughout the curriculum. In the first semester, nearly all of the first-year students participated for at least 1 hour, which was encouraged by another instructor teaching wellness. The author also presented a 1-hour lecture on arthritis as part of the orthopedics course in the second semester of the first year. A 1-credit elective taught by the author, “Taking Physical Therapy to the Community,” focused on delivering community-based exercise classes to older adults. Five students took this elective prior to the geriatrics course. Certainly pathology content common to aging occurred throughout the curriculum, but the curriculum did not include a specific focus on aging individuals other than the examples cited above.

The course catalog described the mandatory course as an in-depth examination of aging as it relates to physical therapy. The course catalog goes on to state that concepts and principles of aging were examined in light of evidence-based practice, including the biological, psychological, social, and cultural aspects of aging. Furthermore, care was given to differentiate between normal biological age changes and those due to other factors such

as physical inactivity, emotional responses, and disease processes.

Each year, during the first session of the geriatrics course, students were asked to identify in writing and anonymously 3 learning issues about geriatrics the student would like to see addressed. This request was further elaborated upon with the verbal request, “State how you will know this course was worthwhile to you.” The instructors read through the responses, which were remarkably consistent from year to year. The greatest needs

were consistently in the areas of appropriate exercise prescription for older adults, motivation of the older adult, concerns related to pathology and prognosis (complexity, contraindications, and precautions), and communication. The student-generated learning needs (goals) of the class described in this report are listed in Table 1.

Subsequently, 3 course goals emerged. First, we wanted students to embrace the potential of appropriate physical therapy that would enhance the quality of life of aging

**Table 1. Student-Generated Learning Goals and Needs**

Student Learning Goals and Needs	Number of Responses (N = 104) From 33 Students
<b>Exercise prescription</b>	<b>18</b>
Application of appropriate exercise intensity	
Safe monitoring, physiological response compared with other populations	
How hard to push and how do you know how much the patient can handle	
<b>Motivation techniques</b>	<b>17</b>
How to handle a patient who refuses therapy day after day	
For those hesitant to exercise	
How to better challenge older adults in regards to physical potential without over-challenging them	
<b>Pathologies and prognosis of typical of aging adults—differential diagnosis</b>	<b>16</b>
Red flags, contraindications, and precautions; when to refer	
Changes in physiology with age	
Management of multiple, complex comorbidities	
<b>Communication skills</b>	<b>15</b>
For those with hearing impairments	
Avoiding ageism (including to no longer have a bias that older adults cannot do a certain exercise based on age)	
How to not let misconceptions about older people show	
Enhance interactions with older adults	
How to approach medical team when geriatric patient is being mismanaged or about pharmacology concerns	
How to include older person’s “family objectives” in a cohesive way	
<b>Effective interventions</b>	<b>9</b>
Creative balance interventions	
Interventions for fall reduction, especially if fear is involved	
Appropriate exercise for those with pain	
Improve clinical skills with geriatrics	
<b>Altered cognition and depression</b>	<b>7</b>
Dementia and Alzheimer disease and its impact on therapy	
Communication	
<b>Death and dying</b>	<b>7</b>
How to motivate and keep in good spirits	
The role of the physical therapist	
<b>Outcome measures and their application, including MCID</b>	<b>7</b>
<b>Perception of older adults of physical therapy</b>	<b>3</b>
<b>Pharmacology</b>	<b>2</b>
<b>Reimbursement challenges and documentation</b>	<b>2</b>
<b>Prevention: Explore opportunities to work with older adults in the community (teaching and presenting topics).</b>	<b>1</b>

Abbreviation: MCID, minimal clinically important difference.

**Table 2.** Sample Student-Generated Concerns in Working With Older Adults Documented on Blackboard<sup>40</sup>

Thread (Student-Generated Title)	Comment
Under-treating	"I actually am afraid of falling into the trap of current practice and undertreating the older adult population. I had a very bad experience in rehab where the PTs did not, or very, very rarely, individualized care. . . . (I can't count how many times I saw a LAQ). My outpatient CI... used 2-lb weights and kind of made fun of me for always suggesting a squat as an exercise for an older adult. He often thought it was too hard for them, especially at first. I feel like we have a huge advantage after taking this class, but it is hard to incorporate this into a clinical setting where current practice is so different."
Dying is scary	"I am very self-aware of my fear of death and everything that surrounds that...."
	"Dying is a rough subject...for the young. What I have discovered throughout my own personal experience is that most older adults are much more comfortable talking about the topic than we are. I had a conversation with my grandmother about this once and I really think that it made me appreciate her point of view more. Dying is a part of life, it is sad when it is sooner than expected, but in the end it is more difficult on the people left behind rather than the person themselves. Sometimes having those conversations with people we know already makes us more comfortable to speak about those topics with people we do not know. With family it's usually easier to make a few 'party fouls.'"
	"The thought of dying or having patients die is terrifying to me...."
	"Dying IS scary... for me too!"
Altered cognitive status	"A large portion of our [acute care] case load included older adults with dementia, Alzheimer's, and various other conditions involving altered cognitive status. I was extremely apprehensive when working with these patients and did not feel comfortable performing the treatment session. I did gain a lot of experience working with individuals with these types of 'issues,' however, my confidence in working with these individuals and their families did not improve."
Using manual skills	"One fear I have with working with older adults is using manual skills such as joint mobilizations to help improve ROM. I am afraid that I may cause harm to such a patient because his or her bones may be too brittle and/or the joint space has decreased to the point that it would cause him or her more pain. We have also discussed in Movement and Ortho classes regarding the idea that manual skills may not do much for a fixed structural impairment, so why should I waste my time trying to create movement where it is highly unlikely to create any movement? Do our manual skills have a place in an older adult's plan of care?" "Has anyone seen manual skills used on older adults in the clinic?"
Ageism and patient expectations	"I find that it is hard to tell older adults that age is just a number and does not always affect or limit what we can do as a young professional, because of the ageism that we may experience (our patients/clients think we are too young to know what they are 'going through')."
	"I had the experience of working with an older adult on my most recent clinical who fell into the category of discounting her declining function to advanced age. She also had mild cognitive deficits at this point, including difficulty with short term memory. She had made a comment along the lines of 'you know I'm 87 years old' conveying the idea that she thought her decline was part of "normal" aging. What was most surprising and difficult for me was that my CI followed with even worse ageist comments saying, 'Oh, but you look so good and you're in such good shape for 87.' My thought process was that this could not be further from the truth. To be honest, she was in horrible shape being dependent in all IADLs and even ADLs such as requiring assistance for dressing, as her shoulder mobility had become very poor. She was also experiencing shortness of breath when ambulating very short distances with a rolling walker."
Exercise	"For me, the most challenging is creation of a HEP at an appropriate intensity while being safe.... My thinking is that potentially the HEP is to avoid regression, but should we be expecting progression?? Is it safe to leave these patients at home with a intensity level high enough to truly cause increased strength??"
	"In my experience working with older adults in the clinic, the PTs give 2-pound weights and do not functionally challenge the patient. Additionally, some older adults that I have worked with assume that since they are older, they do not have to and should not be doing the same exercises as younger people. It is as if older people are 'buying' into [society's] 'norms' of older individuals.... I have difficulty with prescribing higher level balance activities for older adults for fear that they may fall."

Abbreviations: ADL, activities of daily living; HEP, home exercise program; IADL, instrumental activities of daily living; LAQ, long-arc quad; PT, physical therapist; ROM, range of motion.

**Table 3. Course Objectives**

1.	Compare and contrast the characteristics of typical, pathologic, and optimal aging, identifying causative factors for each of these “states of aging,” including how each of these states can be influenced, especially by the physical therapist, and the likely consequences of each of these states.
2.	Appropriately manage an older patient throughout the continuum of care (wellness to death) considering the whole-body approach that incorporates knowledge of biologic, physiologic, and psychosocial aspects of aging. Evidence of appropriate management is through the design of physical therapy examination and intervention programs for a broad spectrum of aging clients (from well to frail) that take into consideration the above aspects and also considers the implications of social, environmental, socioeconomic, cultural, and ethical factors.
3.	Appropriately manage an older patient with common orthopedic conditions and balance and falls issues throughout the continuum of care (wellness to death), documenting this management that reflects measurement of function, identification of impairments, appropriate goals, and knowledge of physiological, and learning principles.
4.	Recognize and respect racial, ethnic, cultural, socioeconomic differences, and other sources of diversity among older clients and their families. Demonstrate awareness of the impact of ageism and appropriately interact with older adults and their families in a manner that is consistently nonjudgmental, respectful, and culturally sensitive.

adults and that would translate into a desire to want to work with older adults. Our second goal was for the student to appropriately apply sufficient intensity and specificity in the exercise prescription to avoid under-treating patients.<sup>38</sup> Finally, we wanted to help the student distinguish the important from less important issues and facts (what we refer to as “noise”) during a history. We have found that inexperienced students and clinicians often exhibited an inability to determine and prioritize what is relevant to the current functional problem and to the quality of life of an older adult, especially when several chronic diseases coexisted with a long history of health care interventions. These 3 goals became themes that were interwoven throughout each lesson.

Over the years, the author has observed that students commonly indicate learning needs that are fear-based concerns. Fear of hurting an older individual and over-pushing and over-prescribing exercise are common concerns. Additionally, throughout the course, either in class or on the electronic discussion board (Blackboard<sup>39</sup>), students were asked to discuss their concerns in working with older adults. These concerns also helped inform the course goals. The concerns from the class described in this report are listed in Table 2. While previous class concerns inform subsequent course designs, the concerns are fairly consistent every year. The students’ discomfort with dying individuals and their own fear of death was a topic discussed on Blackboard<sup>39</sup> year after year. Other common topics included concerns developed from clinical

experiences. Students commonly reported witnessing subthreshold exercise prescription, ageist attitudes, lack of progress, and what they perceived as general apathy from clinicians about working with older adults. It was not uncommon to have students who had wanted to focus their career in aging to be discouraged about this choice by the third year.

The specific course objectives were informed by the Commission on Accreditation in Physical Therapy Education guidelines<sup>41</sup> and the *Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study*,<sup>41</sup> our personal knowledge and philosophies, and the students’ concerns and goals discussed on Blackboard<sup>39</sup> and at the beginning of the course. Course objectives, reflecting an optimal aging paradigm, are listed in Table 3. Individual objectives were developed for each lesson (not provided).

The learning environment was a critical aspect used to diffuse optimal aging into the course. The course was held at a local retirement center that was 3 miles from the university. Older adults were present and involved in each class session. The facility, Nottingham Retirement Center (NRC), had approximately 275 residents in independent living, assisted living, and skilled nursing with a relatively educated, professional and engaged clientele (eg, engineers, physicians, teachers, etc). Nottingham Retirement Center was chosen because of the engaged clientele, supportive staff and administration, adequate space, and

a projection system to conduct the class.<sup>31,32</sup> Active engagement and wellness was emphasized at the facility, which was compatible with the course’s goals. We felt this environment had the potential to promote interactions between older adults and students that may improve communication and reduce the fear and anxiety that many students had about working with older adults.

**Design**

The design phase is the identification of the content and strategies of instruction and student assessment. Eighteen distinct learning units were developed and integrated into 14 lessons reflecting the 13 weeks of the semester and are listed in Table 4. No class was held during the week of Thanksgiving. Each lesson included approximately half didactic and half laboratory experience, incorporating material that addressed the students’ learning goals and concerns.

Two major instructional strategies were employed for each lesson: (1) the provision of frequent opportunities for students to work with aging adults of different abilities and the presentation of real-clinic problems and (2) situations where students could practice sorting out the relevant from the irrelevant information of history taking and learn to prioritize the problem list. Emphasis was on the appropriate application of interventions, again to address the students’ caution and fears.

Each class started with some topic in which older adults and students participated in the discussion. Students had assigned readings related to the topic and older adults were encouraged to participate during the didactic phase. Discussion and lecture included prevalence of the problem, efficient evidence-based examination tools, and effective evidence-based interventions. After approximately 60 minutes of discussion, a laboratory activity ensued, drawing together older adults and students to apply the didactic learning. Examples of laboratory topics and activities are included in Table 4. Session objectives for the laboratory sessions were in the affective and psychomotor domains and included enhancing the communication skills and comfort level with older adults. Typical activities included establishing a repetition maximum for baseline strength in preparation for the exercise prescription, performing functional measurements, taking medical histories, and talking about issues such as motivation and altered cognition.

Practical, clinical experiences and reflection were the basis of the assessment strategies and reflected the objectives of the course. The assessment strategies are listed in Table 5

**Table 4. Instructional Units and Laboratory Activities**

Instructional Units		
Lesson	Topic	Lab Activities
1	Course expectations Ageism and aging trends	Talking with an aging adult about generation gaps Be prepared to discuss real age and a real-life example of ageism
2	Physiology of aging and implications for quality of life and physical therapy Physical activity	History taking Fatigue tool and physical activity history
3	Functional assessment	Timed 5-repetition chair rise and 30-second chair rise Gait speed 4-Square Step Test Fullerton Balance Scale 6-Minute Walk Test and 400-Meter Walk Test
4	Application of exercise for aging adults	Practice 1 repetition maximum, 10 repetition maximum
5	Ortho issues	Assess orthopedic complaint in older adult (listen to concerns/history, ask clarifying questions)
6	Ortho issues (cont.)	Assess orthopedic complaints, apply special tests, and perform other confirmatory examinations
7	Intervention lab activities	
8	Frailty, balance, and falls functional assessment	Practice functional tests related to frailty and balance and interpret findings.  Falls history  Frailty history
9	Communication and differential diagnosis of depression, delirium, dementia	Talk about fears of becoming demented, older adults experiences.
10	Frailty lab	
11	Medication issues Motivation	Take medication history, identify rehabilitation concerns.
12	Scope of geriatric physical therapy article	Choose a setting you are familiar with, and identify strengths and challenges of that setting with regards to working with older adults. What would you change about the setting?
13	No class	
14	Cultural issues and death and dying	Speaker from hospice
15	Wrap-up	Movie: <i>Dad</i>

and elaborated upon below.

Two clinical assignments were designed to facilitate actual clinical settings. The first focused on developing an exercise prescription from an orthopedic problem and the second on evaluating frailty. The first (orthopedic) clinical session was held at 2 clinical sites, an acute-rehabilitation center and an outpatient clinic on the university campus. Approximately 12 to 16 older adults with shoulder,

spine, knee, and hip issues were recruited from the author's and facility staff connections, allowing groups of 2 to 3 students to work with 1 older adult. The 2 instructors for the geriatrics course and 2 additional faculty members served as the faculty for the exercise prescription/orthopedic clinical sessions, assisted by clinical faculty from the sites as needed and available, providing a minimum ratio of 1 faculty to 8 students.

The students were instructed to evaluate the volunteer patient, applying history-taking techniques learned in class combined with knowledge and experience from the curriculum to establish plausible clinical hypotheses that were then tested with the examination. A problem list was developed and a treatment plan established in partnership with the volunteer patient so that upon completion of the lab, the volunteer patient had some increased

**Table 5. Assessment Activities**

1. Students could choose EITHER assignment 1a or 1b (20%)
1a. Psychosocial paper: Interview an aging individual 80 years. Student goal is to gain insight into the aging person as an individual with his/her own life history, interests, goals, etc. Student should try to discern what aging means to him/her to develop a perspective of the meaning and effects of aging on 1 older person.
1b. Community education project: Design a 30-minute, 15-slide, PowerPoint-type presentation that is delivered to a group of 10 or more community-dwelling older adults and that included 2 group-based, feasible activities to illustrate major points and to promote audience participation. This assignment provides an opportunity to explore older adult learning and how to effectively provide information to a group of aging individuals on some topic that is of interest to aging individuals, advocates for physical therapy, and includes exercise.
2. Orthopedic/exercise prescription assignment (25%)
This assignment is to demonstrate the science of exercise and application of exercise to pathology AND the students' clinical decision making. Our expectation was that the student would think holistically, yet be focused. The student was expected to interpret examination findings, draw inferences from the history, justify the elements of the examination, and develop a plan of care that is based on science and the individual's goals and interests, and develop a feasible plan.
3. Frailty lab assignment (25%)
This assignment is similar to the exercise prescription assignment focused on the assessment of frailty. The patient care model was utilized as a framework in the context of frailty. The written outcome included a brief history that is relevant to the mobility problems, relevant items from systems review, and results, including how this information informed the clinical hypothesis and clinical impression (clinical hypothesis) that drives the examination. The examination, evaluation, treatment plan, and functional goals also were included.
4. Final exam OR practicum (25%)
Option 1: Take-home, case-based exam that applies the knowledge the student has gained from the course and the entire curriculum in an integrated fashion. Estimated time to complete exam is 15 hours.
Option 2: Practicum experience of real-life experience working with a group of older individuals that the student had not had contact with previously or a group the student may feel uncomfortable with such as dementia, frailty, adult disabilities, etc. A student-initiated learning contract includes objectives for the practicum, a list of activities to achieve the objectives, and evidence the objectives were met. Expectation is 15 hours of contact.
5. Active participation (5%)
Based on the principle that learning is an act of active participation, the student is given the opportunity to frequently interact with older adults. Preparation for class is expected. Quality participation is demonstrated in a variety of ways (listed in the syllabus). At the end of the semester, the student submits a 1-page description of his/her active, quality-based participation supported by evidence as possible.

understanding of his or her orthopedic complaint and with some recommendation of how to manage the complaint. The exercise prescription/orthopedic clinical session also provided the opportunity to develop an appropriate exercise prescription using baseline strength measures such as a 1-repetition maximum. Patient consent forms were completed in compliance with the facility and university regulations.

The frailty clinical session focused on the objective evaluation of frailty and appropriate exercise prescription for frail individuals. Two adult day-care centers and 1 assisted living center were utilized for this session. The 2 instructors for the geriatrics course and an additional faculty member who was a geriatric clinical specialist served as faculty for the frailty clinical session assisted by clinical faculty from the sites as needed and available, providing a ratio of 1 faculty to 10 students. Ten to 16 older adults with a high level of frailty were recruited from 2 daycare centers and 1 assisted-living unit. Patient and family consent was obtained prior to the session. Frequently the frail older adults had some cognitive impairment. This provided rich practical experience for the students. Students were instructed to take a history focused on frailty, objectively assessing and confirming the presence of frailty through the physical therapist examination. A plan of care was designed in partnership with the volunteer patient, if possible, with some activity or recommendation given to the volunteer patient.

An additional practicum experience was designed as an alternative to the traditional written comprehensive exam. The practicum's purpose was to address student discomfort in working with a particular segment of the aging population. Examples of subsets of older adults that were targeted included those with dementia, physical disabilities, impending death, lower economic status, frailty, or who were home bound. Fifteen hours of experience was required, and the students were allowed to design their own experience with approval from the instructors. The students were instructed to develop a learning contract that outlined their learning goals, method of achieving the goals, and how achievement would be measured. Little guidance was given, except for those students who had difficulty creating their experience. Since no clinical work was done, no contracts between facility and the university were required, and the university's liability policy covered the students. Examples of the range of experiences are included in Table 6.

**Table 6. Examples of Practicum Experiences**

Setting	Activity	Focus
Hospice care	Sitting and talking with patients who were near death	Comfort with dying elders and understanding of medical and personal needs
Assisted living	Assisting with existing exercise programs, shadow physical therapists	Comfort with appropriate exercise program, communication with elders with altered cognition
Home of elders	Talking with elders	Comfort in communication, perspectives of elders
Adult daycare—Salvation Army	Volunteering in available activities	Comfort in dealing with older adults of different socioeconomic backgrounds
Adult daycare—social	Volunteering, assisting with activities, conversing with elders	Comfort in communication skills with elders with dementia, perspective of role of social daycare
Community-based exercise class	Assist with balance class, aquatics class, and other types of classes	Understand levels of motivation, improved comfort in communication and perspective of community-based exercise
Adult daycare—medical	Assist with activities, observe physical needs	Comfort in communication, continuum of care
Long-term care and short-term rehab	Shadowing a speech-language pathologist	Awareness of communication strategies for adults with altered cognition and effects of aging on specific individuals
Geriatric rounds	Attend Geriatrics Team rounds	Observe interdisciplinary approach, focus of medical team, suggest role for physical therapy
Geriatric emergency care	Observe activities of geriatric emergency room	Interact with medical team, look for opportunities for physical therapy role
Acute Care of the Elderly Program (ACE)	Assist with ambulation of older adults in hospital	Comfort with medically complex older adults
Program of All-Inclusive Care for the Elderly (PACE)	Converse with participants, assist with activities	Improve communication style with elders, discover older adults views on their aging
Low-income housing	Assist in program: “Relatives Acting as Parents”	Understanding of family dynamics, gain perspective from individuals of a different economic and social background
Short-term rehab	Observation of physical therapy and nursing	Investigate older adults views of physical therapy, aging and its impact, observe movement patterns and develop effective communication skills
Senior center	Assisting with exercise and walking programs	Awareness of range of abilities and how older adults adapt
Outpatient physical therapy clinic	Observe and converse with a physical therapist about orthopedic care of older adults	Improve comfort of and awareness of the role of joint mobilization; improve communication skills

**Development**

The development phase includes development of course content and materials. Course materials in the form of PowerPoint-type presentations were made and uploaded for each lesson. Typically, the slide presentations were developed as reference materials and were far more extensive than what could be delivered effectively in a 60-minute session. Materials such as copies of functional outcome tools were available on Blackboard,<sup>39</sup> and students were expected to have these available for

laboratory sessions. Reading assignments in the form of articles and text were posted to Blackboard<sup>39</sup> for each lesson.

**Implementation**

The implementation phase of the ADDIE model is where the actual delivery occurs and includes the expectations of the instructor and formative evaluation methods. During the first class the author as lead instructor spent considerable time (45 minutes) expressing her opinion for the need of a positive at-

titude toward older adults to promote the best physical therapy care. Ageism and the differences between normal or typical aging and successful and optimal aging were discussed. The author sought to acknowledge and overcome the denial and stereotypes that often exist in the young.<sup>42</sup> The weekly class experiences with older adults during the laboratory sessions tended to include the same 10 to 15 older adults each week, although as many as 35 NRC residents attended throughout the semester. Students worked in groups of 3 to

4 during the laboratory sessions, depending on how many older adults were present. The laboratory activities elaborated upon the didactic content just presented (see Table 4).

### Evaluation

The evaluation phase of the ADDIE model plans for the course outcomes. In the course described here, both mandatory course evaluations and standardized tools were used to describe the outcomes. Upstate Medical University Institutional Review Board approval was obtained. A standard, university-required student evaluation, using standard questions dictated by the department was used to assess the instructional effectiveness of the course. To assess knowledge of core principles, a 26-item true/false Knowledge of Aging Quiz (pretest and posttest) was developed by the author. The 14-item University of California at Los Angeles Geriatrics Attitude Scale (GAS) was used to assess student attitudes toward older adults.<sup>43</sup> The GAS has acceptable reliability (Cronbach alpha = .76)<sup>43,44</sup> and internal consistency according to 2 studies conducted by the originator of the GAS. The 14 items of the GAS are a mixture of positively and negatively worded questions graded on a Likert scale of 1 (“strongly disagree”) to 5 (“strongly agree”). A rating of 3 indicates a neutral response.

Two additional questions were used to address a course goal of willingness to work with older adults. The first question assessed the students’ interest in advanced geriatrics: “In the future I would consider a specialty in geriatric physical therapy,” using the same scale as the GAS (“strongly disagree” to “strongly agree”). The second question assessed the students’ willingness to work with older adults. The question asked, “To what degree do you WANT to work with older adults?” The second additional question used a Likert scale of 1 (“very unwilling”) to 5 (“very willing”).

### Statistical Analysis

Demographic characteristics of the students were obtained from program admission records. Individually generated 4-digit numbers were used to identify preassessments and postassessments to allow for statistical analysis. The 14-item GAS used 9 items phrased negatively and 5 items phrased positively. The 9 items considered negative were initially coded such that lower scores indicated more positive attitudes. These 9 items were transformed to be consistent with the direction of the positive GAS items. As a result, for all items on the GAS, a score of 1 or 2 indicated a negative attitude, a score of 3 indicated a neutral attitude, and a score of 4 or 5 indicated a positive attitude. Individual GAS scores

**Table 7. Knowledge of Aging Quiz and Geriatrics Attitudes Scale (GAS)<sup>44</sup> Mean Scores (n = 33)**

Outcome Measure	Mean (SD)		P Value
	Pretest	Posttest	
Knowledge of Aging Quiz <sup>a</sup>	20.40 (2.5)	21.30 (1.6)	.02 <sup>b</sup>
UCLA Geriatrics Attitudes Scale (GAS) <sup>c</sup>	56.21 (4.07)	55.67 (5.62)	.60

<sup>a</sup>Total possible score on the Knowledge of Aging Quiz is 26.

<sup>b</sup>Indicates statistical significance at .05 level.

<sup>c</sup>Summed averages of students’ GAS scores above 56 is considered positive, and below 42 is considered negative.

**Table 8. Pre- to Post-Course Changes in Classification of Attitudes Toward Willingness to Work With Older Adults<sup>a</sup>**

Attitude at Start of Course	Attitude at End of Course			Wilcoxon Signed-Rank Test
	Negative	Neutral	Positive	
Negative: n = 6	0	4	2	z = -2.20, P = .05
Neutral: n = 7	1	2	4	
Positive: n = 20	0	1	19	

<sup>a</sup>Five-point Likert-scale scores were collapsed into 3 descriptive categories.

**Table 9. Pre- to Post-Course Changes in Classification of Attitudes Toward Consideration of a Geriatrics Specialty<sup>a</sup>**

Attitude at Start of Course	Attitude at End of Course			Wilcoxon Signed-Rank Test
	Negative	Neutral	Positive	
Negative: n = 17	9	7	7	z = -1.98, P = .05
Neutral: n = 5	1	1	3	
Positive: n = 11	0	2	9	

<sup>a</sup>Five-point Likert-scale scores were collapsed into 3 descriptive categories.

were summed and divided by the total number of items to create an average composite GAS score for each participant. Higher scores indicated positive attitudes and lower scores indicated negative attitudes. Frequency tables were used to describe any change in attitudes of individuals as measured by the GAS within the cohort following the geriatrics course. The Wilcoxon signed-rank test on the change in frequencies of positive, neutral, and negative responses pre-course and post-course of the 2 questions (“To what degree do you WANT to work with older people?” and “In the future, I would consider a specialty in geriatric physical therapy”) was used to determine if there were significant changes in the median of the differences. Paired *t* tests were used to assess differences in means of the results of the Knowledge of Aging Quiz. Analyses were conducted using Statistical Analysis Software, version 9.1.<sup>45</sup>

### OUTCOMES

The mean age of the 33 entry-level students was 24.48 years (range = 21-37 years). The class was 73% female (n = 24). All 33 students completed the pre and post 26-item Knowledge of Aging Quiz, 14-item GAS, and 2 additional questions with no missing data. At baseline, students on average correctly answered 78.5% of the Knowledge of Aging Quiz (score of 20.4 out of 26, range = 15-25) and, on average, reported positive attitudes toward older adults on the GAS (56.21 ± 2.5). (See Table 7.) At baseline, 61% of students (n = 20) in the class indicated they wanted (were “willing” or “very willing”) to work with older adults, 21% (n = 7) were undecided (“neutral”), and 18% (n = 6) indicated they did not want (were “unwilling” or “very unwilling”) to work with older adults (Table 8). In contrast, at baseline, only 33% of students (n = 11) indicated they would consider specializing in geriatrics (“strongly agree” or “agree”),

**Table 10. Student-Generated Topics of Interest Posted on Blackboard<sup>40</sup>**

Online Topics and Student Participation in Discussion Board		
Topic	Total Posts	Total Participants
Ageism: What are some examples in physical therapy that reflect ageism?	38	16
Fears: What are your fears in working with older adults?	36	25
Functional assessment (questions and comments)	28	23
Exercise: What are the challenges you face in implementing evidence-based exercise programs for older adults? Do aging adults require different approaches/adaptations to strengthening exercises and activities? Why or why not?	25	19
Death and dying	22	13
Motivation	16	16
General	3	2
What influences aging the most—nature or nurture?	3	3
Orthopedics	10	9
Geriatric clinical settings	6	6
Frailty lab	3	3

15% (n = 5) were undecided, and 52% (n = 17) indicated they would not consider specializing in geriatrics (Table 9).

At the end of the course, scores on the Knowledge of Aging Quiz increased significantly ( $P = .02$ ), indicating greater knowledge of geriatric core principles following the geriatrics course (Table 7). There was no significant change in GAS scores ( $P = .60$ ). These scores started out mostly positive, indicating a generally favorable attitude toward older adults and did not change.

Scores on willingness to work with older adults displayed in Table 8 were significantly more positive at the end of the course ( $P < .05$ ). As displayed in Table 8, 95% of the students who started out positive remained positive at the end of the course. In comparison, 0% of the students who started out negative remained negative at the end of the course. Most students who were neutral moved to a positive response.

Scores reflecting interest in specializing in geriatrics ( $P < .05$ ) were significantly more positive at the end of the course (Table 9). As displayed in Table 9, fifty-three percent of students who started out unwilling to consider specializing in geriatrics became more positive, along with 60% of students who started out neutral. Eighteen percent of those who started out in the positive category

moved to the neutral category.

Fourteen students completed the university-mandated course evaluation online. Twelve out of the 14 student respondents felt more confident in treating older adults after the course. Qualitative comments indicated that a strength of the course was the constant interaction with the residents of NRC. Negative comments were with respect to the organization of the course (eg, how groups were assigned for the clinical assignments) and disliking the off-site location of the NRC, which involved parking challenges when returning to campus.

Students regularly used the discussion board on Blackboard<sup>39</sup> with 197 posts made throughout the semester. Topics are listed in Table 10; ageism generated 38 posts (16 participants). Fear had the second highest response rate of 36, with 25 students posting about fear. Self-identified fears included under-treating patients, using manual skills, fear of an older adult falling, altered cognitive status, and death and dying. Participation on the discussion board was considered an option for part of the active learning portion of the course grade.

## DISCUSSION AND CONCLUSION

This paper describes the infusion of an optimal aging philosophy into a physical thera-

pist entry-level geriatrics course. Students indicated a greater willingness to work with older adults and consider specializing in geriatrics following the course, thus achieving a primary course goal. The mostly positive attitudes reflected on the GAS remained positive and were not significantly unchanged. Specifically, the course design included elements of an optimistic perspective of aging combined with interaction with healthy older adults with an emphasis on relationship and increased knowledge of geriatrics. These findings are consistent with the literature regarding methods of changing health care students' attitudes toward older adults. For example, Burbank and colleagues found faculty with expertise in geriatrics who have a positive view of aging may change negative attitudes to more positive ones and increase a student's willingness to choose to work with older adults.<sup>46</sup> Additionally, Fitzgerald et al<sup>34</sup> and others found design elements such as frequent interactions with older adults, having mostly female students, and baseline positive attitudes increased the likelihood of considering geriatrics as a career choice.<sup>4,47,48</sup>

Descriptive evidence of scores that shifted to a more positive view in those students who were in the negative or neutral categories at the beginning of the course may reflect an effort on the instructor's part to teach to those students who did not want to work with older adults. Content that may be appreciated by more sports- and manual-therapy minded students was emphasized such as mobilization skills, exercise prescription, high expectations, and wellness and prevention. However, the reality is that many of the older adults referred to physical therapy are quite sick and frail. Since attitudes may remain the same and even grow more negative if the focus is the more complex, frail older adult,<sup>6,27</sup> the emphasis on optimal aging and the prevention of frailty may have had a positive effect on attitudes. However, an intensive clinical experience worth 25% of the course grade involved evaluating and working with a frail older adult. Perhaps the attitude and philosophy of the potentials of physical therapy with any older adult, frail or well, can have a positive effect on attitudes. A more systematic effort to integrate an optimal aging perspective throughout the curriculum may help more students become enthusiastically competent and open to working with older adults of all abilities.

The baseline favorable attitudes found in this group of physical therapist students, while unexpected, are similar to other authors' findings among physical therapists. For example, physical therapist clinical educators had the most positive attitudes toward aging



adults when compared with podiatrists and occupational therapist clinical educators.<sup>49</sup> Hobbs and colleagues<sup>50</sup> tracked attitude of physiotherapy students using the GAS and found students generally had a positive attitude that did not change throughout the curriculum. A recent systematic review of attitudes of health care students and professionals toward patients with a physical disability found that women are more likely to have a more positive attitude.<sup>51</sup> Burbank et al found a strong correlation between the creation of positive nursing student attitudes and nursing instructors' positive attitudes toward older adults as students engaged in real-world experiences with elders.<sup>46</sup> It is important to note that attitudes could become more negative without the positive view of aging and the geriatrics expertise of the instructors.<sup>52</sup>

An increased willingness to work with older adults also may indicate achievement of "valuing" on the taxonomy of learning across the affective domain. A systematic review looked at interventions that changed medical student and physician attitudes and concluded that studies including an empathy-building task as part or all of the intervention was more likely to result in a positive attitude change, especially when compared with knowledge-building alone.<sup>53</sup> Empathy-building interventions encouraged participants to relate to or share experiences with older adults outside a medical setting,<sup>53</sup> similar to several activities in our course (practicum experience, laboratory exercises, and psychosocial interview). Other evidence suggests that empathy-oriented programs that expose students to healthy, functioning older people may be beneficial in fostering positive attitudes to older persons.<sup>54,55</sup> Focusing on creating more positive attitudes is important because, as shown in a study of medical residents' attitudes, residents were unaware of the effect of their negative attitudes on the quality of care provided.<sup>56</sup>

Efforts to encourage the development of positive attitudes toward older adults in physical therapist education programs is important because the persistence of ageism is common and well-documented in young people.<sup>33,34</sup> Several reasons have been posited for this persistence, including a desire to distance oneself from the fear of growing old, a propensity for any age group to view their age as the "best" no matter what the age, and the desire to fix, rather than manage, chronic problems.<sup>57</sup> Bodner suggests the association of death and old age is a primary reason young people maintain ageist attitudes.<sup>57</sup> According to Bodner, death is so threatening to youth that young people want to distance themselves from it. He referred to

this as *death anxiety* and described its affects on social behavior in his terror management theory (TMT).<sup>57</sup> Included within TMT is the fear of serious impairments to quality of life, such as cognitive issues, an increase in health problems, and shorter longevity. Since death, decline, and old age are closely associated in the younger person's mind, young people use ageism as a defense. Bodner suggests addressing the linkage between death and old age by approaching the concept of death as one that is integral to one's life.<sup>57</sup> This course included one lesson on death and dying and provided an opportunity for students to discuss death and dying on Blackboard,<sup>39</sup> revealing a fear of death in those who commented. Given this fear of death and decline, it is important to encourage an optimal view of aging that incorporates death and dying as a natural part of the lifespan and part of optimal aging.

### Challenges in Implementation

Because of the initial positive scores on the GAS, it would be interesting to see how much the curriculum has encouraged positive experiences with older adults by assessing attitudes from the beginning of the curriculum. While experiences with older adults are part of the curriculum from the first semester of the first year, there is no unifying theme, such as optimal aging, to provide a consistent message and experience. Integrating optimal aging throughout the curriculum including educating all faculty members about the optimal aging framework may enhance or reinforce students' attitudes and perceptions.<sup>13</sup>

Questions arise about the benefits of a stand-alone geriatrics course that includes empathy-building strategies versus integration of geriatric knowledge throughout the curriculum. Since systematic reviews<sup>14,16,25,51</sup> have concluded the insufficiency of knowledge alone to change attitudes toward older persons and positive attitudes are necessary for physical therapist students to choose geriatrics as a career or be willing to work with older adults, it is important to include empathy-building and other affective domain strategies into the curriculum or through a stand-alone course to change attitudes. For example, Ní Chróinín et al<sup>58</sup> found that half of the 274 medical students in their last year said their geriatric module, which involved hands-on activities including simulated sensitization activities, positively influenced their interest in geriatric medicine. The results of this course and Ní Chróinín's et al findings indicate that a specific course can positively influence attitudes and confidence, an essential aspect to increasing the workforce and quality of care in geriatrics.<sup>13</sup>

One of the 3 overarching course goals was

for the student to appropriately apply sufficient intensity and specificity in an exercise prescription. Consequently, much emphasis was placed on the appropriate application of exercise interventions through assignments and lectures. Mandated university course evaluations indicated students who responded felt more confident in working with older adults. Applying an effective and appropriate exercise prescription was a learning goal for many students that if achieved, may have enhanced student confidence. This confidence may have contributed to the improved willingness of students to work with other adults. The direct correlation between achievement of specific student goals and willingness to work with older adults has yet to be explored and should be included in subsequent student outcome evaluations. A limitation of this method and the outcome measures used is the lack of correlation between outcome measurement and specific course goals.

Some challenges exist in delivering a geriatrics course in this format. The students did not like leaving the university campus and complained about the time it took to find a parking place once back on campus. There was a considerable amount of qualitative feedback required for the assignments, making the instructional workload for the course quite high. It also was logistically challenging to arrange 2 different clinical opportunities for 33 students in clinics that were open to the optimal aging paradigm and evidence-based practices. Additional challenges include finding willing faculty members who share the same philosophies of optimal aging to serve as mentors for the 2 clinical assignments and recruiting willing, aging adults to serve as "patients" and mentors for part or all of the semester. Developing a relationship with 1 or 2 geriatric facilities is an enormous help and has benefited other courses in the curriculum.

Adjustments have occurred in the 5 years we have used this format. Two years prior to this class, we switched the orthopedic clinical assignment with the frailty clinical assignment because the frailty experience, which was scheduled 5 weeks into the 14-week course, seemed to intimidate students when it occurred first. Another substantial change will be made for the year following the course described here. A 1-hour didactic class will be added and held on campus the day before the 2.5-hour laboratory portion held at the NRC. The amount of time that was used with the weekly laboratory portion of the course was substantial, and other course material was not introduced. Nor was there an opportunity to reflect on the laboratory portion, except through Blackboard<sup>39</sup> discussions. With the

separation between didactic knowledge and laboratory activities, geriatric content can be maximized and interactions with older adults can be efficient. This new format will not require additional credits.

Only 2 students in the past 4 years have elected to take the written final exam. Students were expected to find their own clinical experiences for the practicum, a challenging task for some students. However, students did challenge themselves, and often chose to work in settings with older adults with cognitive issues. The students' reflections generally showed an improvement in their comfort level with aging adults. Another challenge is that many students chose not to do the readings, perhaps because of the lack of a final exam. Adding written quizzes to test content knowledge is being considered for subsequent years. And finally, while the NRC facility served the purpose of providing interaction with successful aging older adults in a friendly, welcoming environment, there was a lack of diversity among the residents that was limiting to the attainment of the cultural objectives. Additionally the room setting was less than ideal (eg, noise outside the classroom, lack of optimal space), which bothered some students and made it difficult for the older adults to hear.

### Limitations

Several limitations exist for this method of presentation. Only 1 year is described with just 33 students from 1 institution, limiting generalizability. Bias is a concern, as the author designed and delivered the course content. The students were well aware of the author's perspective and strong feelings about appropriate care for aging adults, as well as the expectation that they develop a more positive attitude. It is impossible to know what influence the instructor had on the outcomes, positively or negatively, but certainly bias is a factor when describing one's own course design and delivery. Using a tool such as the GAS was an attempt to limit bias, however flawed the tool was found to be. The author's development of the Knowledge of Aging Quiz was designed to reflect the content delivered in the course, but is acknowledged as another source of bias. Consideration was given to using the Palmore's Aging Quiz and other geriatric content tests, but none were specific to physical therapy. This quiz has not undergone any kind of validation; therefore, the results should be regarded with caution.

There is little research on the attitudes of physical therapist students toward aging adults. Nor is there much research on how these attitudes are influenced. Therefore, much of the background for this paper was

derived from nursing and medical students' attitudes, which may be more negative than those of physical therapist students.<sup>45</sup> There also were some limitations to the outcome measures. The 14-item GAS, a more global measure of an individual's attitude of older adults, has been found to have methodological errors that may not make it an ideal instrument to measure attitudes.<sup>59</sup> Stewart and colleagues found the GAS had internal consistency issues with many of the items seemingly unrelated to each other.<sup>59</sup> While the GAS is considered to be an appropriate tool to measure attitude because it is assumed to decrease bias with mixed use of items, the mixed use of positively and negatively phrased items may threaten internal consistency.<sup>59</sup> Respondents do not answer the positive and negative statements in the same way as originally assumed.<sup>59</sup> However, there are few standardized attitudinal scales available with acceptable psychometric properties,<sup>60</sup> and the GAS is the best-known scale with the best reliability. Interestingly, because of inconclusiveness of measuring and changing attitudes toward older adults, Stewart and colleagues<sup>59</sup> have suggested that perhaps competence should be measured rather than attitudes. Measuring competence also would be a way of measuring course goals.

Further research should investigate whether systemic curricular changes incorporating the successful aging paradigm could positively impact physical therapist students' career choices in favor of working with older adults. A second question about how negative or positive attitudes and perceptions toward older adults impact the quality of care delivered in the physical therapy setting deserves exploration. Teasing out which instructional strategies impact student attitudes about older adults is needed to promote evidence-based education. And finally, additional tools to measure both attitudes and competence in geriatric physical therapy are needed to measure outcomes of innovative educational strategies.

The instructional goals of (1) developing a desire to WANT to work with older adults, (2) to apply sufficient intensity and specificity in the exercise prescription to avoid under-treating patients, and (3) to help the student distinguish the important from less important issues and facts during a history formed the foundation of the course. The philosophy of optimal aging and positive attitudes about the potential well-being of older adults permeated the content and delivery of the course. The weekly interaction with older adults who participated in the class provided opportunities for interaction, relationship building, and practice. For too long, a decline and decay

paradigm of aging has been emphasized in health care education programs and geriatrics courses. Infusing the optimal aging paradigm into curriculum with empathy-building exercises may be strategies for promoting the willingness of new physical therapists to work with older adults.

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# Interprofessional Education in a Rural Community-Based Falls Prevention Project: The CHAMP Experience

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**Background and Purpose.** The complex health care challenges facing our nation demand a paradigm shift to an interprofessional approach to the education of health professionals. Interprofessional learning experiences in nontraditional, community-based settings are especially critical for preparing a workforce to meet the needs of vulnerable populations such as older adults and those living in rural areas. The purpose of this paper is to describe interprofessional, rural community-based education as implemented during the first 2.5 years of a falls prevention project called the Community Health and Mobility Partnership (CHAMP).

**Case Description.** The CHAMP project began in a rural Appalachian county in western North Carolina in 2009. Interprofessional health care teams, including physical therapy, nursing, and emergency medical services personnel, conducted

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in-depth screenings for falls risk and provided advice and individualized exercise recommendations to program participants. Physical therapist (PT) and physical therapist assistant (PTA) students, faculty, and clinicians performed standardized assessments of strength, balance, and mobility and provided instruction in home program exercises or referral to local health care providers as appropriate.

**Outcomes.** Program providers held 53 events for falls risk screening and management for a total of 173 older adults over the 2.5-year period. Twenty-eight PT students and 75 PTA students participated, along with approximately 40 nursing students. PT and PTA students reported that the experience reinforced what they had learned in the classroom and provided opportunities for learning about other health professionals and about the needs of older adults living in rural communities.

**Discussion and Conclusion.** Interprofessional education as part of an academic-community partnership provided benefits for participants, faculty and students, and the community. These types of learning experiences can help prepare PT and PTA students as collaborative team members.

**Key Words:** Community education, Cultural competence, Entry-level education, Geriatrics, Service learning.

## BACKGROUND AND PURPOSE

The recent trend toward health care delivery in community-based settings is driven by escalating health care costs and socioeconomic disparities,<sup>1</sup> as well as by the finding that one of the most effective methods for improving the health of a population is to work in partnership with communities.<sup>2</sup> Health care delivery in community-based settings, when compared with traditional practice settings, involves much more than a simple change in

venue.<sup>3</sup> Providers must develop skills in such areas as communication, coalition building, shared decision making, service coordination, advocacy, conflict resolution, and program and resource development.<sup>3,4</sup> This paradigm shift demands greater integrated learning experiences for physical therapist (PT) and physical therapist assistant (PTA) students to prepare them to work in communities as collaborative interprofessional team members.

In a study published in 2001, Levin and Herbert<sup>3</sup> surveyed a group of health care professionals, including social workers, nurses, occupational therapists, and PTs, concerning their perspectives on community-based health care. Although a majority of the respondents reported “working with the community,” this apparently involved primarily referral to and liaison with existing service providers. Most of the PT respondents reported spending less than 20% of their time in this work. The respondents tended to define *community* somewhat narrowly, in terms of geographic location or institutional/social supports. The authors of the study, on the other hand, favored a definition of *community* that includes common interests and a sense of belonging.<sup>3</sup> A broad definition of *community* as a set of relationships or connections among individuals and/or institutions that share common values, beliefs, interests, or goals<sup>5</sup> is consistent with our vision of community-based education for PT and PTA students. Although the connections that create community may be geographically based, this is not necessarily the case.

More than a decade has passed since the Levin and Herbert<sup>3</sup> study was published, and much has changed in the education of health professionals. The National Advisory Committee on Interdisciplinary, Community-Based Linkages, in its 2001 annual report,<sup>6</sup> called for integration of concepts of interdisciplinary collaboration and community-based learning in health professions education. The intent was to prepare a national

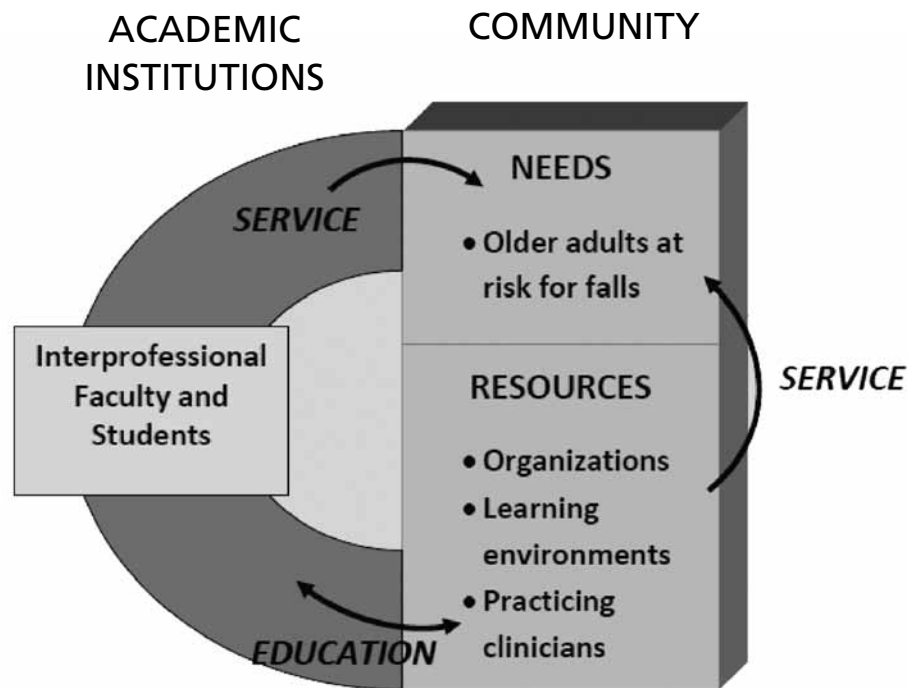
health care workforce to meet the needs of unserved, underserved, and vulnerable populations. Although much remains to be accomplished, health care providers have begun to understand the concepts of “interdisciplinary,” “interprofessional,” and “community” in ways that are altering their practice and, by necessity, the nature of their educational preparation.<sup>3,7</sup>

The term *interprofessional* refers to members of 2 or more professions working together.<sup>8</sup> Interprofessional education is an approach to preparing health care students to function effectively as members of interprofessional teams.<sup>9</sup> Students participating in interprofessional education share skills and knowledge with students and clinicians from other professions in a manner that promotes better understanding, common values, and mutual respect. The goal is to develop an interprofessional, collaborative approach that leads to optimal quality of care and client outcomes.<sup>4,8,9</sup> Interprofessional education does not require development of a complete curriculum, but can take place whenever different professions learn with, from, and about each other.<sup>4</sup> Because of the complexity of caring for older adults, interprofessional education is especially critical for health professionals who work in geriatrics.<sup>8,10</sup>

As the health care challenges facing our nation grow more complex, the need for interprofessional education grounded in “real world” practice becomes even more pressing.<sup>11</sup> Interprofessional education, with integration of didactic instruction with clinical and community-based learning, has been endorsed by numerous national and international governmental, philanthropic, and educational organizations.<sup>12,13</sup> The most recent calls for reform are reflected in the landmark report of the 2010 Lancet Commission on the Education of Health Professionals for the 21st Century.<sup>14</sup> The commission challenges educational institutions to “incorporate novel forms of learning that transcend the confines of the classroom.”<sup>14(p1926)</sup>

The purpose of this case report is to describe interprofessional, rural, community-based education as implemented during the first 2.5 years of a falls prevention project called the Community Health and Mobility Partnership (CHAMP). Project developers viewed involvement of faculty, students, and volunteer clinicians as offering a practical approach for delivering falls prevention services to older adults. Over time, the potential benefits of the program for the education of health professional students became apparent, and faculty members decided to try to learn more about these benefits and to share this information with colleagues. One re-

**Figure 1. A Model of Interprofessional Education as Part of an Academic-Community Partnership**



sult was the preparation of this case report, which includes presentation of a model for the CHAMP project, a description of how the project was planned and implemented, and discussion of project outcomes.

### CASE DESCRIPTION

#### Need for the CHAMP Project

Older adults are especially vulnerable to fall-related injury and death. One out of 3 community-dwelling adults over 65 years of age falls each year, and between 5% and 10% of these individuals sustain a serious injury as a result of the fall.<sup>15,16</sup> Among North Carolina residents aged 50 years and older, falls are the leading cause of deaths resulting from unintentional injuries.<sup>17</sup> The CHAMP project was designed to identify older adults with balance and mobility deficits in rural and underserved areas of North Carolina and to provide interventions to improve balance and mobility and reduce the number of falls in this population.

The CHAMP project began in the fall of 2009 in a sparsely populated region in the Blue Ridge Mountains of western North Carolina. As part of rural Appalachia, this region faced problems with access to health care.<sup>18</sup> Like other rural Americans, residents of this area were less educated, disproportionately

poorer, and more likely to report being in poor or fair health when compared with their urban counterparts.<sup>18,19</sup> Initial development and implementation of the CHAMP project focused on 1 county in the region. According to the 2010 US Census Bureau, the county’s 44,996 citizens were predominately white (90.6% of the county’s population).<sup>20</sup> When compared with North Carolina as a whole, the county had a larger percentage of older adults (16.4% and 12.9%, respectively), and a lower percentage of residents with a bachelor’s degree or higher (14% and 26.1%, respectively). The median household income was \$37,374, and the poverty rate was 15%.<sup>21</sup> For residents aged 65 years and older, the combined effects of aging and residing in a rural community likely resulted in substantial health care risk, sometimes referred to as “double jeopardy.”<sup>22</sup> Because the area did not have a public transportation system, many older adult residents had difficulty reaching health care personnel or facilities.

#### Project Development: The CHAMP Model

Our proposed model of the process by which an integrated learning experience like CHAMP can benefit academic institutions and communities is shown in Figure 1. Although the particular need chosen as a focus

for CHAMP in western North Carolina was falls prevention, the model can be adapted to fit whatever needs and resources may be present in the community.

The idea for the CHAMP project originated with faculty at the University of North Carolina at Chapel Hill (UNC). A development officer at UNC, aware of the faculty's search for an appropriate site for developing and implementing a falls prevention project, suggested this region in the western part of the state. Although the driving distance from UNC (approximately 3 hours one way) was a concern, this area clearly had many characteristics that made it a good match for such a project. First, community leaders recognized that falls among older adults was a serious problem in the region, and they were very enthusiastic about the possibility of establishing a program to address this problem. Second, the community had many existing resources, with strong collaboration among organizations serving older adults. Third, a philanthropic organization had an interest in funding projects in the area.

A meeting was held at one of the local senior centers to consider the feasibility of

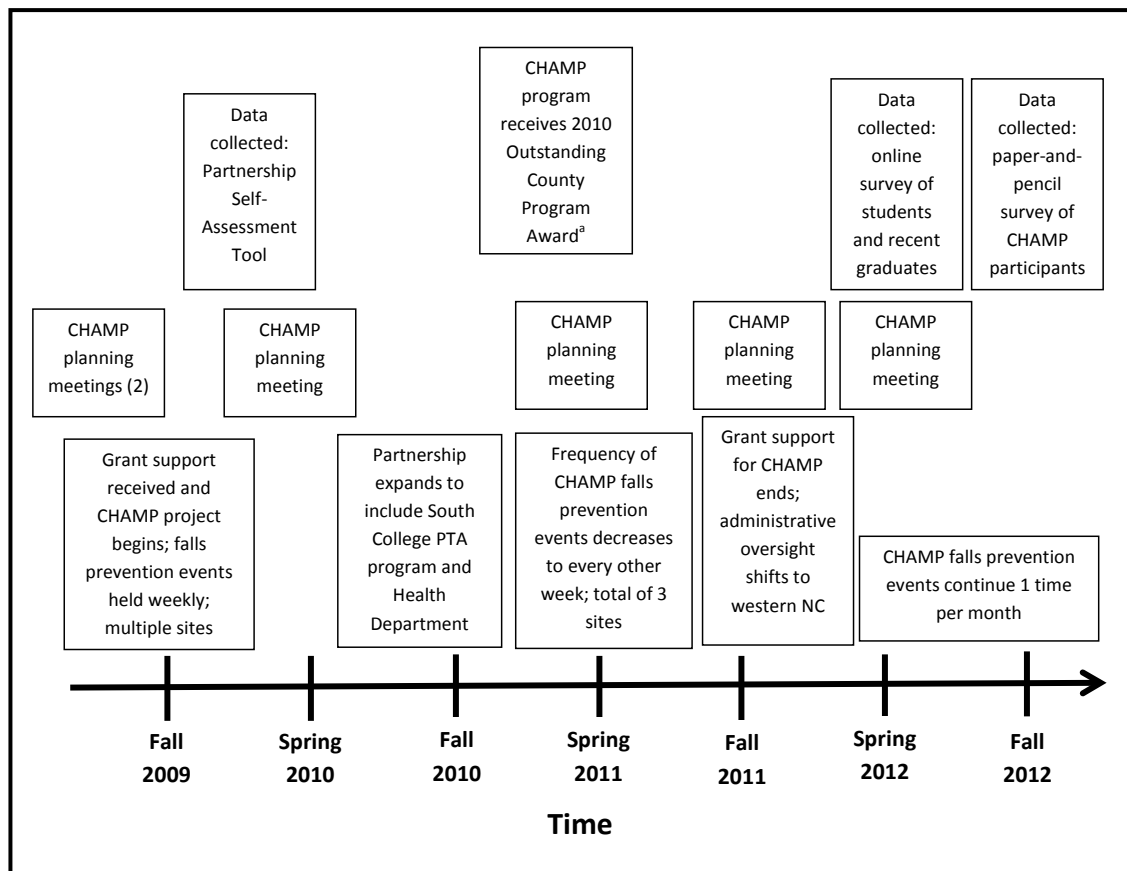
a falls prevention project in the region. This first meeting included faculty from the Division of Physical Therapy and the School of Nursing at UNC and from the local community college and representatives from a number of other local agencies and organizations, including the county government, Emergency Medical Services (EMS), senior centers, and the Department of Social Services (DSS). Those at the meeting agreed on an overall design for the CHAMP program that included the following: (1) use of an evidence-based program as the basis for the intervention, (2) involvement of physical therapy and nursing students and faculty from local academic institutions, (3) involvement of local EMS personnel, (4) utilization of community volunteers (including health care professionals) to the greatest extent possible, and (5) a commitment to reaching out to as many older adults as possible by offering the program free of charge and holding events in various geographic locations throughout the region.

The academic-community partnership that emerged from this meeting quickly expanded to include additional academic institutions, including the physical therapist

education programs at Western Carolina University and Elon University, the physical therapist assistant program at Caldwell Community College and Technical Institute (CCC&TI), and the Department of Nursing at Appalachian State University. Members of the partnership strongly encouraged this expansion, placing great value on the reciprocal learning that could take place between those receiving services, community partners, and interprofessional academic faculty and students (Figure 1). They recognized that health care students could help provide needed services to older adults in the community while at the same time receiving valuable training.

Largely because of the existence of this strong academic-community partnership and the presence of several community leaders at a meeting with representatives of the funding agency, CHAMP received funding for the first 2 years of the project (see project timeline in Figure 2) through a grant to UNC from the Baxter International Foundation. These funds were used to purchase equipment (eg, a portable treatment table) and supplies (eg, stethoscopes, stopwatches, adjustable ankle cuff weights), and to provide

**Figure 2. Timeline of Community Health and Mobility Partnership (CHAMP) Activities**



<sup>a</sup>Awarded by North Carolina Association of County Commissioners.

support for a project coordinator, a position filled by a doctoral student in the Human Movement Science Curriculum at UNC.

In early 2010, the Partnership Self-Assessment Tool<sup>22</sup> from the Center for the Advancement of Collaborative Strategies in Health was used to assess the functioning of the CHAMP partnership. Consistent with guidelines for use, this self-assessment was administered at an early stage (approximately 6 months after the formation of CHAMP) in order to “determine how well the partnership’s collaborative process was working and to identify corrective actions that could help the partnership realize the full potential of collaboration.”<sup>22</sup> The 12 individuals involved in planning and implementation of CHAMP (1-2 people from each of the partnering organizations described above) were asked to complete the self-assessment anonymously, using a Likert scale ranging from 1 (low) to 5 (high). An administrative staff person at UNC, who was not involved with the CHAMP program, compiled the results. Mean scores on items from the self-assessment tool for the 7 individuals who responded (58% response rate) are reported in Table 1. Six benefits listed in the self-assessment tool were reported by 100% of respondents as being benefits they received: (1) enhanced ability to address important issues; (2) increased utilization of my expertise or services; (3) acquisition of knowledge about services, programs, and people in the community; (4) development of valuable relationships; (5) ability to have a greater impact than I could have on my own, and (6) ability to make a contribution to the community. Drawbacks of participating that were reported by at least 50% of the respondents included “diversion of time and resources away from other priorities or obligations” (57%) and “conflict between my job and the partnership’s work” (50%). When asked how the benefits of participating in the partnership compared with the drawbacks, the respondents indicated that the benefits “greatly exceeded” (57%) or “exceeded” (43%) the drawbacks.

In the first year of operation, CHAMP’s academic-community partnership expanded even further to include the physical therapist assistant program at South College-Asheville (South) and the local Health Department (Figure 2). A physical therapist from the local hospital and a retired nurse living in the community also became regular volunteers. These clinicians, the EMS personnel, and all of the academic faculty and students were directly involved in providing falls prevention services to older adults in the community. They were part of a team that conducted in-depth, multifactorial screenings for falls

**Table 1. Ratings by CHAMP Partners (n=7) on the Partnership Self-Assessment Tool<sup>22</sup>**

Item (With Definition)	Mean Score
<i>Synergy</i> Extent to which the partnership can do more than any of its individual participants	4.2
<i>Leadership effectiveness</i> Ability to promote productive interactions among diverse people and organizations	4.0
<i>Efficiency</i> How well a partnership optimizes the involvement of its partners	4.0
<i>Administration and management</i> Facilitating communication, coordinating activities, managing funds, providing analytic support, orienting new volunteers, minimizing barriers to participation	4.0
<i>Sufficiency of non-financial resources</i> Skills/expertise, data/information, connections, endorsements, convening power	4.4
<i>Sufficiency of financial resources</i> Space, equipment, supplies	4.1

risk and provided advice and individualized exercise recommendations to program participants. Representatives from DSS also attended CHAMP events during the first year to assist participants in areas such as obtaining medications. Although unable to provide staffing at events after the first year because of increasing demand for their regular services, DSS readily accepted referrals to assist CHAMP participants.

The other community organizations involved with the project participated in regular planning meetings and helped shape project implementation. Of these organizations, the senior centers played a particularly important role. They provided publicity about and facilities for CHAMP events, as well as storage of CHAMP equipment and supplies. They, in turn, were able to offer falls prevention services that many of their clients wanted and to attract other older adults in the community to the centers to participate in CHAMP events. The senior centers offered rich learning environments in which community residents, senior center staff, and interprofessional clinicians, faculty, and students had opportunities to interact with and learn from each other.

**The CHAMP Learning Experience**

Student participation at CHAMP events was on a volunteer basis for PT students and a course requirement for PTA students. For PT students, CHAMP was offered as one of several opportunities for service learning and was open to first-, second-, and third-year

students who had completed an introductory course on PT intervention and either had completed or were concurrently enrolled in an exercise prescription class. Faculty and students who had previously participated in CHAMP shared information about the program with prospective student volunteers via e-mail and on-line discussion boards, as well as at UNC, through a lunch-time presentation at clinical rounds. The vast majority of PT student volunteers were in the second or third year of the program. With prior approval from the student’s clinical instructor, PT students who were assigned to clinical experiences in nearby locations in western North Carolina were given permission to spend 1 day of the experience volunteering at a CHAMP event.

At one of the partnering PTA programs (CCC&TI), CHAMP participation was required for 3 different classes, including a summer “Therapeutic Procedures” class, a fall “Therapeutic Exercise” class, and a spring “Health Care Resources” class. For the other PTA program (South), students were required to attend a CHAMP event as part of a course on orthopedic or neurologic physical therapy, but only after they had covered therapeutic exercise in the orthopedic physical therapy class. The director of the South College program reported that students often requested an opportunity to attend a second CHAMP event, but that these requests were not usually accommodated because of the large number of students.

All PT and PTA students who were sched-

uled to participate at an event received written information about CHAMP procedures, as well as copies of consent forms, medical history forms, and assessment tools (with an instruction manual describing how to administer the assessments). This information was provided in hard copy or electronic format by the faculty mentor (ie, the faculty member who represented each PT or PTA program partnering with CHAMP). Faculty mentors insured that all students participating at CHAMP events had been trained in administering the standardized assessments used in the program. In addition, an instructional videotape covering CHAMP procedures and assessments, created during a live presentation to a class of PTA students at CCC&TI, was used for training subsequent classes of students in that program. Nursing students received similar training via teleconferencing from UNC.

CHAMP was based on the Otago Exercise Programme (OEP), which is a home exercise program that has demonstrated effectiveness in preventing falls, in community-dwelling older adults.<sup>23</sup> In a series of 4 controlled trials involving 1,016 people between 65 and 97 years of age (mean age = 82.3 ± 4.6 years), the Otago program reduced by 35% both the number of falls and the number of injuries resulting from falls.<sup>24-28</sup> A meta-analysis assessing overall effects of the trials indicated that exercise group participants had significant improvements in strength and balance measures when compared with a control group that received usual care and social visits.<sup>23</sup> For CHAMP, a modified version of the OEP was used to promote efficient use of program resources. The primary modification was to have participants come to central locations in the community for assessment and intervention, rather than having CHAMP personnel travel to people's homes. Key elements in the OEP that were retained included: use of OEP assessment tools (with the addition of other assessments for CHAMP); individualized recommendations for home exercises and a walking program; use of the identical exercises and exercise handouts from the OEP; provision of adjustable ankle cuff weights to provide resistance during exercise, as appropriate; and follow-up by means of phone calls and appointments at subsequent CHAMP events.

In the first 1.5 years of the program, CHAMP events were held at a variety of locations throughout the area that were accessible to older adults. These included senior centers, volunteer fire departments, and churches. Because participant turnout was much greater at the senior centers than at other locations, as well as to avoid the need to transport equip-

ment and supplies to multiple facilities, all later CHAMP events were held at 1 of only 3 locations: 2 senior centers, and 1 subsidized housing community for low-income seniors.

At each event, participants with concerns about balance and/or mobility underwent comprehensive screening for falls risk factors by a team of nursing, PT and PTA students, faculty, clinicians, and EMS personnel. Clinicians included local nurses and a hospital-based physical therapist who volunteered at CHAMP on a regular basis, as well as an occupational therapist who assisted during a few CHAMP events. The Assessment Summary Form (Appendix) helped to guide the process, as each participant was assessed for each risk factor, and health care providers made recommendations to the participant that were consistent with the guidelines on the form. Nursing and EMS personnel focused primarily on medical history; blood pressure assessment in lying, sitting, and standing positions; cognitive screening; medication review; and vision screening. They recorded their findings on the Assessment Summary Form, which accompanied the participant through each phase of the screening. They also summarized assessment results in face-to-face communications with other members of the team. Physical therapy (PT and PTA) students, faculty, and clinicians had primary responsibility for performing standardized assessments of upper- and lower-extremity muscle strength (grip strength, timed chair stands<sup>29</sup>), balance confidence (Activities-specific Balance Confidence Scale<sup>30</sup>), static balance (Four-Test Balance Scale<sup>31</sup>), and mobility (Timed Up & Go Test [TUG]<sup>32</sup>). They consulted with nursing and EMS personnel regarding any concerns about medical issues, such as possible medication side effects or interactions that might have affected physical performance testing or the interpretation of test results.

For assessment of strength, balance, and mobility, 1 to 3 students and a faculty member or clinician worked with each participant. Whenever possible, PTA students were paired with PT students, but this was not always possible because many more PTA than PT students participated. During the assessment process, PT and PTA students were always supervised by a licensed PT. The PTA students helped administer the assessments, and then 1 or more PT students, faculty members, or clinicians interpreted the results and used the information to make intervention decisions. An algorithm (Figure 3) consistent with the guidelines of the American Geriatrics Society<sup>33</sup> was used to determine whether the participant was at increased risk for falls. Participants who had TUG scores equal to

or greater than 13.5 seconds, were unable to stand on 1 leg for at least 5 seconds, had a history of 1 or more unexplained falls within the last 12 months, or reported limiting activities because of concerns about falling were considered to be at increased risk and were scheduled for follow-up through CHAMP and/or referred to local health care providers. Those followed through CHAMP were given individualized Otago exercises,<sup>34</sup> instructed in performance of these exercises, and scheduled for at least 2 follow-up CHAMP appointments. Follow-up visits typically lasted about 30 minutes and included review of previous recommendations and progression of exercises as appropriate. CHAMP health care providers viewed follow-up visits as critical to achieving individual and program goals.

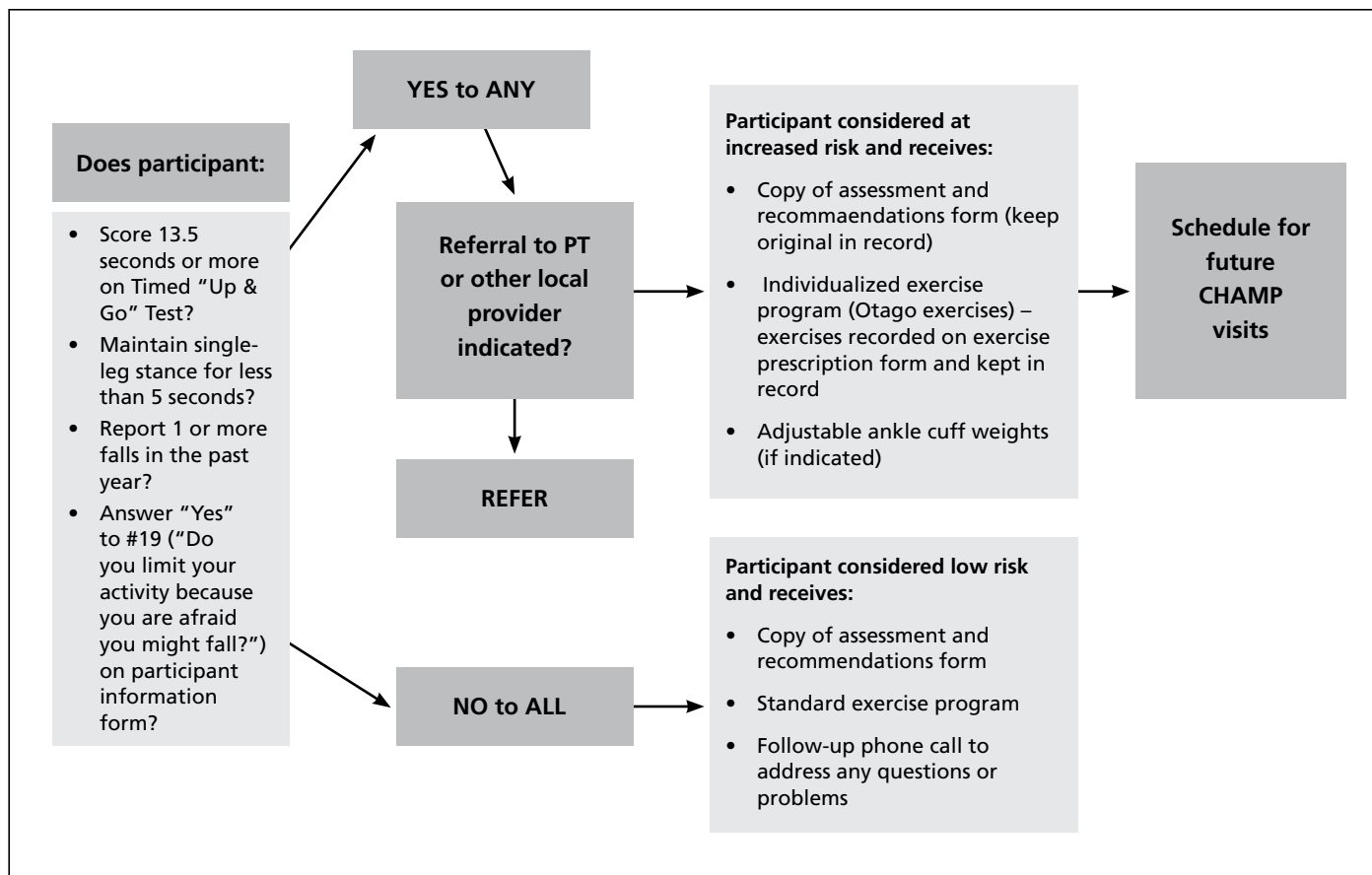
The typical procedure for students attending a CHAMP event for the first time was to have the student accompany an older adult participant through the entire assessment and intervention process. In addition, PT and PTA students sometimes worked directly alongside nursing and EMS personnel to assist with assessment of risk factors such as hypertension or impaired cognition. These strategies, along with consultation and team decision-making for participants who were being considered for referral, helped to facilitate interprofessional education.

## OUTCOMES

In the first 2.5 years of the program (through the end of 2011), CHAMP providers conducted 53 events for falls risk screening and management. A total of 173 older adults received comprehensive falls risk assessments. Of these, 141 were identified as being at increased risk for falls and were given individualized exercise recommendations and/or referrals to community health care providers as appropriate. To obtain feedback about the program from older adult participants, an anonymous, paper-and-pencil survey was conducted at the 3 regular CHAMP event locations (2 senior centers and 1 subsidized housing community). The survey was handed out by staff at each location, and an announcement about the survey was made at the noon meal at the senior centers. All older adults who had participated or were participating in CHAMP were invited to complete the survey. Only 37 participants completed the survey, perhaps because of the short time frame that participants had access to the survey (1 day at each site), or because of the lack of a personalized appeal to the participants to complete the survey. However, from the limited data available, the program appeared to be well received (Table 2). More than 94% percent rated the program as "very good" or



**Figure 3. Algorithm for Risk Identification and Recommendations for Community Health and Mobility Partnership (CHAMP)**



“excellent” (Table 2, item #1), and all (100%) had a positive perspective on student participation in the program (Table 2, item #4) and reported receiving physical benefits from their participation (Table 2, item #5).

Twenty-eight PT students and 75 PTA students participated in CHAMP during the first 2.5 years of the program, along with approximately 40 nursing students, 3 EMS students, 1 doctoral student in human movement science (who also served as project coordinator), 1 medical student, and 1 student in exercise physiology. As noted in the introduction of this paper, health care professionals who provide services in community-based settings must have skills in a number of different areas. Students who participated in CHAMP had opportunities to develop skills in communication, coalition building, shared decision making, and service coordination as a direct result of their roles in assessing participants and making recommendations for intervention as part of an interprofessional team. With regard to service coordination, for example, some participants were found to need services ranging from emergency evaluation of severe hypertension with headache to assessment of symptoms suggestive of vestibular

dysfunction to assistance with payment for medications. The students who worked with these participants helped with identification of and referral to appropriate resources and services in the area or in a larger city approximately 40 miles away.

In addition to providing screening and intervention for participants, some students involved with CHAMP had opportunities to learn about advocacy, conflict resolution, and program and resource development by being a part of informal discussions about the program and by attending formal planning meetings, which were held approximately 2 times a year, often in association with regular CHAMP events. Four students helped with program planning, data entry, and creation of an Otago exercise video, which continues to be aired on the county government television channel. The doctoral student who served as project coordinator was responsible for program administration, including scheduling, coordinating, database management, and data analysis.

Through interactions with individuals from other schools and professions, students participating in the CHAMP project also had opportunities to share skills and knowledge,

develop positive attitudes toward each other, learn about local culture, and work toward improving participant outcomes.<sup>9,35</sup> Consistent with observations from other academic-community partnerships,<sup>36</sup> faculty and students involved with CHAMP came to view the community as a teaching resource and partner, rather than as a passive recipient of services.

In the summer of 2012, a survey was created via SurveyMonkey.com<sup>37</sup> and sent via e-mail to all students and recent alumni of the education programs that had participated in CHAMP from its beginning in 2009 through academic year 2011-2012. A universal sample was selected, as CHAMP participation was required for all the PTA students and because this was the best method to reach PT students who might have volunteered for CHAMP and could then self-identify as having done so. Although all PT and PTA programs that had been involved with CHAMP during this time period were included, a change in the alumni e-mail system at one of the PTA programs (CCC&TI) resulted in almost all of the 50 alumni from that program being lost to follow-up. A total of 30 (13 PT and 17 PTA) students and recent alumni who had

**Table 2. Results From Survey of Older Adult Participants in CHAMP<sup>a</sup>**

Question/Item	Response				
1. How would you rate the CHAMP program overall?	Poor 0.0% (0)	Fair 0.0% (0)	Good 5.4% (2)	Very Good 35.1% (13)	Excellent 59.5% (22)
2. How satisfied are you with your experience as a participant in the CHAMP program?	Not at all satisfied 0.0% (0)	A little satisfied 0.0% (0)	Somewhat satisfied 5.4% (2)	Mostly satisfied 21.6% (8)	Completely satisfied 73.0% (27)
3. How well did the health care providers at CHAMP work together to assess and make recommendations for you?	Not well at all 0.0% (0)	Not so well 0.0% (0)	Somewhat well 2.7% (1)	Very well 35.1% (13)	Extremely well 62.2% (23)
4. How do you feel about having health care students (physical therapy and nursing students) involved with the CHAMP program?	Strongly negative 0.0% (0)	Negative 0.0% (0)	Neutral 0.0% (0)	Positive 37.8% (14)	Strongly Positive 62.2% (23)
5. Please rate your level of agreement with the following statement: "I have benefited physically (for example, with better strength, balance, walking, or overall health) from my participation in CHAMP."	Strongly disagree  0.0% (0)	Disagree  0.0% (0)	Neutral  2.7% (1)	Agree  43.2% (16)	Strongly Agree  54.1% (20)
<p>6. What were the two BEST things about your CHAMP experience?</p> <ul style="list-style-type: none"> <li>• "Learned some exercises that help. Help was very nice and patient."</li> <li>• "Balance better. Friendly staff. Always made me feel better."</li> <li>• "Learning to balance. Aware of needing exercise."</li> <li>• "Improved my balance. Encouraged me to continue my exercise program."</li> <li>• "Be more aware of losing your balance. How important to use your walking. Our profession people are here in our county to teach us and do our training."</li> <li>• "They were well knowledgeable at physical tests."</li> <li>• "They gave their complete attention to me. They were very positive and pleasant. I felt better after being with them, and made me want to continue my exercise."</li> <li>• "Location, professionalism of personnel."</li> <li>• "Helps to keep on moving. Make sure you place your feet correctly."</li> <li>• "Given new exercises. Friendly staff."</li> <li>• "Learning how to be more careful. Taking my time."</li> <li>• "Very professional staff and fun. Easy going."</li> <li>• "The people." (3 comments)</li> <li>• "Feel better."</li> <li>• "It helped me with balance. Helped with posture."</li> <li>• "Fast and thorough."</li> <li>• "Make you stronger. Very healthy."</li> <li>• "The exercises they taught me were so helpful. All the staff were so positive and encouraging."</li> <li>• "My balance was greatly improved and I have had no more really bad falls."</li> <li>• "I was losing muscle strength in my legs and sometimes I fell very easy. I have regained my walking ability and by watching my step, I'm not falling now."</li> <li>• "Focus on balance. Strength train."</li> <li>• "Learning the different exercise. Meeting new people."</li> <li>• "Learning."</li> <li>• "Patience, understanding"</li> <li>• "Learning my strengths and weaknesses."</li> <li>• "Did my exercises every day."</li> <li>• "Exercises." (2 comments)</li> <li>• "Information." (3 comments)</li> </ul>					
<p>7. What were two things about your CHAMP experience that could have been better?</p> <ul style="list-style-type: none"> <li>• "If I had been able to do exercises daily it would have been great."</li> <li>• "They do a very good job!"</li> <li>• "Everything went well."</li> <li>• "None. It was very good program."</li> <li>• "I like the whole program."</li> <li>• "It was all good. I have no negative/semi-negative comments."</li> <li>• "Not anything." (2 comments)</li> <li>• "None." (3 comments)</li> <li>• "Hard to say. Encourage others to participate. More often? – I liked the experience."</li> <li>• "Fridays were a hectic day for me as I usually participated in Senior Center variety shows. Another day would have worked better for me."</li> <li>• "Very good people and they related well with seniors. Thank you!"</li> <li>• "It would have benefited me to have done it a year earlier."</li> <li>• "Not sure."</li> <li>• "None. They said I was fine in every way. No recommendations."</li> </ul>					

<sup>a</sup> Results for items 1-5 are displayed as percentages (number) of respondents indicating each response. Results for items 6-7 are actual written comments.

**Table 3. Results From the CHAMP Student Survey<sup>a,b</sup>**

1.	How many CHAMP events did you attend?	0 0.0% (0)	1 75.0% (24)	2 12.5% (4)	3 12.5% (4)	4 or more 0.0% (0)
2.	What educational program were you associated with at the time of your participation in CHAMP?	PT @ UNC 21.9% (7)	PT @ WCU 25.0% (8)	PTA @ CCC&TI 15.6% (5)	PTA @ SC 37.5% (12)	Other 0.0% (0)
3.	The community participation aspect of CHAMP helped me see how course material I have learned can be used in community health and wellness programs.	Strongly disagree 0.0% (0)	Disagree 3.1% (1)	Neutral 0.0% (0)	Agree 21.9% (7)	Strongly agree 75.0% (24)
4.	Participation in CHAMP helped me to better understand material from my courses.	Strongly disagree 0.0% (0)	Disagree 0.0% (0)	Neutral 3.1% (1)	Agree 40.6% (13)	Strongly agree 56.3% (18)
5.	Participation in CHAMP made me more aware of the roles of other professionals in disciplines other than my own.	Strongly disagree 0.0% (0)	Disagree 0.0% (0)	Neutral 21.9% (7)	Agree 34.4% (11)	Strongly agree 43.8% (14)
6.	What were the two BEST things about your CHAMP experience?	(see text for description of responses)				
7.	What were the two WORST things about your CHAMP experience?	(see text for description of responses)				
8.	My participation in CHAMP helped me become more aware of the needs of rural areas like McDowell County.	Strongly disagree 0.0% (0)	Disagree 3.2% (1)	Neutral 9.7% (3)	Agree 41.9% (13)	Strongly agree 45.2% (14)
9.	Performing work in the community helped me clarify my career/specialization choice.	Strongly disagree 0.0% (0)	Disagree 3.2% (1)	Neutral 32.3% (10)	Agree 32.3% (10)	Strongly agree 32.3% (10)
10.	I will integrate community service into my future plans.	Strongly disagree 0.0% (0)	Disagree 0.0% (0)	Neutral 0.0% (0)	Agree 43.8% (14)	Strongly agree 56.3% (18)

Abbreviations: PT, physical therapist student; PTA, physical therapist assistant student; UNC, University of North Carolina at Chapel Hill; WCU, Western Carolina University; CCC&TI, Caldwell Community College and Technical Institute; SC, South College-Asheville.

<sup>a</sup>Results are displayed as percentages (number) of respondents indicating each response.

<sup>b</sup>Adapted with permission from Community-Campus Partnerships for Health.<sup>38</sup>

participated in CHAMP completed the survey. Of these respondents, 96.9% “agreed” or “strongly agreed” (on a 5-point Likert scale, ranging from “strongly disagree” to “strongly agree”) with the statement, “The community participation aspect of CHAMP helped me see how course material I have learned can be used in community health and wellness programs,” (Table 3, item #3). An identical percentage (96.9%) “agreed” or “strongly agreed” with the statement, “Participation in CHAMP helped me to better understand material from

my courses,” (Table 3, item #4). Common responses to a survey item asking students to list the 2 best things about their CHAMP experience (Table 3, item #6) included mention of opportunities to work with PT and PTA students as part of a team, to gain hands-on experience outside the clinic, and to interact with a geriatric population. All respondents (100%) indicated an intention to integrate community service into their future career plans (Table 3, item #10).

Most respondents responded positively

to items related to the effects of CHAMP participation on increasing awareness of the roles of other health professionals (Table 3, item #5), increasing awareness of the needs of rural areas (Table 3, item #8) and helping to clarify career/specialization choice (Table 3, item #9). The most frequently cited drawback of the CHAMP experience (Table 3, item #7) was the driving distance to the screening events. Drive time was 2 to 3 hours one-way for many students. Sometimes students were able to ride with a faculty member or arrange

their CHAMP participation to coincide with family or recreational visits to the western part of North Carolina. Other drawbacks reported in the survey were related to students not having as much time to work with each participant as they would have liked and having limited space available for assessment and exercise instruction at the facilities where the screenings were held.

The CHAMP program outlived its grant support, continuing in 2012 and 2013 with administrative oversight shifting from UNC to the BeActive-Appalachian State Partnership (now called “The Active Choice”). Falls risk screening and management events are now being held once or twice a month, from March through November each year. PT and PTA students from all of the original partnering academic programs, especially those in the western part of the state, but including a small number of students from UNC Division of Physical Therapy, continue to provide services to older adults at CHAMP events. In addition, discussions about ways to expand the CHAMP project to other counties in western North Carolina have begun.

## DISCUSSION AND CONCLUSION

The fact that the CHAMP program is continuing is a testament to its success. This would not be possible without the commitment of academic and community partners willing to volunteer their time at CHAMP events. These partners see their participation as providing not only an important service to older adults in the community, but also rich learning experiences involving interactions among local clinicians, community leaders, older adult participants, and students and faculty from different professions and different schools. The need for community-based options for health services for older adults is expected to grow as older adults increasingly choose to “age in place” and as trends toward consumer-directed care continue.<sup>10</sup>

One element of the design of CHAMP that appears to have contributed to the project’s continued success is knowledge provided by local clinicians, especially the public health nurse, about the area’s culture, strengths, and needs. The local clinicians who volunteer at CHAMP events know and have worked previously with many older adults in the community, thereby lending a “familiar face” to the program. They, along with the older adult participants themselves, have helped academic faculty and students understand various aspects of community culture that affect CHAMP implementation, such as the reluctance of older adults in the area to attend events held at sites that they have not visited before (eg, volunteer fire departments

or churches other than their own church) and the perception of many older adults that only those who are “really bad off” (ie, in very poor health) can benefit from CHAMP services. To address the latter perception, CHAMP providers promote the message of “staying active and fit” over that of “avoiding falls,” and flyers and other promotional materials are designed in accordance with this message. Knowledge of local cultural influences is being used to guide program planning as the project moves forward under the leadership of The Active Choice at Appalachian State University.

Interprofessional learning experiences have been reported in the literature to change students’ perceptions, at least in the short term,<sup>12</sup> in areas such as professional competence and autonomy, cooperation and resource sharing within and across professions, understanding of the value and contributions of other professionals, awareness of disease prevention and health promotion in communities, and knowledge of self-care practices.<sup>7,8,12</sup> However, evidence for persistent, long-term improvement or behavioral change among learners is quite limited.<sup>12</sup> For the CHAMP project, we have no direct evidence of change in students’ attitudes or perceptions because we did not obtain baseline measurements prior to the students’ involvement with the project. We acknowledge this, as well as the relatively low survey response rates, as limitations of the work we have done thus far.

The Readiness for Interprofessional Learning Scale (RIPLS),<sup>39</sup> or a modified version of this scale,<sup>40,41</sup> may be considered in assessing changes in students’ attitudes as the CHAMP program goes forward. Although originally developed for use with undergraduates, this scale has been validated for use in the post-graduate context.<sup>42</sup> Thus, the RIPLS may be helpful for assessing attitudes of graduate students and health professionals toward interprofessional learning at the practice level or community health partnership level. For CHAMP, the RIPLS could be administered to students at orientation or early in their first year and again prior to graduation. For PT students, comparisons could be made between students who did and did not participate in interprofessional learning experiences such as CHAMP as a part of their curriculum. In addition, local clinicians involved with the CHAMP program could be asked to complete the RIPLS once per year, as a part of regular planning meetings.

Another important part of our planning effort is to identify ways to provide more in-depth learning experiences and interprofessional interaction for future students who participate in CHAMP. This is, in part,

to address the large percentage of “neutral” responses to item #5 on the student survey (Table 3) about increasing awareness of the roles of other health professionals. One possible explanation for the survey results for this item is that many PT and PTA students already were familiar with the roles of other professionals prior to their participation in CHAMP. For these students, CHAMP participation could contribute only minimally to increasing their already high level of awareness.

Another possible explanation is that PTA students sometimes had limited interaction with PT students and with nursing/EMS personnel. Many more PTA students than PT students participated, so the small teams working with individual CHAMP participants sometimes consisted of 2 to 3 PTA students and a licensed PT (some of whom were PTA faculty members). The emphasis for both PTA and PT students was on practicing administration of physical function tests and providing exercise instruction, with fewer opportunities to work alongside or communicate with nursing/EMS staff.

Making attendance at CHAMP events a course requirement for PT students or encouraging attendance at multiple events should help to address the imbalance in numbers of PT and PTA student participating. Expansion of the CHAMP program to other counties would increase opportunities for participation for both PT and PTA students. In the first 2.5 years of the program, most student participants (75% of survey respondents) attended only 1 full-day event. This amount of exposure may not have been adequate to permit a high level of interprofessional interaction or to elicit changes in student attitudes, knowledge, skills, or behavior. Although logistical issues and time constraints may prohibit CHAMP clinical rounds or team meetings at each event, physical therapy, nursing, and EMS personnel can share responsibility for the various assessment and intervention components to a greater extent.

As noted by Bainbridge and colleagues,<sup>43</sup> assessing interprofessional learning is a means of placing value on a learning experience. These authors have developed a competency framework for interprofessional collaboration that could provide a foundation for assessment of competencies achieved as a result of participation in CHAMP and similar interprofessional learning experiences. In addition, *Essential Competencies in the Care of Older Adults*, a document approved by the American Physical Therapy Association (APTA) and APTA’s Academy of Geriatric Physical Therapy has a domain devoted to “Interdisciplinary and Team Care.”<sup>44</sup> Within

this domain, competencies for entry-level physical therapist education address referral to and consultation with other health care professionals who work with older adults and communication and collaboration with the health care team (including the older adult and caregiver) to incorporate discipline-specific information into intervention planning and implementation. These competencies appear to be directly relevant to student involvement in the CHAMP program. Additional high-quality studies with the use of control groups and objective outcome measures are needed to guide educators in designing and evaluating interventions for interprofessional education.<sup>12</sup>

Innovative and alternative models for the education of health professionals are needed to address current health care trends. The CHAMP project is an example of a successful community-based program that includes a strong interprofessional education component. In the first 2.5 years of operation, CHAMP appeared to provide benefits for older adult participants, academic and community partners, and PT and PTA students. Interprofessional education in the community, by means of programs like CHAMP, can help prepare health care students to be a part of a collaborative team and to understand community needs, resources, and culture.

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# A Clinical Service Learning Program Promotes Mastery of Essential Competencies in Geriatric Physical Therapy

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**Background and Purpose.** Approximately 80% of older adults report living with at least 1 chronic health condition. Physical therapy students must be sufficiently prepared to manage the complex needs of an aging population. This paper describes an academic-community service learning program that contributes to the preparation of Doctor of Physical Therapy (DPT) students to work with older adults, and it illustrates the program's outcomes with respect to student development relative to the *Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study*.

**Method/Model Description and Evaluation.** The Stroke Exercise Group (SEG) is an on-campus program that provides free, twice-weekly exercise and functional training activities for older adults with stroke. DPT students provide direct service to group participants for 4 consecutive semesters under the supervision of faculty, a total of 20-24 times over 2 years. The SEG provides repeated experience

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with a heterogeneous population of older adults while accommodating the changing developmental learning needs of the students over time.

**Outcomes.** A total of 126 DPT students participated in the SEG over the last 4 academic years. They provided approximately 480 person-hours of clinical service per year, based on 12 older adult participants in the SEG attending approximately 40 group sessions per year. Faculty observations, student reflections, and class seminars suggest that students develop skills in a majority of the essential competencies through SEG experiences over a 2-year period.

**Discussion and Conclusion.** The SEG appears to be an effective model to promote student learning in relation to the essential competencies. Through their experience with this small subset of older adults, students are able to recognize challenges associated with provision of care for older adults and learn to help manage the multifaceted needs of this group. Although the SEG represents a single model, our experience suggests it could be useful for development of similar programs elsewhere to promote competency in the care of older adults.

**Key Words:** Geriatrics, Service learning, Entry-level education.

## BACKGROUND AND PURPOSE

In 2010 there were 40 million older adults, defined as those 65 years of age and older, in the United States. This number is predicted to more than double by the year 2030.<sup>1,2</sup> By 2050, individuals 65 years of age and older will make up approximately 20% of the US population.<sup>2,3</sup>

Older adults are a heterogeneous group

ranging from those who are frail elders to elite athletes. Brummel-Smith<sup>4</sup> defined optimal aging as “the capacity to function across many domains—physical, functional, cognitive, emotional, social, and spiritual—to one’s satisfaction and in spite of one’s medical conditions.” A large majority of older adults fail to live into this ideal. The “slippery slope” of aging described by Schwartz<sup>5(p3)</sup> depicts a general decline in physiological and functional ability that has been observed with increasing age. Approximately 80% of older adults report living with at least 1 chronic medical condition and 50% have 2 or more.<sup>6</sup> Obesity, arthritis, diabetes, osteoporosis, hypertension, heart disease, stroke, depression, injuries related to falls, and hearing and vision impairments often co-occur with the typical multisystem changes associated with aging.<sup>7-9</sup> Age-related decline in physical performance in conjunction with additional pathologic conditions often results in loss of functional ability. Approximately 36% of older adults report a disability of some kind, with 23% reporting limitations in walking and 8% reporting some dependence in self-care.<sup>10</sup>

Physical therapists must be able to identify the variable needs of older adults and provide care that is commensurate with those needs in order to promote optimal aging and quality of life. Physical therapist education programs must prepare future PTs to address health promotion, safety, mobility, and physical performance issues of older adults. Students need to recognize normal changes that occur with aging, understand common pathologies associated with older adults, and then discern among the effects of new pathology, normal effects of aging, or a combination of the two in order to direct care appropriately. They must be able to engage in interprofessional collaboration and caregiver training in order to provide competent care to older adults across the health care continuum and in the community.

The American Physical Therapy Association Section on Geriatrics (now known as the Academy of Geriatric Physical Therapy) developed the *Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study* (see page 91 of this issue)<sup>11</sup> to identify the skills necessary to provide competent care to this older adult population. The essential competencies<sup>11</sup> are organized into the following 6 domains: Health Promotion and Safety, Evaluation and Assessment, Care Planning and Coordination Across the Care Spectrum, Interdisciplinary and Team Care, Caregiver Support, and Healthcare Systems and Benefits. Within each of these 6 domains,<sup>11</sup> cognitive, psychomotor, and affective skills essential to providing physical therapy care to older adults are identified. A variety of pedagogical approaches may help to ensure that academic programs in physical therapy foster student development of these skills in order to serve the aging population.

Service learning and other experiential learning opportunities may help enhance the academic coursework that prepares students to fulfill the essential competencies.<sup>11</sup> Service learning combines community service with academic coursework for the purposes of satisfying explicit academic objectives.<sup>12,13</sup> Experiential learning can also be accomplished through student participation in provision of volunteer services, which are often provided free of charge.<sup>14-16</sup> In both cases, students have the opportunity to apply classroom knowledge to real-world scenarios and develop cognitive, psychomotor, and affective skills relevant to physical therapist practice, including practice with older adults.<sup>15,17,18</sup>

Participation in service learning activities with older adults may help students develop skills related to the essential competencies.<sup>11</sup> Students' knowledge of and attitudes toward older adults have been reported to improve following participation in short-term service learning and experiential learning activities.<sup>12,19-23</sup> Physical therapist students who participated in service learning projects experienced enhanced understanding of and more positive attitudes toward older adults, as well as a stronger commitment to serve this particular population.<sup>19,20,24</sup> Medical students who participated in experiential learning have also been reported to demonstrate improved attitudes and knowledge regarding the geriatric population and healthy aging.<sup>21,22</sup>

Reflection has been reported to be a key feature of service learning and other experiential learning experiences.<sup>25</sup> The self-reflection process fosters development of knowledge, skills, and behaviors by promoting active

critique of understanding and capability in relation to an experience. Through repeated opportunities for reflection, students are able to analyze their performance based on a variety of experiences thus promoting personal and professional growth.<sup>12,18,25,26</sup>

No information is available to date regarding student responses to longer term experiences with older adults with respect to specific geriatric competency areas for physical therapy. The purposes of this paper are to describe an academic-community service learning program that contributes to the preparation of Doctor of Physical Therapy (DPT) students to work with older adults, and to illustrate the program's outcomes with respect to student development relative to the essential competencies.<sup>11</sup> While the program model presented here was developed and implemented prior to the publication of the essential competencies,<sup>11</sup> this paper highlights the features of this long-standing program that make it a unique match for the promotion of student development in the care of older adults.

#### **METHOD/MODEL DESCRIPTION AND EVALUATION**

The Stroke Exercise Group (SEG) is an on-campus integrated academic-community service learning program that provides free semi-individualized treatment to participants within a group format. Its objectives are to promote health and wellness in older adults who experience chronic effects of stroke. For 10 weeks each semester, the program provides hour-long, twice weekly therapeutic exercise, balance retraining, and gait retraining activities for 12 people with chronic stroke. Participants typically range from 65 to 80 years of age. Individuals are recruited mainly through a community stroke support group and via word-of-mouth. Participants must receive medical clearance at the beginning of each academic year to be eligible for the program. Once enrolled, they may continue to participate from semester to semester unless a medical condition precludes their ongoing membership. At the time of this writing, nearly half of the current members have been participating since the program's inception in 2004. Individuals provide written consent to participate and for utilization of their personal health information for educational purposes. While the program has completed 9 years as of this writing, this paper describes only the experiences of students since 2009, when the department transitioned from a Master of Science in Physical Therapy program to the DPT program.

Two faculty members who are licensed physical therapists direct the group and pro-

vide line-of-sight supervision for students. One of these faculty members is an American Board of Physical Therapy Specialties certified geriatric clinical specialist (GCS). Workload credit associated with integrated clinical education (ICE) coursework, which includes the SEG as one of the part-time clinical sites, pays for the faculty time. Each ICE is a separate 2-credit course.

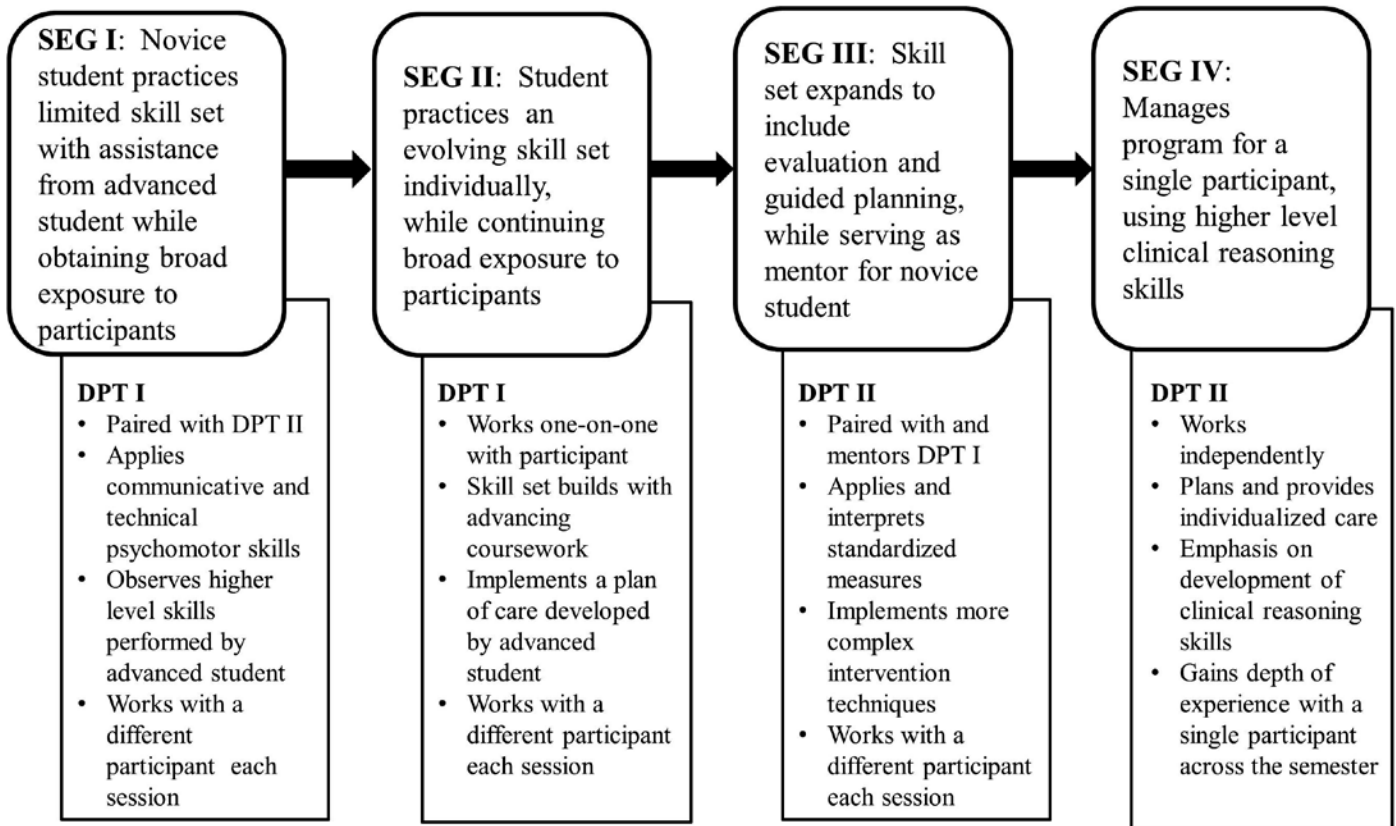
All students in the DPT program provide direct services to group participants in the SEG for 4 consecutive semesters (SEG I-IV) within the context of their ICE courses. SEG I and II occur during the first professional year. SEG III and IV occur during the second professional year. These 4 SEG experiences are completed prior to beginning any full-time clinical experiences, which occur during the third and final year of the DPT program. Prior to their initial SEG experience, students participate in an orientation session with a co-director of the group to discuss the group's goals and organization. Expectations for student activities and behavior are discussed. Each student is assigned to participate in the SEG 5 to 6 times per semester, for a total of 20 to 24 hours over 4 semesters. This provides students with a 2-year exposure to many of the same individuals, thus providing opportunities to observe and intervene to address the effects of aging and comorbidities superimposed on chronic effects of stroke. The Figure depicts an overview of the sequential learning model through 4 semesters of SEG. Table 1 provides a summary of expectations for student performance during each semester of participation.

During SEG I, each first-year student is paired with a second-year student (participating in SEG III) to work with 1 participant. This allows for continued orientation and mentoring for the first-year student. Students in SEG I have completed didactic coursework pertaining to vital signs, mobility with assistive devices, pharmacology, documentation, and patient education. They apply the limited knowledge and technical skill sets to management of the participant in collaboration with a second-year student under the supervision of 2 full-time faculty members (Table 1). First-year students work with different participants each time they attend the group. This provides varied exposure to older adults with a wide range of health issues, functional capabilities, and cognitive, language, and communication disorders. Students must adjust their communication and education strategies, and practice working safely with participants who require different types and amounts of physical assistance.

In SEG II, first-year students are no longer paired with second-year students. One week-



**Figure. Overview of Sequential Experiential Learning Model Through 4 Semesters of Stroke Exercise Group (SEG)**



There is close faculty oversight at all levels of experience. DPT I indicates first-year student; DPT II, second-year student.

ly session is carried out by first-year students (participating in SEG II) and the second weekly session is carried out by second-year students (participating in SEG IV). Students again work with different participants to experience variability with regard to function and medical status. Coursework in this semester includes kinesiology, neuroscience, anatomy, and a course in human movement across the lifespan. Students have opportunities to connect what they are seeing in the SEG to curricular content such as brain anatomy with respect to stroke, gait characteristics (ie, abnormal versus normal), and muscle structure and function in relation to exercise performance (Table 1). First-year students follow plans of care that have been developed by the second-year students in SEG IV. Faculty members continue to supervise and guide students.

These students continue into their second year and SEG III. They provide mentorship to the new cohort of first-year students and continuity of care to the SEG participants. During SEG III, which occurs in the first semester of the second academic year, students are taking courses in neuromuscular and musculoskeletal examination and intervention,

management of gait and balance dysfunction, and therapeutic exercise. In SEG, they administer and interpret standardized tests of gait and balance, and practice neuromuscular and musculoskeletal examination techniques (Table 1). Students begin to develop plans for functional training and therapeutic exercise for individual participants. They continue to work with different participants to experience the varied responses of participants to similar interventions and testing methods. As mentors to first-year students, they begin to understand the role of a clinical instructor with regard to communication, supervision, and facilitation of learning.

In the final semester of the second year, students in SEG IV complete their neuromuscular intervention, spine, and cardiovascular/pulmonary coursework. In the first session of SEG IV, they complete a comprehensive neurological examination with a participant. Based on this examination, students develop a plan of care which is implemented throughout the semester (Table 1). They generally work independently with participants in a 1:1 relationship. This is the only semester in which students work with the same participant to provide opportunities to implement,

assess, and modify their plans of care over time. Due to their knowledge and performance at this level, supervising faculty members more explicitly query students' critical thinking and explanation of rationales.

Students are required to write a progress note immediately following each SEG session. These notes comprise the participant's group record. In addition to supplementing the group directors' records, the students' notes create repeated opportunities for them to practice documentation and chart review skills as they progress through 4 semesters of SEG.

Student learning outcomes are evaluated through faculty observation of student activities, review of written reflection entries on the electronic course management site, and class seminars with faculty at the mid-term and end-term points of each semester's SEG. The 2 faculty supervisors have first-hand information about student experiences and observe the challenges students face as well as the skills students attain over time. Students are required to submit written reflections to an online discussion forum within 24 hours following each SEG experience. Reflection prompts include the following questions:

**Table 1. Student Activities During the Stroke Exercise Group (SEG), by Semester**

SEG I (Fall, Year 1)	SEG II (Spring, Year 1)	SEG III (Fall, Year 2)	SEG IV (Spring, Year 2)
Performance Expectations	Performance Expectations	Performance Expectations	Performance Expectations
<ul style="list-style-type: none"> <li>Utilize resources for learning in the clinical setting</li> <li>Medical record review</li> <li>Examination of vital signs</li> <li>Implement therapeutic exercise programs</li> <li>Assist with functional mobility training</li> <li>Guard during gait with assistive devices</li> <li>Goniometric measurement as needed</li> <li>Education of others using relevant and effective teaching methods</li> <li>Timely documentation to support the delivery of services</li> <li>Communicate using strategies commensurate with the needs of the participant</li> </ul>	<ul style="list-style-type: none"> <li>Identify problems and goals based on medical record review, patient history, and patient examination</li> <li>Understand the consequence of third-party payment policies on the frequency, duration, and content of physical therapy care</li> <li>Postural evaluation</li> <li>Begin to analyze functional movement behavior with respect to normal movement</li> <li>All expectations from preceding SEG experiences apply</li> </ul>	<ul style="list-style-type: none"> <li>Musculoskeletal examination and intervention for the extremities</li> <li>Neuromuscular examination</li> <li>Administer and interpret standardized tests of gait and balance</li> <li>Prescribe therapeutic exercise programs</li> <li>Legal and professional standards and ethical guidelines for practice</li> <li>All expectations from preceding SEG experiences apply</li> </ul>	<ul style="list-style-type: none"> <li>Cardiopulmonary examination and intervention</li> <li>Neuromuscular intervention</li> <li>Musculoskeletal examination and intervention for the spine</li> <li>All expectations from preceding SEG experiences apply</li> </ul>

- What went well?
- What did not go well?
- How could I approach this situation differently?
- How do I feel?
- How was I perceived by patients, peers, clinicians?
- What learning occurred?

Each written submission is approximately 2 to 3 paragraphs in length. Completion of all reflections is required to pass the ICE courses, which include the SEG. Written reflection entries are reviewed by ICE course instructors as well as student peers. Class seminars are conducted by ICE faculty using open-ended questioning to explore reactions to the SEG experiences, student perceptions of learning, and the varieties of successes and challenges perceived by the students.

Student reflections and class seminar responses from 4 academic years were retrospectively reviewed to identify concepts and experiences from the SEG that reflected elements of the essential competencies.<sup>11</sup> Of particular interest were comments that described experiences, challenges, and skills that were attained over time in relation to

these competencies. This study was approved by the Springfield College Institutional Review Board.

**OUTCOMES**

Over the course of the last 4 academic years, a total of 126 DPT students participated in the SEG. They provided approximately 480 person-hours of clinical service per year, based on 12 community participants in the group attending approximately 40 group sessions per year. Every student in the DPT program rotated through the SEG for 20-24 hours over the course of 4 academic semesters.

Perspectives gathered through faculty observation, review of student reflections, and class seminars suggest that with respect to the essential competencies,<sup>11</sup> students have had opportunities through their experiences in SEG to develop skills in all 6 domains, though not all competencies in each domain were addressed. Table 2 highlights student and faculty perceptions of experience and learning across the 6 domains, relative to specific competencies.<sup>11</sup>

For domain 1, Health Promotion and Safety, competencies A–D,<sup>11</sup> students pro-

vided information and interventions targeting physical health and functional safety by conducting individual falls risk assessments, wellness assessments, physical activity advocacy and prescription, and monitoring of medication effectiveness and side effects (Table 2). As participants’ status changes over time, often in the form of a decline in balance, degradation in functional mobility, or as the result of a fall, students reassess balance, prescribe assistive devices, make recommendations about home modification, and provide education regarding falls prevention. Students monitor skin integrity for participants with risk factors for integumentary impairment. Several group participants have type 2 diabetes. Students observed the implications of this pathology and medication with respect to physical therapy intervention. One student reported, “I watched her test her blood glucose before we started, and I could interpret the number that came up. It was interesting to tie the things we know about diabetes to actually treating a patient.”

For domain 2, Evaluation and Assessment, competencies A3, B, C2, C3, and E,<sup>11</sup> students developed an understanding of their roles in the areas of examination and inter-

**Table 2. Highlights of Experience and Learning in Each Domain of the Essential Competencies<sup>a</sup> Attained Through Stroke Exercise Group (SEG) Experiences**

Domain	Highlights of Experience and Learning, by Domain
1. Health Promotion & Safety	<ul style="list-style-type: none"> <li>• Learned to prescribe appropriate strengthening exercises for older adults and stroke survivors based on AHA and ACSM recommendations<sup>33,34</sup> (A,B)</li> <li>• Learned about falls risk assessment and falls risk reduction (A,B,C)</li> <li>• Developed appreciation for medication effects and their role as a PT in monitoring of effectiveness and side effects (D)</li> </ul>
2. Evaluation & Assessment	<ul style="list-style-type: none"> <li>• Emphasized importance of ensuring physical safety during examination with respect to complex combinations of functional limitations and multisystem impairments, including language and cognitive impairments (A3,B)</li> <li>• Learned to monitor changes in status, especially with respect to comorbid pathologies and complex physical presentations (B)</li> <li>• Experienced opportunities to choose, administer, and interpret appropriate tests and measures to assess function and pain (C2,C3)</li> <li>• Learned to utilize appropriate communication strategies to adapt to communication barriers (E)</li> </ul>
3. Care Planning & Coordination	<ul style="list-style-type: none"> <li>• Felt challenged to understand the contributions of multiple medical conditions to current status, and to connect the most appropriate health care team member to any given condition that required referral or consultation (A)</li> <li>• Developed appreciation for the role of the physical environment in home and community function, and the importance of simulating home and community tasks within the context of physical therapy intervention (B)</li> </ul>
4. Interdisciplinary & Team Care	<ul style="list-style-type: none"> <li>• Felt challenged by many opportunities to evaluate and help manage consultations with physicians and orthotists with respect to medication and adaptive equipment concerns (A,B)</li> <li>• Developed an understanding of the necessity to adapt communication strategies based on the listener (B)</li> </ul>
5. Caregiver Support	<ul style="list-style-type: none"> <li>• Developed compassion and a “person-first” view of participants and their loved ones through ongoing relationships with participants and significant others over time (A)</li> <li>• Experienced opportunities to gather information from, instruct, and educate caregivers regarding elements of participant experiences and needs (A,B,C)</li> <li>• Gained insight into the importance of identifying environmental factors that affect participants’ independence and communicate with caregivers about these findings (C)</li> <li>• Developed an appreciation for the fact that caregiver capabilities require ongoing reevaluation, prompting adjustment of the plan of care (D)</li> </ul>
6. Healthcare Systems & Benefits	<ul style="list-style-type: none"> <li>• Recognized the benefits and responsibilities associated with provision of a pro bono service (A)</li> <li>• Gained insight into participant experiences with and frustrations around limitations of health care insurance coverage for needs related to chronic conditions and loss of function (A,C2)</li> </ul>

Abbreviations: AHA, American Heart Association; ACSM, American College of Sports Medicine.  
<sup>a</sup> Letters/numbers in parentheses denote competencies/subcompetencies within each domain.<sup>11</sup>

vention of functional movement behavior for older adults (Table 2). They participated in physical examinations of sensory, neuro-motor, musculoskeletal, and cardiovascular/pulmonary systems and interpreted findings with respect to cerebrovascular and other pathologic and age-related conditions. They administered and interpreted standardized measures including the Berg Balance Scale,<sup>27</sup> Timed Up & Go Test,<sup>28</sup> Functional Reach Test,<sup>29</sup> and 10-Meter Walk Test,<sup>30</sup> among others. They conducted observational examinations of language and cognitive function and developed strategies for education and communication.

With respect to understanding normal aging processes, one student reflected on the importance of the group experiences in prompting her to explore her negative assumptions about older adults. She commented, "What is it that makes [the participant] at the ripe age of 79 so motivated to exercise? I'm curious because I know at the age of 79 most people don't want to do a thing because they have no drive and are worn out." Students also recognized the importance of opportunities to develop communication strategies that accounted for age-related limitations in language and cognitive function. Another student observed, "Sometimes we started talking too quickly for him, and we had to slow down. We forgot that he needed some time to process."

For domain 3, Care Planning and Coordination Across the Care Spectrum, competencies A and B,<sup>11</sup> students participated in the development and modification of plans of care that addressed functional problems and system impairments for group members with complex medical, psychosocial, and social presentations (Table 2). Participation in these higher-level activities requires the knowledge and skill sets of second-year students in SEG III and IV, while providing observational opportunities for first-year students. Growth in these abilities was reflected in comments by students, such as: "It was challenging to figure out how to do some of the exercises because of his knee OA and other comorbidities [spinal stenosis, abdominal obesity, cardiac history] limiting his ability to be in certain positions," and "I learned that the systems are so intricately intertwined that slight deficits in each, or in more than one, can have HUGE impacts."

For domain 4, Interdisciplinary and Team Care, competencies A and B,<sup>11</sup> students learned to discern which problems required referral to other providers, including primary care physicians, and specialists such as cardiologists, neurologists, and orthotists (Table 2). One student noted, "Today's stroke group

allowed me to experience what kinds of issues PTs can actually pick up just by doing routine vital signs. I was able to identify the increase in BP, ask him about his meds, modify his activity, and give him a log of his vitals so he could contact his MD."

For domain 5, Caregiver Support, competencies A–D,<sup>11</sup> students collaborated with faculty to provide recommendations and psychosocial support for participants' spouses, children, and other attendants with respect to challenging rehabilitation, personal, social, and medical issues (Table 2). In almost all cases, community participants were accompanied to the group sessions by loved ones and other personal care assistants. Students interacted with these individuals to gather information and impart recommendations on a regular basis. They engaged in conversations regarding physical, emotional, and social challenges of family relationships, living situations, or provision of care for an older adult with chronic health conditions. Students struggled to ascertain their roles when confronted with emotional issues and challenging psychosocial scenarios. One student reflected, "[The caregiver] became very upset and began to cry. Again, I felt at a loss as to what to do." In most cases, for students at all levels, faculty input regarding appropriate responses, directions, and mechanisms for recommendation and referral was helpful.

Learning opportunities with respect to domain 6, Healthcare Systems and Benefits,<sup>11</sup> were limited to competencies A and C2, in light of the pro bono nature of the SEG (Table 2). Students were exposed to participant perceptions of the limited scope and duration of rehabilitation services for chronic conditions often associated with aging. They listened as participants expressed frustration with the lack of access to ongoing rehabilitation services and appreciation for this particular long-term exercise program.

## DISCUSSION AND CONCLUSION

The SEG has been in existence since 2004 and was not specifically designed to address the essential competencies<sup>11</sup> that were published in 2011. Examination of the SEG experiences relative to the recently published essential competencies<sup>11</sup> revealed that the SEG appears to be an effective model to promote student learning with respect to many of the competency areas. Elements of the program's organization that enhance the preparation of the students to work effectively with older adults include the heterogeneity of group participants, the long-term nature of the group, repeated exposure of the students, and the capacity of the group model to accommodate changes in student readiness over time.

While the diagnosis of stroke is common to all SEG participants, issues typically associated with older adults, such as diabetes, hypertension, arthritis, obesity, depression, falls, and fractures, are also present, reflecting the variability in older adults that students are likely to encounter in clinical practice.<sup>6,7</sup> Participants range from those who are very active and independent in the community to those who are more sedentary and require assistance. Although this is a small subset of older individuals, students are able to recognize challenges associated with provision of care for older adults and learn to help manage the multifaceted needs of this group.

Age-related dysfunction is often cumulative over time.<sup>6-9</sup> By interacting with many of the same participants over a 2-year period, students observed periodic and progressive changes in pathology, impairment, and function. This challenged students to attend to new symptoms, declines in function, and incidence of falls. It gave students opportunities to collaborate with faculty on additional examination processes, modification of group activities, and referral to other providers with a frequency and timeline that would not be possible during shorter term experiences with older adults. Long-term involvement in the SEG also gave students experience with issues associated with death and dying, as several group members passed away during the time of these cohorts' experiences. It provided ample opportunity to interact with family members and caregivers of group participants highlighting the importance of social and intimate relationships to the well-being of older adults. The breadth and depth of all the experiences afforded by the SEG are products of the long-term nature of this group.

Students' perceptions and approaches to older adults changed with repeated exposure and advanced clinical knowledge.<sup>12,13</sup> Some literature suggests that exposures as brief as 2 hours improved students' attitudes toward and knowledge of older adults.<sup>22</sup> The experiences with the SEG suggest that students' learning evolves over the entire 2-year period in response to repeated exposure. For example, ageist comments from students within the first semester largely faded over time, replaced by evidence of appreciation for each participant's experiences, capabilities, challenges, and goals. While second-year students often reported that they underestimated how much weight participants could lift during repetition maximum testing, their hands-on experiences reinforced the need for appropriate intensity of exercise. In this and other ways, the group contributed to the shedding of ageist biases and assumptions, helping

prepare students to prescribe exercise and activities at appropriate levels, which may in the end lead to more effective promotion of health and wellness for older adults.

The SEG structure accommodates the changing developmental needs of the students over time. Although the group activities themselves essentially remain the same each semester, students' performance expectations are altered to match their related curriculum and developing skill sets. Students always have opportunities for immediate application of new knowledge and skills to clinical scenarios with older adults. Just as importantly, the SEG provides repeated opportunities to practice skills, receive feedback, and refine behaviors.<sup>31</sup>

A developmental trajectory is evident across many of the domains within the essential competencies.<sup>11</sup> Students' evolving maturation in cognitive, psychomotor, and affective skills is expressed in the areas of Health Promotion and Safety, Evaluation and Assessment, and Care Planning and Coordination<sup>11</sup> as they demonstrate growing proficiency in screening, health and wellness activities, and use of evidence-based approaches to care.<sup>32</sup> In relation to provision of care, students initially perform activities with guidance from more advanced students. By the fourth semester, they work independently with group participants, relying on faculty as consultants rather than directors of care. Early experiences applying simple skills help to establish a foundation for higher order planning of semi-individualized treatment in later experiences. Early communication and interaction with participants and caregivers was reported to be awkward and challenging initially. Repeated experiences led to students' ability to engage in conversation while simultaneously providing instructions and maintaining control of the sessions.

Students initially failed to recognize the range of medical issues which required care by another type of provider. While never independent in referring out to physicians and other providers, they did develop a more tangible understanding of the issues identified in the domain of Interdisciplinary and Team Care.<sup>11</sup> Development in the areas of Caregiver Support and Healthcare Systems and Benefits<sup>11</sup> appeared to be linked within the context of SEG. Interactions with caregivers and participants often highlighted the limitations in access to services and support for older adults managing chronic conditions.

Written reflections and participation in class discussion sessions helped illustrate the role the SEG played in the students' development across this 2-year experience. Students articulated their frustrations, successes, and

intentions for future actions. They expressed appreciation for the complex interactions between bodily systems. They reflected upon the importance of a good history and comprehensive examination to the development of a plan of care for an older adult. They conveyed the realizations that things are not always as clear cut as they may seem in the classroom or even at first glance in the clinic.

The SEG is sustained by embedding it within the curriculum as part of the ICE coursework each semester. Faculty time is compensated through teaching workload assignment. Curricular and SEG program cohesion is a direct result of core faculty involvement. Experiences from the SEG are often subject of discussion in related courses. Additionally, the geriatric specialization of one of the co-directors ensures explicit attention to issues of aging during group experiences and in-class discussions.

While the SEG does not fully address every competency within the 6 domains of the essential competencies,<sup>11</sup> student reflections and faculty observations suggest that through these experiences students become better equipped to fulfill a large majority of the competency areas. This long-standing program meets the needs of the students and community participants in a very satisfactory way; therefore, no changes in the program's organization are anticipated. A limitation of this model is the lack of formal assessment of student outcomes in relation to the essential competencies.<sup>11</sup> Reflections and experiences that occurred within an already established program were retrospectively reviewed in relation to the recently developed essential competencies.<sup>11</sup> Future investigation of this and similar models may include prospective study of student competence in relation to the essential competencies.<sup>11</sup>

The SEG is an academic-community service learning program that appears helpful in promoting mastery of knowledge and skills important to physical therapy management of the older adult. In providing students with frequent experiences with older adults with stroke over a 2-year period during the majority of the academic coursework in the DPT program, the SEG provides a unique opportunity for students to work with older adults as they age. Through these repeated experiences they appreciate changes and events common to the aging population and have the ability to grow as care providers within the SEG over 4 semesters. The SEG represents a single model developed within the unique context of one institution, yet our experience suggests it could be useful as an exemplar for development of similar programs elsewhere. Physical therapist education programs that

currently use integrated clinical experiences may consider this model to promote competency in the care of older adults.

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# Geriatric Screening as an Educational Tool: A Case Report

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**Background and Purpose.** The American Geriatrics Society and the American Physical Therapy Association (APTA) Section on Geriatrics (now known as the Academy of Geriatric Physical Therapy) released essential competencies for practitioners working with older adults to address the aging population. Experiential learning is an important component of physical therapist education to reinforce concepts learned in the didactic curriculum and provides valuable practice for students. The purpose of this case report is to describe an experiential learning activity that provided first-year Doctor of Physical Therapy (DPT) students' opportunities to interact with older adults and perform functional screening activities.

**Case Description.** First-year DPT students participated in screens at 2 community sites that serve older adults. Students learned about the components of the screen during their "Lifespan Adulthood" class. Components of the screen include demographics, the Functional Comorbidity Index, a Likert-scale question on Fear of Falling, the Geriatric Depression Scale-4, and the Short Physical Perfor-

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mance Battery. Students practiced their assigned component in class prior to the screening event. Students performed the screens at the community site with older adult clients and then had to interpret the results of 1 client as a class assignment.

**Outcomes.** Supervising faculty noted that students were able to facilitate the flow of clients from one screening station to the next, guarded appropriately, and provided appropriate client education. Students had challenges with psychomotor tasks (eg, gait speed timing, making initial contact with the older adults) and required guidance when vital signs fell outside of a normal range. Strengths of the interpretation assignment included thorough literature-based rationale for screening and description of the individual components of the screen. Students experienced challenges with identifying the overall functional picture of a particular client based upon the completed screening data.

**Discussion and Conclusion.** This screening event addressed components of the Academy of Geriatric Physical Therapy essential competencies. Adding reflection pieces and additional practice time may improve interpretation of screening. However, the students' interpretation matched their skill level as first-year DPT students. Progression through the didactic and clinical education curriculum will further reinforce essential competencies.

**Key Words:** Essential competencies, Geriatric physical therapy, Screening, Physical performance, Experiential learning.

## BACKGROUND AND PURPOSE

The aging population is growing in the United States. Currently, 1 in 8 Americans is over the age of 65,<sup>1</sup> with a projected increase to 1 in 5 by 2030.<sup>2</sup> In response to the increasing aging population in the United States, the American Geriatrics Society<sup>3</sup> and the American Physical Therapy Asso-

ciation (APTA) Section on Geriatrics<sup>4</sup> (now known as the Academy of Geriatric Physical Therapy) released essential competencies for practitioners working with older adults. The American Geriatrics Society established general competencies designed to be used by practitioners in a variety of health care disciplines that work with older adults.<sup>3</sup> The APTA Academy of Geriatric Physical Therapy's *Essential Competencies in the Care of Older Adults at the Completion of the Entry-Level Physical Therapist Professional Program of Study*<sup>4</sup> (see page 91 of this issue) serves as a guide for accredited physical therapy education programs in teaching students how to provide care for older adults. The establishment of the essential competencies<sup>4</sup> provides a framework for physical therapist education programs to ensure that their students meet competencies upon entry into the profession. Currently, the literature lacks evidence of innovative methods that graduate physical therapist education programs are using to meet these essential competencies.<sup>4</sup>

Didactic and laboratory classroom experiences are essential initial components for teaching physical therapist students to work with an aging population. With a classroom foundation, clinical experiences allow students to hone skill sets with a variety of patient populations, including older adults. Experiential learning provides a bridge between the classroom and the clinic and serves the important purpose of reinforcing classroom learning<sup>5</sup> and increasing cultural competence.<sup>6</sup> Experiential learning, when conducted in communities and settings that are underserved, aligns with the Commission on Accreditation in Physical Therapy Education (CAPTE) criteria and the APTA core values related to social responsibility and advocacy<sup>7,8</sup> and provides the opportunity to develop social responsibility.<sup>9</sup> Using experiential learning as an adjunct to classroom education about the older adult population could be an important component in developing the essential competencies<sup>4</sup> for working with older adults. This case report is a description of an experiential learning activ-

ity for first-year physical therapist students to supplement didactic coursework that could be easily replicated by other physical therapist education programs.

The Widener University Institute for Physical Therapy Education (IPTE) has older adult content embedded throughout the 3-year didactic curriculum in various courses that emphasize musculoskeletal, neuromuscular, integumentary, and cardiovascular systems in various practice settings, including acute care, outpatient, and skilled nursing facilities, covering such topics as therapeutic exercise intervention for the older adult, motor control and motor learning, health literacy, multisystem aging, and in-depth selected topics in aging.<sup>10</sup> The courses with geriatric content focus on a number of different essential competencies for the older adult. In the first-year physical therapist education, students take a 2-credit “Lifespan Adulthood” course. This course focuses on the broader psychosocial, motor, and cognitive aspects of aging, as well as broader subjects such as ageism and successful aging, and serves as an introduction to topics that will be explored in greater depth in other coursework. The course also places an emphasis on health screening for older adults. Students are taught that early detection of physical performance deficits, depression and cognitive changes, and appropriate intervention by the health care team can help to interrupt loss of physical function that older adults can experience.<sup>11,12</sup> Students learn to advocate for appropriate levels of physical activity to promote the health and wellness of older adults.<sup>12</sup> This course includes an experiential learning component in which students conduct older adult screenings in the local community. The didactic content and the experiential learning screening event address several practice expectations 2 domains of the *Essential Competencies* document<sup>4</sup> (Table 1). The educational objectives for this content mirror several practice expectations within 2 domains of the essential competencies.<sup>4</sup> The educational objectives are that: (1) students are expected to correctly conduct and interpret screenings performed on older adults; (2) students must provide client education based on initial findings; and (3) students must provide a professional written interpretation of 1 completed screen.

The purpose of this case report is to describe an experiential learning activity that provides first-year PT students’ opportunities to interact with older adults and perform a functional screening activity.

**Table 1. Selected Domains for Geriatric Essential Competencies<sup>4</sup> Addressed by the Older Adult Screening Activity**

Domain 1: Health Promotion and Safety	Domain 2: Evaluation and Assessment
<p>A. Advocate to older adults and their caregivers about interventions and behaviors that promote physical and mental health, nutrition, function, safety, social interactions, independence, and quality of life.</p> <ol style="list-style-type: none"> <li>1. Identify and apply best available evidence to advocate to older adults and caregivers about interventions and behaviors that promote physical and mental health, nutrition, function, safety, social interactions, independence, and quality of life across domains and care delivery settings.</li> <li>2. Value the advocacy role of the physical therapist in promoting the health and safety of older adults.</li> </ol>	<p>B. Apply knowledge of the biological, physical, cognitive, psychological, and social changes commonly associated with aging.</p> <ol style="list-style-type: none"> <li>1. Incorporate knowledge of normal biological aging across physiological systems, effects of common diseases, and the effects of inactivity when interpreting examination findings and establishing intervention plans for aging individuals.</li> <li>4. Recognize the differences between typical, atypical, and optimal aging with regards to all systems; develop appropriate recommendations to reflect the person’s goals, needs, and environment.</li> </ol>
<p>B. Identify and inform older adults and their caregivers about evidence-based approaches to screezmmunizations, health promotion, and disease prevention to patient/client/caregiver(s) in a culturally appropriate manner using health literacy principles.</p> <ol style="list-style-type: none"> <li>2. Implement disease prevention, health promotion, fitness, and/or wellness education programs that incorporate best available evidence targeted to older adults and their caregivers.</li> </ol>	<p>C. Choose, administer, and interpret a validated and reliable tool/instrument appropriate for use with a given older adult to assess: (a) cognition, (b) mood, (c) physical function, (d) nutrition and (e) pain.</p> <ol style="list-style-type: none"> <li>1. Select and administer valid and reliable tests for cognition and depression (eg, MMSE, Geriatric Depression Scale, Clock Drawing Test); and determine need for referral.</li> <li>2. Administrate and interpret functional tests that can identify risk for falling and mobility deficits (eg, Berg Balance Scale, Timed Up and Go, Timed Walk Tests, Gait Speed, Activities-Specific Balance Confidence scales); communicating the findings, and making recommendations to the health care team.</li> </ol>
<p>C. Assess specific risks and barriers to older adult safety, including falls, elder mistreatment, and other risks in community, home, and care environments.</p> <ol style="list-style-type: none"> <li>1. Perform health, fitness and wellness screens (eg, screens for fall risk, elder mistreatment, environmental hazards) that identify older adults at risk of injury.</li> </ol>	



## CASE DESCRIPTION

### Target Setting

Widener University is a private university situated in an urban, underserved community. The IPTE has 9 full-time faculty members and an average class size of 50 students. Students are awarded a Doctor of Physical Therapy degree at the completion of the 3-year program.

The Geriatric Screening Event is held concurrently at 2 community partners for experiential learning programs within the IPTE. One site is a senior center, which provides older adults a range of activities including physical activity programming, crafts, and book clubs. The other site is a church-subsidized apartment building for older adults.

### Development of the Process

The faculty member (KMP) who teaches the “Lifespan Adulthood” course desired to connect the students to older adults in the community. Her motivation for this was 2-fold: (1) to provide the first-year students the opportunity to practice patient interviews and psychomotor screening tasks that were within their capabilities and (2) to enhance student learning outcomes through experiential learning. The faculty member was familiar with the essential competencies<sup>4</sup> and created the screening event to address several practice expectations within 2 domains contained in this document, while placing geriatric content into a meaningful context for the students. She reached out to 2 community partners with well-established relationships with the physical therapist education program. The community partners were enthusiastic about the opportunity to have the PT students provide a service for their clients under supervision of faculty members.

The faculty member then developed a screening activity reflecting current lectures related to screening the older adult client. This screening activity equally emphasized developing the abilities to complete a screening task, including accuracy with psychomotor activities, and accurately interpret screening results. This assignment addressed in part the course objectives: “distinguish between normal and pathological aging” and “conduct and interpret a wellness screen.” This activity was a new addition to the course and was worth 20% of the students’ overall grade. This activity did not replace other class assignments, decreasing the value of other class assignments allowed for this assignment to be added.

Additionally, the course emphasized screening for older adults to promote health and wellness and to provide early interven-

tion to interrupt pathological aging changes. The screening lecture topics included the factors that influence self-report<sup>13</sup> versus performance-based testing results<sup>14</sup> and the issues to consider in standardized testing, including the appropriateness, practicality, and psychometric properties of the test.<sup>15</sup> The lecture used these topics to introduce the concept of selecting appropriate measures for a given client population and purpose. In-class discussion centered on the rationale for why one test might be more appropriate in a particular client population or setting, as well as why both self-report and standardized testing are valuable. This course content provided the foundation for understanding the components of the health screen for the experiential learning event.

A subsequent class introduced the students to the specifics of conducting a health screen for older adults and covered the screening tools that they would implement. The instructor (KMP) developed the Geriatric Screening Event form (Appendix 1) to guide and direct the health screening event. The first section of the form consists of a place to take a brief social history; record vital signs, height, and weight; and note some basic demographic information.

The second portion is the Functional Comorbidity Index,<sup>16</sup> a valid and reliable test that measures the number of comorbid diseases that could impact physical function. The Functional Comorbidity Index lists 18 comorbidities. The total number of comorbidities circled is tallied and the score is added. Scores range from 0 to 18, with higher scores indicating higher comorbid illness.

The third item is a Likert-scale question related to fear of falling, which better reflects degree of fear of falling versus the simple question, “Do you have a fear of falling?”<sup>17</sup> In-class discussion related to fear of falling included the interrelationship between depression and fear of falling and how fear of falling is related to poorer health<sup>18</sup> and functional decline,<sup>19</sup> decreased quality of life,<sup>20</sup> and increased number of falls.<sup>20</sup> Students also learned that fear of falling can exist in the absence of a falls history.<sup>21</sup> Students were introduced to concept of balance confidence, which is explored in depth in other coursework.

The fourth and final section of the questionnaire is the Geriatric Depression Scale-4,<sup>22,23</sup> which is a reliable and valid 4-item questionnaire that is useful for identifying the presence of depression in older adults, but not useful for long-term tracking of depressive symptoms, unlike longer versions of this questionnaire. Students learned about the relationship between depression

and physical functioning.<sup>24,25</sup>

The physical testing portion of the screen is the Short Physical Performance Battery (SPPB)<sup>26</sup> Scores on the SPPB are correlated with self-reports of activities of daily living (ADL) difficulty. The SPPB has predictive validity of mortality and nursing home admissions.<sup>27</sup> The SPPB consists of the semi-tandem balance progression, 8-foot walk test, and chair rise test; performance on these tests is then scored on a 0-4 scale and adding the 3 component scores results for a summary score.<sup>26</sup> The result is a score ranging from 0 to 12, with higher scores indicating better physical performance.<sup>26</sup> Within the context of the SPPB, students learned about the proper testing procedure and instructions given to the client.

After discussing all of the screening tools included on the Geriatric Screening Event form, the instructor introduced the students to the overall screening process that would take place at the community sites the following week, the responsibilities of the various screening roles, and the expectations for the screening interpretation.

### Application of the Process

Each student was assigned to 1 of 5 possible roles: (1) Client Advocate, (2) Client Interviewer, (3) Balance Assessor, (4) Gait Assessor, and (5) Chair Rise Time Assessor. The rationale for having students in a specific assigned role is that they can practice one particular skill in order to execute the skill properly and to promote an efficient flow of clients throughout the screening process. The Client Advocate recorded the demographic information, took vital signs, and recorded the patient height and weight in order to calculate body mass index, which is item 18 on the Functional Comorbidity Index.<sup>16</sup> The Client Advocate then took the client around to the remaining stations and, at the conclusion of the client screen, provided verbal client education related to blood pressure and offered “Age Page” pamphlets from the National Institute on Aging<sup>28</sup> related to the client’s identified comorbidities. (Students did not provide in-the-moment assessment of clients’ functional abilities, as this is a newer skill set. The information provided to clients must be accurate; hence, the faculty member provided the feedback to the client post event.) The Client Interviewer recorded the social history and administered the Functional Comorbidity Index,<sup>16</sup> the Fear of Falling<sup>17</sup> question, and the Geriatric Depression Scale-4.<sup>22,23</sup> The final 3 roles are for administering the 3 stations for the SPPB: balance, gait, and chair rise test.

Students assigned to a segment of the SPPB practiced their assigned test for the re-

remainder of the class on various classmates. The course instructor (KMP) provided feedback to the students regarding their execution of the psychomotor tasks. Students who assigned to be Client Interviewers were provided further instruction by the course instructor in using the measures and had the opportunity to ask questions to ensure they understood the scoring of each measure. Client Advocates were oriented to the various client education materials related to specific comorbidities.

On the day of the screening, faculty supervisors (SLC, JBL, KMP) went to the 2 sites to set up the screening areas. An intake area for the Client Advocates and those in charge of questionnaires was set up to include scales and a measuring tape taped onto the wall, and additional areas for balance testing, gait speed, and chair rise were created. Gait speed walkways were marked on the floor with blue painter's tape. Students, faculty, and staff at each site encouraged the older adults to participate in the screen.

At the conclusion of the event, each completed screening form was returned to the faculty supervisor, and then 1 faculty member (KMP) created student groups for the screening interpretation portion of the assignment. Each group consisted of 1 member from each assigned role. The faculty member went through each screening form and selected a completed screening form to assign to each group. In the spring 2012 event, 26 full screens and 10 vital signs and/or questionnaire-only screens were completed across the 2 sites. In the fall 2012 event, 27 full screens were completed and 5 additional screens reported blood pressure and/or questionnaire results only. Forty-six students participated in the spring event and 50 in the fall event.

Each student group was required to provide a written interpretation of the screen using various literature sources as part of the course grade. Due to the high volume of clients served in the screening and to provide information to clients in a timely fashion, 1 faculty member (KMP) also wrote interpretation letters on Widener University letterhead for each client to share with his or her physician and provided each client her business card so that they could contact her with any questions. The letters were delivered to the sites by the following week.

## OUTCOMES

All students practice their assigned screening skill on at least 1 client and thus had the opportunity to interact one-on-one with an older adult. Additionally, all students had the opportunity to interpret their portion of the assigned screening paper and to provide

feedback as to the overall picture the screening results represented.

All supervising faculty members debriefed after the event as to discuss areas of strength and weaknesses. The faculty members noted that the students were somewhat reluctant to approach clients initially; but, with faculty modeling and encouragement, they began to invite the older adults to participate in the screening event more readily. After making initial contact with the clients, students did well at facilitating the flow of clients from one station to the next. Additionally, they provided good patient education and an appropriate level of guarding.

Psychomotor tasks that require more practice include starting and stopping the stopwatch in a timely manner for the components of the SPPB and starting and stopping the stopwatch at the appropriate lines for the gait speed component. Students required reminders that the timing began at the 2 feet line marker and ended at the line that marked 8 feet (ie, not the first and last line). Students also required some guidance regarding whether to conduct a screen and contact the client's physician when vital signs were out of the normal range. In addition to these psychomotor and affective skills, 2 students came in unprofessional attire and were addressed by the faculty member.

Eighteen written interpretations were completed over the 2 events. The strengths of the screening papers included providing a detailed picture of the client from the social history and the questionnaires as well as the ability to thoroughly describe each portion of the screen, provide literature-based rationale why each portion was important, and present the results. Common difficulties encountered in the screening papers were a missing summary score and/or a lack of interpretation of what the summary score meant in terms of overall client health and physical function. Other less common areas of difficulty included misinterpretation of a slow gait speed as fast (2 instances), a misstatement about what a particular section of the screen tested for (3 instances), a misinterpretation of a summary score (2 instances), and a lack of specificity as to which members of the health care team may be appropriate for referral (2 instances).

## DISCUSSION AND CONCLUSION

This screening event was designed to address components of the essential competencies<sup>4</sup> domains 1 and 2. (Table 1). The students made progress towards meeting components of domain 1, competencies A-C (Table 1), despite having difficulty with and requiring faculty support and correction for the psychomotor tasks that fell under domain 1, competency C:

“Perform health, fitness and wellness screens (eg, screens for fall risk, elder mistreatment, environmental hazards) that identify older adults at risk of injury.”<sup>4</sup> The students' ability to meet the essential competencies emphasized in this screening event, as well as other competencies, were addressed throughout the curriculum through other experiential learning activities, practical exams, and clinical experiences.

As noted, student communication, education, and guarding were appropriate for this event. Students have several hours of practice in this area as part of laboratory experiences in the curriculum as well as in the Chester Community Physical Therapy Clinic, which is the IPTE's student-led pro bono clinic<sup>29</sup> and their Community Health Practicum, in which students conduct sustainable physical activity programming at various sites in the Chester community.<sup>30</sup> The psychomotor skills with which they had difficulty represent recently acquired and more complex skills. While students had time to practice this skill in lab with faculty feedback, there was only 1 week between skill acquisition and the screening event. Self-efficacy and mastery of psychomotor tests increases with guided practice time via handouts and videotape and with faculty feedback versus demonstration and laboratory practice alone.<sup>31</sup> Holding another laboratory session with more faculty feedback prior to the event may have increased task performance. Requiring students to generate knowledge of results and knowledge of performance may further help in motor skill acquisition.<sup>32</sup>

Adding a reflection piece to this assignment to have students identify whether they were successful in executing their portion of the screening would be valuable to determine how much practice the students feel they need as well as whether there is a mismatch between student and faculty perceptions of performance. A reflection piece would also be useful to identify how the students felt interacting with the older adults and whether they needed to adjust their patient education and instruction strategies for various patients. This would add a written confirmation of what faculty members observe at the screenings. Students do identify in their course evaluations that this screening is valuable with comments such as, “Geriatric screenings were very interesting and allowed us to see first hand how to start interacting with individuals and ask appropriate questions,” and requests for “more screenings” and “less people at each screening location” to facilitate more practice time. Having a snapshot of the entire class's experience would allow for better overall assessment of whether the experi-

ence met the stated educational objectives.

Students had greater difficulty with some aspects of domain 2. In the context of the lecture, students were able to verbalize why some tools are better for screening versus for use as physical therapy examination tools and demonstrated understanding that tools may only be appropriate for certain settings or for certain client population (domain 2, competency C1). However, the students had challenges with application of the knowledge of typical versus atypical aging and interpretation of the results of the screening (domain 2, competencies B1 and B4). It is not surprising that students were better able to interpret individual components of the screen (domain 2, competency C2) versus interpreting what the overall screening results meant in terms of physical functioning for a specific client (domain 2, competencies B1 and B4). Gagne's Adult Learning Model identifies that skill acquisition moves from the simple to the complex;<sup>33</sup> first-year DPT students thus might be able to view performance on a specific task (eg, timed chair rise) and state that the client has decreased lower extremity strength, but might not yet be able to identify the interplay of the various components and describe the complete clinical picture. As the students progress through the curriculum, this skill will improve with time. One method that could improve this interpretation is adding a component to the practice session in which students conduct the entire screen on each other, to see how young adults perform on these same tasks. This could address issues with misinterpretation of gait speed times and increase understanding of how physical performance changes with age.

Another area that could improve screening interpretation, as well as student confidence, is increased mentorship. A geriatric elective for third-year DPT students will occur in the same semester as the "Lifespan Adulthood" class. Using the third-year students enrolled in the geriatric elective course as peer mentors for the screening event could advance the learning of the first-year DPT students while reinforcing the third-year DPT students' synthesis of this information. Peer teaching has been shown to improve student-learning outcomes<sup>34</sup> and reassure students that the knowledge they are acquiring will have a useful application in the future.<sup>35</sup>

Additionally, having students write a sample letter to the client as part of the assignment and then sharing the client letters written by the faculty member with the students would provide further modeling for the students for screening interpretation. Students benefit by observing faculty in clinical practice;<sup>36</sup> our students see the faculty interacting with the

clients and modeling professional behaviors. Reviewing the screening interpretations would allow students to gain insight into the clinical judgment of a physical therapist.

In addition to addressing the psychomotor and interpretation practice expectations from domains 1 and 2 of the essential competencies,<sup>4</sup> this screening event has the potential to reduce bias towards older adult clients and potentially increase students' interest in working with this patient population. A bias towards older adults could be a barrier to attaining the essential competencies. While the topic of ageism is addressed in this "Lifespan Adulthood" course through a discussion of myths about aging and discussions of successful aging that center around centenarians and the senior athlete, didactic curriculum alone is insufficient in reducing bias towards working with older adults.<sup>37</sup> However, meaningful contact and increased frequency of contact are associated with increased likelihood of working in the field of geriatrics.<sup>38</sup> One medical school intervention to highlight and reduce ageism among medical students included student contact with community-dwelling older adults successfully provided students with the ability to connect ageism with inappropriate diagnoses and inadequate medical care.<sup>39</sup> In order to improve nursing students' attitudes towards older adults, one nursing program made curricular changes that included case discussions that related to lecture content, increased contact with older adults through clinical placements, and screening events in connection with the local Senior Games.<sup>40</sup> Other factors in increasing interest and comfort in working with older adults include positive clinical role models and faculty interest.<sup>41</sup> This screening event allowed the faculty supervisors to model comfort with and interest in working with older adults and provided meaningful contact with older adults in a context that relates to course content. Thus, this screening event may also impact the affective domain of learning and allow students to receive geriatric course content and interact with older adult patients throughout the curriculum with reduced bias.

This Geriatric Screening Event was designed to address components of the essential competencies.<sup>4</sup> The activities outlined in this case laid the foundation for mastering the targeted practice expectations of domains 1 and 2. While the outcomes demonstrate the practice expectations were only partially met, this is an experience that occurs early in their physical therapist education and is just one learning activity among many that will lead to mastery of the skills outlined in the essential competencies. Introducing students to these

skills early in the curriculum will provide them with early feedback regarding strengths and weaknesses in these domains that can be honed in laboratory experiences, in the pro bono clinic, and on formal clinical experiences. However, this event could be improved and thus improve student learning outcomes through the addition of increased practice time and feedback, a reflection component, and peer mentorship by third-year students. These changes could provide additional educational support necessary to move the students further along towards eventual mastery of the practice expectations targeted by this event. This case report describes an example of a geriatric screening that is easily adaptable to suit other DPT programs' needs and could be easily converted to a more challenging and comprehensive event to address DPT students who may be at a more advanced level of their education. Creating geriatric screening programs such as this throughout a curriculum could provide additional opportunities for students to integrate components of their education about the aging process in between clinical education experiences, while simultaneously addressing the health needs of their community.

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# Professional Practice Opportunities: Preparing Students to Care for an Aging Population

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**Background and Purpose.** In the United States, a large proportion of older adults will require services to address their health care needs. Physical therapy students' early exposure to working with this population is important; however, the current clinical climate and full curricula can make these experiences challenging to arrange. In an attempt to address this challenge, we have developed a novel clinical education offering, the professional practice opportunity (PPO). The intent of PPOs is for students to gain exposure, insight, and experience in order to develop a set of common practice skills necessary to work with older adults. The purpose of the paper is to present a method/model describing our professional physical therapist education program's use of PPOs to supplement integrated clinical education.

**Method/Model Description and Evaluation.** Needs assessment of the curriculum and relevant program stakeholders was performed. The PPOs were implemented in integrated clinical education courses that complemented direct patient care experiences. The students submitted a reflective portfolio at the end of the semester. Students accounted for time spent, linked project activities to curricular threads, and discussed application to future practice.

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**Outcomes.** PPOs for 1 academic year included 58 students, 2,320 hours of PPO time, and 40 mentors; 52 PPOs specifically addressed needs of older adult clients. The most frequently performed activities were interactive clinical observations, education, and research. Feedback from reflective portfolios and course evaluations demonstrated a positive impact on students' attitudes, value, and enthusiasm for these professional activities. Mentor feedback was extremely positive and is most likely attributed to the fact that PPOs were stakeholder-centered and matched for student interest and skills.

**Discussion and Conclusion.** Though patient exposure is paramount in early clinical courses, other objectives include professional socialization and developing the skills to work with individuals of all ages—which can be achieved through exposure to a variety of patients and practice settings. PPOs were a useful tool to meet these goals, in addition to supporting other program stakeholder interests.

**Key Words:** Clinical education, Physical therapy, Geriatrics, Service learning, Reflection.

## BACKGROUND AND PURPOSE

At least 13% of Americans are over the age of 65 and require services to address their health care needs.<sup>1</sup> This number will expand tremendously in the next 20 years, as the Baby Boomer generation continues to age. Given their often complex medical histories, older adults require skilled, sensitive, and knowledgeable physical therapists to address their functional and rehabilitation needs. The current generation of physical therapist students will be responsible for wellness, prevention, and rehabilitation in this population. To meet the unique needs of older adult patients/clients, PT students must develop a specific set of foundational skills, such as communication, goal prioritization, and evidence-

based practice, among others. In order to guide educators, the Geriatric Section of the American Physical Therapy Association (now known as the Academy of Geriatric Physical Therapy) has provided essential competencies to be met by the completion of a professional physical therapist education program.<sup>2</sup> These include competencies in the domains of Health Promotion and Safety, Evaluation and Assessment, Care Planning and Coordination Across the Care Spectrum, Interdisciplinary and Team Care, Caregiver Support, and Healthcare Systems and Benefits.

Despite the needs of older adults, many health professional students may not have knowledge of, be sensitive to, or be interested in caring for older adults.<sup>3,4</sup> Whaley<sup>5</sup> found that occupational therapist students did not feel prepared by their professional curriculum in this area. Giles et al<sup>4</sup> administered the Facts on Aging Quiz (FAQ) to physical therapist and occupational therapist students and practitioners. This 25-item, true/false quiz assesses basic physical, mental, and social knowledge about older adults. This study found that the average scores were 48%; similar to scores estimated for nonmedical persons. However, Beling<sup>6</sup> found that prior to a geriatric education course, US graduate students scored 68% on the same tool during their final year.

There also are data to show that a lack of knowledge and bias related to the older adult can exist in practice. Giles et al<sup>3</sup> found that the average scores for physical therapist clinical instructors were only slightly better (53%) than their students on the FAQ. After interviewing occupational therapists working in geriatric care, Klein and Liu<sup>7</sup> found that these therapists not only perceived bias toward their clients, but also bias toward themselves as health care providers to older adults. Preconceptions in clinical practice can have significant repercussions for the health of older adults.<sup>3</sup> If health professionals have biases, are ill-prepared, or choose not to work with this population, it can affect the quality and even quantity of care provided.

## Clinical Education Experiences: An Opportunity

Especially for those students who may have a negative bias, it appears that exposure to older adults, their caregivers, and health care providers is key to improving outcomes.<sup>6</sup> Clinical education experiences can be one method with which to provide this exposure.<sup>6</sup> Physical therapist clinical education includes formal and practical real-life immersion experiences with direct patient care, professional behaviors, and related activities.<sup>8</sup> Though research generally shows that exposure to older adults decreases bias,<sup>9</sup> there are clinical barriers to engaging physical therapist students in caring for older adults. This is especially true for integrated clinical education (ICE) in a professional physical therapist education curriculum.

According to the definitions of terminology adopted by the American Council on Academic Physical Therapy,<sup>10</sup> ICE is a clinical education experience that occurs during an academic term in a coordinated fashion concurrent with didactic courses, intended to translate coursework into clinical practice. Our professional physical therapist education program at the University of Maryland School of Medicine's Department of Physical Therapy and Rehabilitation Science (PTRS) has 2 such ICE courses. These initial clinical education courses, "Part-time Affiliation 1" (Affiliation 1) and "Part-time Affiliation 2" (Affiliation 2), are provided in the second year of the 3-year program. Held on Wednesdays during the fall and spring semesters, they are positioned between the neuromuscular and musculoskeletal clinical courses in our block-delivered curriculum. The overall objective of these courses is for students to be able to apply, integrate, and assimilate classroom knowledge in actual clinical settings. They can provide students the opportunity to practice foundational and practice management skills across health care settings, body systems, and the lifespan and also can provide an occasion to practice the skill set necessary to work with older adults. In addition, since they are placed mid curriculum, they may provide an opportunity to address any existing generational biases before they can become entrenched.

Despite the importance of ICE to physical therapist student development, challenges to providing these experiences exist. Sherer et al<sup>11</sup> describe difficulty in scheduling ICE due to clinic staffing patterns, productivity standards, and preference for full-time students. In addition, due to Medicare regulations affecting student provision of physical therapy services, our program has had even more difficulty providing students clinical opportunities to work with older adults.<sup>12</sup>

## Experiential Learning

Experiential learning activities can be directed toward either student learning or community outcomes.<sup>13</sup> Immersion activities and projects have been successfully implemented for health professional students. In a randomized controlled trial during a geriatrics course in a professional physical therapist education program, Beling<sup>6</sup> compared didactic instruction with paper cases to didactic instruction with a service project. Examples of the service projects included walking programs in assisted living facilities and communities, osteoporosis screenings, and group exercise programs in transitional care units. The results showed that students who had only received didactic instruction and paper case-based activities did improve their aging knowledge. However, students with negative attitudes toward older adults only improved their scores if they were in the experimental group.<sup>6</sup>

Furze and colleagues<sup>14</sup> successfully implemented an interprofessional community-based educational project that improved physical therapist and occupational therapist students' attitudes toward older adults. The project combined didactic education with structured visits at an assisted living facility. Basran et al<sup>15</sup> also applied an interprofessional approach in their senior partner mentoring program. They used planned, positive intergenerational contact experiences to reduce ageism bias in health professional students, including physical therapist students. Another experiential curricular activity that appears to be used frequently and successfully is service learning.

Service learning has been successfully used with rehabilitation professional students and older adults.<sup>6,13,16</sup> *Service learning* is a method of experiential learning through which health professions' students meet community needs while developing critical thinking abilities and other skills needed to practice their profession.<sup>17</sup> In the service learning component of a geriatric physical therapy course, an experimental group of students performed 32 hours of service learning with faculty-approved community partners.<sup>6</sup> The students performed a needs assessment with their partners and developed a health-related program. Throughout the activity, they completed a reflective journal. Compared to their didactic-only control group classmates, the service-learning students performed significantly better on the outcome measures of knowledge and attitude. Since the service learning was perceived as extra work, course instructor evaluation scores from the experimental group were lower than the control group students.

In a study by Reicherter and Williams,<sup>16</sup>

each student interviewed a community-active older adult about exercise health beliefs. Initially and after the activity, the students demonstrated strong scores for enthusiasm and interest in the project and thought it was valuable. Initially, some students felt the project to be stressful and time consuming. Though, after completing the project, all students reported less stress and more interest and perceived value of the project.

Based on the framework of these previous examples, we developed a novel method to augment our ICE courses in order to develop the skills necessary to work with older adults. These professional practice opportunities (PPOs) could include procedural interventions such as interactive clinical observations of expert physical therapists working with older adults. But the PPOs also may include non-procedural interventions related to geriatric issues, such as evidence-based practice, administration, education, and assistive technology.

Subsequently, the purpose of this paper is to describe the development of this curricular offering in our professional physical therapist education program during the 2011-2012 academic year. The following section provides the process that we used to develop the PPO, from our needs assessment through implementation and preliminary evaluation of effectiveness.

## METHOD/MODEL DESCRIPTION AND EVALUATION

### Needs Assessment and Opportunities

During our program evaluation process, the clinical education team performed a needs assessment related to the curricular role, objectives, and challenges of providing clinical experiences in the Affiliation 1 and Affiliation 2 courses. A responsive model of evaluation was used in which the concerns of the stakeholders are as important as the evaluator's needs in directing the evaluation process.<sup>18</sup> Data sources included both quantitative and qualitative information. The primary sources of feedback were clinical advisors and students, via course assessment tools, and stakeholders such as clinical facilities, program faculty, and the director of clinical education (DCE). The reliance on triangulated input from the educational partners of the program—as well as the use of curricular, professional, and regulatory reference documents—enhanced the validity, reliability, and usefulness of the assessment process.<sup>18</sup>

## Curriculum

Related to the required skill set to work with the older adult population, our physical therapist education program used several key documents from the profession to guide our curriculum plan. These included *Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study*,<sup>2</sup> *A Normative Model of Physical Therapist Professional Education*,<sup>8</sup> *Minimum Required Skills of Physical Therapist Graduates at Entry-level*,<sup>19</sup> and *Evaluative Criteria for Accreditation of Education Programs for the Preparation of Physical Therapists*.<sup>20</sup> In addition, our program emphasized relevant curricular threads including not only direct patient care skills such as clinical/patient relevance and documentation, but core professional values as well. These include lifespan orientation, critical thinking, professional interactions, and cultural competence.<sup>21</sup>

The first year of the Department of Physical Therapy and Rehabilitation Science (PTRS) curriculum is basic science-oriented, with training in foundational physical therapy skills. During the second year, emphasis is placed on the ICE courses to apply previously learned information and to integrate newly acquired clinical information from the system-specific didactic blocks. However, a major constraining factor became the limited availability of sites for ICE.

Similar to Scherer et al,<sup>11</sup> our professional physical therapist education program encountered decreased capacity of local clinics to host ICE. Specific to placing students in clinics that serve older adults, barriers included availability of clinical sites and skilled clinical instructors and difficulty involving students in patient care due to Medicare reimbursement regulation.<sup>12</sup> In addition, due to staffing and productivity standards, clinics reported to the DCE that the time and effort expended with early, novice students frequently could not be accommodated. This is especially true for settings that treat older adults with complex medical conditions. Also, since students often did not have applicable clinical coursework at this point in the curriculum, the frequently acute and complex nature of working with older adult patients was a challenge to placing students. In addition to our curricular needs, we then assessed our program stakeholders' needs and resources.

## Stakeholders

Consistent with our needs assessment model, we sought input from our established program stakeholders. These stakeholders included the students, program faculty, clinical instructors, clinics with whom we have affili-

ations, community partners, and the patients/clients themselves.

Student needs were determined from faculty observations, student performance in acute care courses, Affiliation 1 and Affiliation 2 student course evaluations, clinical instructor surveys, and full-time internship Clinical Performance Instrument (CPI) data. We identified difficulty in the students' skills to adapt interventions to the needs of older adults, particularly those with multisystem impairments. Some examples included determination of dosage of therapeutic exercise and the physiological impact of bed rest. Additionally, feedback indicated that some students struggled with communication with older adult patients with cognitive barriers. The CPI data also identified a need for greater skills in interdisciplinary care, finance, Medicare regulations, and patient education—particularly related to common older adult settings, such as long-term and acute care. Finally, students requested an avenue through which they could augment the professional curriculum with increased exposure to the geriatric population; however, our program does not include formal elective courses.

By interviewing core and associated faculty, the clinical education team identified a variety of needs and opportunities. These included: involvement of professional physical therapist students in the research enterprise of PTRS, support for the service learning clinic, and assistance in administrative projects. For example, we wanted to develop a way that students could gain the benefits of learning about the research process, but also provide valuable resources to faculty to assist them in their scholarly agenda goals. The studies performed in the PTRS research laboratories are focused on neuromotor control in individuals with age-related diagnoses, such as falling in older adults, stroke, and Parkinson disease. Student exposure to this research would further augment the program's teaching mission for developing skills and abilities in evidence-based practice. Within the Service Learning Center, a pro bono physical therapy clinic that provides services to under-insured or noninsured patients, faculty sought assistance that would not only provide students with additional clinical exposure to underserved older adults, but would contribute to service goals within the department. Last, engagement in administrative projects such as videotaping clinical skills allowed students to participate in planning and organizational tasks that were aimed at improving efficiency and technological resources of our education program.

Our community partners, who include both clinical facilities and nonprofit organi-

zations, frequently requested assistance from students for a variety of community service and volunteer projects. Qualitative data from clinical site visits and from our clinical advisory group identified a need for a continuous flow of student support throughout the year, as opposed to the intermittent events or projects in which our students had previously participated. These needs included having students assist with educational and administrative projects, evidence-based practice support, and a variety of other professional activities.

Finally, one of our most important stakeholders is the patient/client who will be the recipient of care from our students. Our program frequently receives direct requests from our research participants, the Service Learning Center patients, and patients from our affiliated urban medical centers, the majority of whom are older adults. Requests have included assistance with direct physical therapy care, home exercise programs, and equipment procurement and fitting (eg, wheelchairs, orthotics).

In summary, after taking into account data and information provided from our many stakeholders, we decided to develop the professional practice opportunity (PPO). This would be a creative way for students to perform a professionally related clinical activity with the flexibility to meet the variety of needs and objectives of all stakeholders. After weighing the identified needs, resources, and constraints, the clinical education team ascertained that, although patient exposure is paramount in our ICE, students could benefit from more geriatric-related experiences, which need not be limited to only direct patient care procedural interventions.

There was a breadth of options that were considered when creating and implementing these experiential activities. The intent of the PPO was for students to gain experience and insight with tasks required of physical therapists that do not necessarily include procedural interventions or direct patient care, though PPOs that provided direct involvement with older adults were encouraged. Educational objectives affecting care of older adults that could be included in PPOs were nonprocedural interventions, such as patient education, advocacy, specialized clinical training, and interdisciplinary teamwork, all which encourage practicing professional socialization and communication skills.

## PPO Implementation

Prior to beginning the second curricular year, students were oriented to the overall clinical education curriculum, the PPOs, and the role that they would play in their professional

development. During the second year, in both Affiliation 1 and Affiliation 2, students participated in a PPO that complemented direct patient care experiences (five 8-hour days) performed during the 1-credit, pass/fail courses. The students completed an average of 20 PPO hours per semester.

### PPO Recruitment and Selection

Students either created their own PPO idea or selected from a list of stakeholder-procured projects. Some student-generated projects included a health fair for community members, collecting used medical equipment for reuse, and gaining additional training to expand their knowledge base in areas such as Medicare billing, wound care, and AIDS. The DCE recruited potential PPO projects and mentors from all stakeholders. Examples of stakeholder-recruited projects included faculty-related research, creating patient education resources and equipment management for physical therapy clinics, literature searches, and other evidence-based tasks.

The projects were categorized by topic and skills required. The categories were: clinical care and interactive observations, assistive technology, research/scholarship, education, administration, interprofessional exposure, and service/volunteer. Students worked individually or in small groups if the project was large. A detailed example of the requirements of a PPO frequently used for exposure to individuals with neurological conditions is provided in Table 1.

PPO projects were elected by students based on their own developmental needs. They were encouraged to perform activities that they may not have been exposed to but, based on interest or curiosity, would like to have more exposure or experience. In addition, they also were counseled to explore a particular patient population or skill in which they did not feel as confident. If they felt they required more guidance, some chose a structured PPO, while others were more creative. Each PPO had a mentor; students met with the PPO mentor and formulated a realistic plan for completion within the semester. The proposed plan was based on project needs and student availability, which ultimately required approval by the DCE.

PPO proposals were submitted by students on the course management system and required approval prior to initiation. Proposals included: (1) a brief description of the planned PPO, (2) category of PPO, (3) anticipated time frame and commitment, and (4) names and contact information of the PPO mentor. Once approved, PPOs were completed with their mentor throughout the semester.

**Table 1. PPO Example: Neurological (Neuro) Rehabilitation**

<p>The Neuro PPO was established to provide additional clinical exposure to students specifically related to adult and pediatric neurology populations. The specific goal is for students to be able to identify and discuss aspects of physical therapist practice outside of direct patient care, including issues related to billing and compensation, the presence and effectiveness of the interdisciplinary patient care team, and the use of assistive devices and assistive technology to improve daily function in these populations. The students are further challenged to find current literature on patient care relevant to one of their observations and compare and contrast that to the care observed to develop their skills in critical thinking and evidence-based decision making.</p> <p>The requirements of this PPO included the following:</p> <ol style="list-style-type: none"> <li>Attend 2-4 total clinical visits including acute care and rehabilitation hospitals and school settings. <ul style="list-style-type: none"> <li>Complete the required questionnaires (see example below).</li> <li>After each visit, identify 1 patient diagnosis and identify 1 article related to current practice for a patient with that diagnosis.</li> <li>Turn in a bibliography of your articles.</li> </ul> </li> <li>Reflective portfolio: Be sure to include some comment about the articles and relationship to what you observed on your visits. Outcomes included completion of questionnaires, identification and discussion of current article relevant to observed patients, feedback from students on learning experience, and feedback from clinicians on student involvement.</li> </ol> <p><b>Neuro PPO: Interdisciplinary Team Questionnaire</b> After reading the chapter, answer the following from your clinic visits:</p> <ol style="list-style-type: none"> <li>What team model is used in setting (eg, medical, multidisciplinary, interdisciplinary, transdisciplinary)?</li> <li>Which professionals are involved in the team (to the best of your knowledge)?</li> <li>Do you see areas of overlap between team members? Do you see areas of exclusive practice?</li> <li>Would you suggest additional team members that could be involved that are not? What is your rationale?</li> <li>What makes this an effective team? Do you see barriers that could impact team effectiveness?</li> <li>Is there any evidence of the influence of the "silent team member"? (Consider number of sessions, length of sessions, required documentation, impact on length of stay.)</li> </ol> <p>As you may know, our university president is a strong advocate for interdisciplinary teamwork.</p> <ol style="list-style-type: none"> <li>How would you propose to include interdisciplinary teamwork within our curriculum?</li> <li>What courses could you see shared with other disciplines?</li> <li>How do you feel we could prepare for interdisciplinary practice in clinical affiliations?</li> </ol>
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Abbreviation: PPO, professional practice opportunity.

At the end of the semester, the students submitted a Reflective Portfolio Form (Table 2), which was approved and signed by their mentor. On the form, the students accounted for time spent and described activities performed. Since the PPO is developmental and is part of an ICE course, the use of self-reflection is important. The uniqueness of service learning is to not only perform service tasks but to reflect and integrate the experiences with previous knowledge to create new learning.<sup>16</sup> In their reflections, the students were

required to link project activities to all of the curricular threads and discuss benefits to future physical therapist practice. The Reflective Portfolio Form was then graded as a pass/fail assignment by the DCE for completeness, achievement of initial proposal goals, addressing of curricular threads, and insight. Due to the self-directed and diverse types of PPOs, ensuring accuracy of time spent and consistency of workload requirements across all types of PPOs was challenging.

The monitoring of PPO workload and con-



**Table 2. Sample Completed PPO Reflection**

**Professional Practice Opportunities (PPO)  
Reflective Portfolio Form**

Date and Times	Location Performed	Tasks Performed	Reflection
9:00 am-12:00 pm	Rehabilitation Hospital (Adult Rehab) Outpatient	Shadowed Physical Therapist	The only patients I had worked with prior to that were those who volunteered and came in for labs. I was able for the first time [to] see someone with multiple sclerosis (MS); prior to that I had only the knowledge from PowerPoint presentations and videos. I was able to learn and understand the disease more than I had prior to that day, and I don't think I would have learned what I did if I didn't have this experience. During the treatment session for both patients, the therapist focused on balance, muscle strengthening, and some aerobic exercise. I was able to find an article that did a literature review of articles that discussed various therapeutic interventions for people with MS. After reading this article, this gives the evidence behind what the therapist was doing. Not sure if she chose these interventions because of research or her own experience. However, this has reinforced what I observed during the treatment session as a possible treatment I could use one day with a patient with MS.
9:00 am-12:00 pm	Acute Hospital (Adult NCCU)	Shadowed Physical Therapist	<p>My experience at this hospital was overall the most eye opening. During my time there, I shadowed a PT working in the neurological critical care unit (NCCU). It was fascinating to see these patients because they either recently had a stroke, brain surgery, or ... surgery complications. The patient that stuck with me the most was an older patient whose diagnosis was still unsure—possible brain tumors. This patient would only respond to pain stimuli and had full body tremors. This was the first time I ever saw someone in person in this type of condition. We have learned about these states of unresponsiveness/consciousness, but you can't truly understand it until you have seen it in person. I feel that that experience alone will help me prepare for when you come across a patient who is like that. Seeing that, [ingrained] in my head that you can never give up, you have to try to pull multiple tricks out of the bag until the treatment session is over.</p> <p>Even though the experience of watching the PTs work with their patients was my favorite, I was also able to get a glimpse into the administrative side. Each of the therapists gets their own computer to bring around with them during the treatment sessions. On that computer they have access to all patients' files, including any x-rays or MRIs that have been done in the hospital, doctor's reports, and so on. It was awesome that, with a touch of a few buttons the therapist was able to find all that they needed, instead of trying to contact the doctor for specific information, or sort through the patient's manual medical chart, which can sometimes take up time to decipher everything.</p>
	<b>TOTAL</b> (≥ 25 hours)		

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Printed Student Name      Student Signature      Date      Printed Mentor Name      Mentor Signature      Date

**Instructions for Form Completion:**

- a) Please complete the form by including time periods (> ½ hour) spent on your PPO.
- b) Reflective comments should address all of the DPT program curricular threads as relevant (Documentation, Evidence-based, Professional Interactions, Clinical-Patient Relevance, Lifespan Orientation, Individual & Cultural Differences, and Critical Thinking).

tent was performed by several mechanisms. At the planning phase, the DCE's approval of the PPO proposal helped ensure fairness and equitable credit work for all students. The content validity of this project was assessed in several ways. Via the PPO proposal and Reflective Portfolio Form, the student needed to adhere to PPO objectives and requirements.

During grading, the DCE used the mentor's validation of not only the time expended on the project but the task descriptions to ensure completion of the project. Though no formal rubric was used, the DCE compared the content of the PPO with the program's curricular threads and relevant established standards within the profession.<sup>2,19-21</sup>

**OUTCOMES**

Outcomes are provided for the cohort of students (n = 58) enrolled in Affiliation 1 and Affiliation 2 during the 2011-2012 academic year. Students chose a variety of experiences in which to complete their PPOs. As Table 3 demonstrates, the most frequent categories of activity included education, interactive

**Table 3. Participation in PPO Categories (Academic Year 2011-2012)**

Number of Mentors	Frequency of Projects in PPO Categories						
	Clinical Care and Interactive Observation	Assistive Technology	Research/Scholarship	Education	Administration	Interprofessional Exposure	Service/Volunteer
40	26	11	18	32	5	5	1

Note: There are fewer projects than students in the cohort, as some projects were performed in groups.  
 Abbreviation: PPO, professional practice opportunity.

**Table 4. Older Adult-Related PPOs (Academic Year 2011-2012)**

	Frequency of Older Adult Projects in PPO Categories						
	Clinical Care and Interactive Observation	Assistive Technology	Research/Scholarship	Education	Administration	Interprofessional Exposure	Service/Volunteer
Projects that addressed older adult topics and needs	16	4	18	9	2	2	1
Projects that provided direct interaction with older adults	16	1	16	1	1	2	1

Abbreviation: PPO, professional practice opportunity.

clinical experiences, and research. Within the clinical experiences there was a small ( $n \sim 5$ ) but notable subset of the cohort that was interested in burns/wounds. Over the course of the 2 semesters, 37 of the 58 students (64% of the cohort) chose a PPO that directly related to older adults. Table 4 provides the frequency of PPOs that were performed with older adults in the various categories. Areas of aging that were evident in the projects included falls research and interventions, neurorehabilitation (particularly of patients with cerebral vascular accident [CVA]), and educational projects (eg, home exercise programs, lymphedema treatment). A large percentage of the PPOs involved direct interaction or physical therapy care of older adults.

Feedback from course evaluations demonstrated a mixed impact on students' attitudes, values, and enthusiasm for the PPOs (Table 5). Most of the reflective portfolios consistently demonstrated positive impacts on students' attitudes, values, and enthusiasm for the PPOs. Table 6 provides illustrative examples of typical student comments specifi-

cally related to PPOs involving older adults. Although, on course evaluations of the initial project offering in Affiliation 1, 17% of students ( $n = 10$ ) expressed resentment for the need to take time away from their didactic studies in order to perform the PPOs, there were no such comments on Affiliation 2 course evaluations.

Anecdotal feedback and reports from mentor and clinic focus groups also were extremely positive. Some stakeholders did request better orientation to the PPO assignment, as well as a better understanding of student capabilities during the project. All faculty mentors expressed positive results with their mentees, with most faculty mentors either continuing or even expanding their mentor responsibilities the next academic year. Program goals also were addressed in terms of the contribution to research, service, and administrative efforts. This positively impacted subsequent program leadership support of the project. The next academic year, faculty were permitted to use PPO mentorship as one component of their

faculty productivity calculation.

Some unplanned benefits to the students and the clinical education program also occurred. One of these was the identification of novel clinical opportunities or interested clinical instructors to utilize for patient care portions of future clinical internships. Another benefit was allowing student exploration of geriatric interest areas during their second year, before engaging in full-time internship commitments. The PPOs have been a valuable resource and efficient method to address the needs of the students, faculty, program, and external stakeholders.

**DISCUSSION AND CONCLUSION**

This method/model presentation described the PPO, a novel clinical education approach that replaced a loss of ICE clinical sites, particularly those that serviced older adults. Even if the students did not always work directly with older adults, these PPOs were devoted to students applying a common skill set within the geriatric population. Students certainly preferred to seek out opportunities for

**Table 5. PPO Items From 2011-2012 Course Evaluations**

	Affiliation 1 (n = 58)	Affiliation 2 (n = 58)
PPO assignment broadened my perspective of physical therapists' role in nonprocedural activities	Yes = 62.1%	Yes = 84.2%
	No = 34.5%	No = 15.8%
PPO experience improved my skill set in nonprocedural interventions applicable to physical therapy	Yes = 74.1%	Yes = 82.4%
	No = 25.8%	No = 17.5%

Abbreviation: PPO, professional practice opportunity.

**Table 6. Qualitative Comments From Student Reflections of PPOs With Older Adults**

<p>“Doing the research for this project I found challenging. There was a great deal of data to wade through and a time crunch, which made me be expedient. The articles that I was able to find and read gave me a better understanding of hospice care and palliative practices that PT’s are part of. It also made me aware of how much we have to offer these patients. On the other hand, while researching I also found it difficult to get in-depth information about the Nigerian ethnic background of the patient.” <i>(Student performing background research for a peer-reviewed case report presentation on an older adult with end-stage oral cancer.)</i></p>
<p>“This was an amazing experience for me. I felt like it really opened my mind and gave me a greater appreciation for the professionals around me. I had the opportunity to talk in depth with the social work student about discharge plans for our case and felt that I was able to add to the team’s plan.” <i>(Student participating in on-campus interdisciplinary team competition involving a paper case of older adult patient.)</i></p>
<p>“My experience with shadowing physical therapists in various neuromuscular settings has been an awesome learning experience. I was able to take what we have learned thus far in classes and apply it to my experience to better understand the various disorders, test and measures, and treatment ideas. It is a great feeling when being at these clinics and being able to understand what the PT is doing, relate it to the patient they are working with, and be able to hold a conversation about the aspects of treatment. It has shown me how much I have learned in classes already, but how much more there is still to learn.</p> <p>Overall, I loved this experience and cherish the knowledge that I have gained from it. I will now always have images of the patients to help remind me of how someone could present with a specific disorder. Once you have seen a patient with a disorder, it is so much easier to understand that disorder and tie in everything that we have learned about that disorder. I was also able to see many of the tests and measures that we have learned over the year be done on real patients and how you may have to modify the test because of your environment or patient condition and then how to document it.” <i>(Student involved with interactive clinical exposures with physical therapists managing the care of older adults with neurological conditions.)</i></p>
<p>“It has been both exciting and intimidating producing a training module for a renowned hospital. This was a great experience as I was familiarizing myself with 6 different types of ventricular assistive devices and what to do if each of them malfunctioned. I learned that these could be put on anyone at any age. I am excited to see how the finished training project will look.” <i>(Student producing video for training for nursing assistants.)</i></p>
<p>“I learned the importance of carefully monitoring the drug interaction as each patient comes with an added prescription. As a majority of the senior citizens have an average of 11 prescription drugs, I was reminded of the importance of checking each patient’s medication list not just for the indications but also more importantly for the side effects. Monitoring these adverse effects is very important in physical therapy sessions.” <i>(Student shadowing a pharmacist.)</i></p>

exposure to patients when available and often chose those with older adults. There also were quite a few students who elected to create educational resources for clinical stakeholders. These students generally had advanced technology and computer skills and enjoyed the self-paced and flexible nature of this type of project. Last, though not large, there was a notable cohort of students who were very interested and motivated to assist with faculty research. Generally, these students had previous experience in research prior to the physical therapist education program and enjoyed enhancing this aspect of their professional development.

Overall, students reported positive experiences with the PPO; they liked the flexibility and creativity of the options, such as the variety of clinical visits or service learning opportunities. Interestingly, while PPOs were an opportunity for a self-directed interest project, a small proportion of students initially did not prefer this assignment. It was observed by the DCE that during Affiliation 1, approximately 25% of the students struggled with identifying their own developmental needs and, thus, a project. This may be due to some students' difficulty with self-assessment, planning skills, and ownership of their own professional development. Consistent with this—though the students were made aware that the PPOs were a part of the course credit workload—during the first semester, some students complained about time away from studying for their other courses. This could be due to these students not valuing the importance of the multitude of roles and practical and interpersonal skills ultimately required of a physical therapist. Optimistically, there were more positive comments during the second semester of the assignment, showing greater appreciation for the activity.

Another concern was that there may have been some volunteer bias with PPO selection. Though the short time commitment and pass/fail nature of the activity lent itself to diversification and experimentation, some students may not have chosen to challenge themselves to grow in their areas of need. To improve student self-analysis, cuing questions and self-assessment tools to help identify developmental needs were added in subsequent semesters (Table 7).

Mentor feedback was extremely positive and was most likely attributed to the fact that PPOs were matched for student interest and skills and that the projects were stakeholder-centered. Though anecdotal and targeted feedback was procured, a limitation was the lack of more formal, comprehensive, and systematic mentor feedback process. Thus, areas for future improvement include

**Table 7. PPO Cuing Questions**

<ol style="list-style-type: none"> <li>1. Is there an area of physical therapy (such as geriatrics) that interests you that you feel you have not had enough exposure to in your previous experiences or physical therapy school?</li> <li>2. What has been your favorite topic in the courses you have taken thus far?</li> <li>3. Think about your experiences during patient days during school. What patient population did you enjoy working with?</li> <li>4. What types of physical therapy settings would you like to work in after graduating? Have you had exposure to all of these settings thus far?</li> <li>5. Do you have an interest in physical therapy residency programs? If so, which specialties?</li> <li>6. What are some of your interests outside of school? Do you feel any of those could be applied to your physical therapy career?</li> <li>7. Are there any classes, conferences, or seminars that you are interested in that would add value to your professional development?</li> <li>8. What skills have you learned thus far that you would like more practice?</li> <li>9. Have you ever considered a career in research or considered taking part in faculty research?</li> <li>10. Have you noticed areas in the department that you feel could be improved or organized differently with your input?</li> <li>11. Consider the team care approach and who is involved: nursing, MDs, social work, case managers, insurance companies, etc. What about this team are you unfamiliar with? What part of the team would you like to learn more about?</li> <li>12. Do you have any interest in serving the underserved population?</li> <li>13. Are there any public health service delivery issues that you are passionate about? Would you be interested in advocacy opportunities regarding those issues?</li> </ol>
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adding a comment section for mentors on the Reflective Portfolio Form and a formalized survey of all mentors and stakeholders. While we hope to preserve the individuality, creativity, and flexibility of the project, student and mentor feedback indicated the need for a more structured approach, which will be developed for future PPO offerings. It is anticipated that these improvements would encourage stakeholders and mentors to continue supporting the PPO endeavor.

Additional suggestions for the future of our PPO endeavors were to include a grading rubric for the Reflective Portfolio Form and to perform better outcome measures related to the impact of the PPOs on student learning, specifically attitudes about working with older adults. As Brown et al<sup>22</sup> point out, there is a lack of evidence-based guidance on educational interventions targeting age bias. A plan is to have students perform pre/posttests measuring knowledge and attitudes on aging. By providing better-trained and age-sensitive students, some geriatric clinical facilities have provided feedback to the DCE that our physi-

cal therapist education program may be better positioned to have students accepted for internships in the highly sought-after Medicare population settings.

The key to sustainability in clinical education is for the academic and clinical program to be adaptable to both the rapidly changing health care environment and physical therapy practice.<sup>13,23</sup> As we prepare physical therapists and other health professionals for the future, we must plan that older adults will require highly skilled, integrative, and age-specific care. Due to external constraints, these needs may not be met through traditional clinical education mechanisms. This has been one professional physical therapist program's attempt to adapt to both internal and external constraints that limited integrated clinical education, especially in those settings with older adults. Guided by mentors and academic and clinical faculty, professional practice opportunities provided students with opportunities to gain knowledge, skills, and behaviors that could be translated to future professional practice. It is hoped

that these opportunities will help provide the complex prevention and rehabilitation assessments and interventions to keep our older adults functioning at the highest levels in their communities.

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# A Model for Designing a Geriatric Physical Therapy Course Grounded in Educational Principles and Active Learning Strategies

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**Background and Purpose.** The proportion of time physical therapists spend with individuals over 65 continues to grow as the population grays. Education programs must respond to this demand by preparing graduates to meet the complex needs of older persons within the productivity constraints of the current health care environment. This paper describes a model for the development of a dedicated geriatrics course in a Doctor of Physical Therapy program grounded in educational theory to optimize learning and preparedness for geriatric clinical practice.

**Method/Model Description and Evaluation.** The geriatrics course incorporates principles of adult learning, experiential learning theory, reflective practice, and active learning strategies. Professional resources, such as *A Normative Model of Physical Therapist Professional Education and Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study* described by the APTA Academy of Geriatric Physical Therapy, were used to align course content and

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objectives with contemporary practice expectations. Learner strategies and course content were further refined using a needs assessment as well as formative and summative feedback from students. Quantitative and qualitative data were collected related to student self-efficacy; student perceptions of their knowledge, skills, and attitudes; student perceptions of the course; and measures of attainment of course goals. Descriptive statistics were used to summarize quantitative data and the related groups. The Wilcoxon signed-rank test was used to analyze pre and posttest scores on self-efficacy scales. Qualitative data were coded and examined for clusters and patterns of meaning. Multiple researchers were used to analyze the raw data, confirm the accuracy of the findings, and search for disconfirming information.

**Outcomes.** Student outcomes demonstrate that the process used in course design was effective. Changes in the pre- and post-test efficacy scale indicated students became significantly more confident in their ability to manage the needs of older patients. Students shared aspects of their experiences that surprised them, assumptions they made, challenges they encountered, strategies used to overcome those challenges, and future learning needs. Students passed course assessments, which were mapped to required competencies.

**Discussion and Conclusion.** A model for designing a focused geriatric physical therapy course grounded in educational principles and active learning strategies was presented. Outcomes indicate students felt more confident and were actively engaged throughout the course. Student feedback and course outcomes indicate students mastered course competencies mapped to contemporary expectations for physical therapist practice. Although this model was applied specifically to a

course on physical therapist management of the older adult, the same process can be applied to a broad range of content areas across the continuum of practice. Educational principles and active learning strategies shaped the development of a geriatric physical therapy course that optimized student self-efficacy, engagement, reflection, and competence in managing the older adult client.

**Key Words:** Curriculum design, Student learning, Geriatrics, Learning theory, Entry-level education.

## INTRODUCTION

The goal of physical therapist education programs is to prepare practitioners to evaluate and treat movement dysfunction for individuals across the lifespan.<sup>1</sup> The US Census Bureau projects that by 2050 the number of persons over age 65 in the United States is expected to reach 88.5 million—nearly double the 40.2 million persons over that age in 2010.<sup>2</sup> In 2008, the Institute of Medicine (IOM) of the National Academies published recommendations for preparing and growing the health care workforce in preparation for a graying America. This report emphasized the need to improve the geriatric-specific competence of health care workers, increase the number of geriatric specialists in all health professions, and develop new models for geriatric care delivery.<sup>3</sup>

As the older segment of the population grows, so too does the proportion of older adults comprising the caseload of the typical physical therapist. The 2006 Practice Profile Survey from the American Physical Therapy Association tracked the mean percentage of patient care time spent with individuals by age group.<sup>4</sup> “Older persons” (age 65 and over) comprised a majority of patient care time per week by practice setting, including: approximately 82% in skilled nursing facilities, 60% in home care, 54% in sub-acute rehabilitation hospitals, 52% in acute care hospitals,

31% in hospital-based outpatient clinics, and 27% in private practice. Specialized training is essential in both the academic and clinical environments to prepare physical therapist graduates to meet the needs of the older adult population across health care settings.

John Rowe, chairman of the National Academy of Sciences Committee on the Future Healthcare Workforce for Older Americans, emphasized the need for all health care workers to demonstrate basic competence in geriatric care. This competence necessitates “significant enhancements in educational curricula and training programs”<sup>3(p xii)</sup> available to health care providers.<sup>3</sup> A number of curriculum development models for physical therapist professional education have been described in the literature.<sup>5-9</sup> These models discuss the development of curriculum on a larger program-level scale, considering factors that extend across academic courses of a given program. Shepard and Jensen discuss a general framework for stand-alone course design through their “preactive teaching grid.”<sup>7</sup> The grid helps instructors to consider

10 different dimensions of instructional design, such as teaching methods, assessments, student preferences, and learning environment, in preparation for a course or single learning event. Models for content-specific course design in physical therapy, including geriatric physical therapy, are limited.<sup>10-13</sup>

The purpose of this paper is to describe and evaluate a model for the design, development, and implementation of a dedicated course in a Doctor of Physical Therapy (DPT) program on the management of the aging adult. Educational theory that promotes student engagement, reflective practice, clinical decision making, and problem solving will be presented, followed by how these educational principles were incorporated into the course design. Grounded in educational principles, this model optimizes learning and preparedness for geriatric physical therapist clinical practice. The following describes the theoretical framework as the basis for this course design model, application of the design process to a course on the management of the older adult, and evaluation of the course outcomes

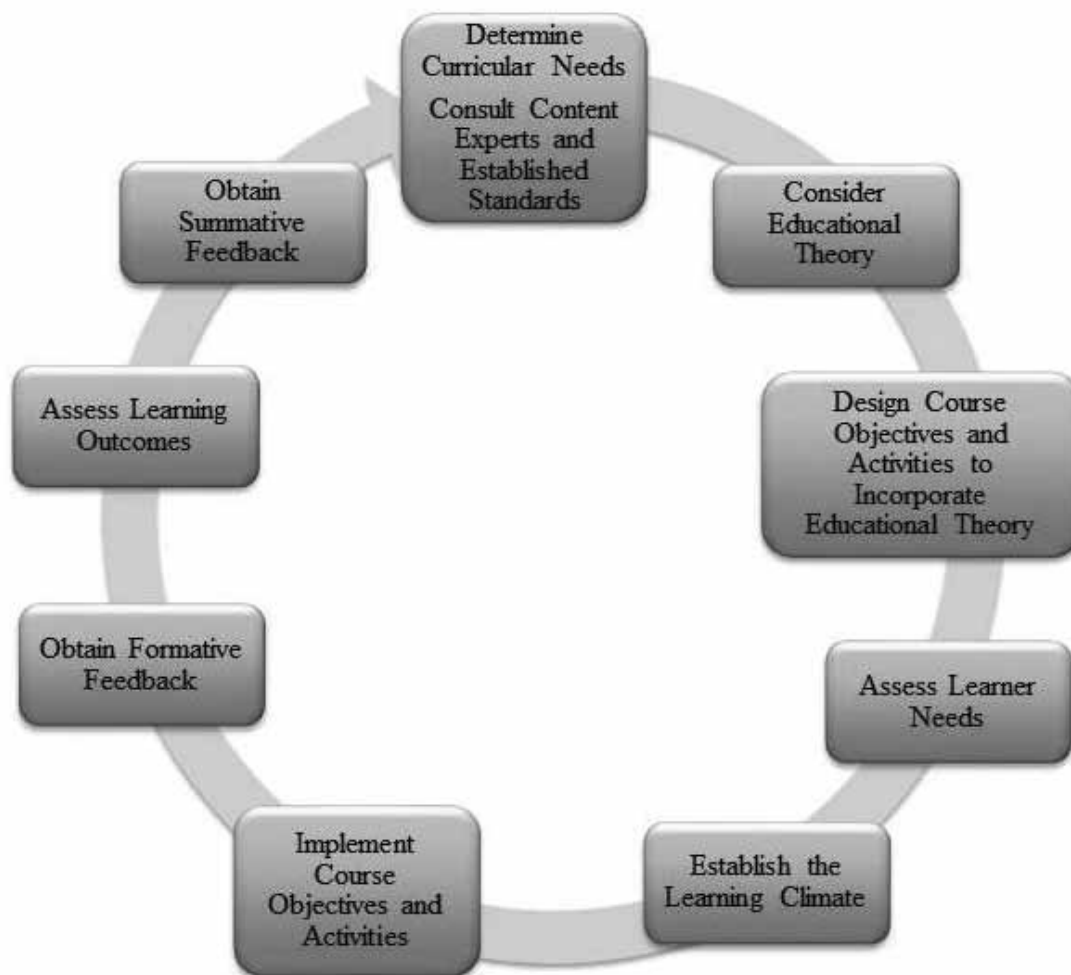
to determine the efficacy of this model. We apply the model to a geriatrics course, but the model may be used to design or redesign courses related to a broad array of didactic content areas.

### Theoretical Framework

Course development is an iterative process requiring continuous assessment and alignment of objectives, instructional methods, and learner outcomes, incorporation of learner feedback, and integration of current evidence and trends in clinical practice (Figure 1). Design and development of the course “Management of the Aging Adult” at The George Washington University (GW) is grounded in the principles of adult learning, experiential learning, and reflective practice. To optimize learner engagement, the method of delivery incorporates active learning strategies throughout the course.

**Andragogy.** Andragogy, or the principles of adult learning theory, is less a theory about how learning occurs and more a theory about the characteristics of adult learners and how

Figure 1. Iterative Process of Course Design and Development Used at The George Washington University



they learn best.<sup>14</sup> Six key assumptions of the characteristics of the adult learner have been proposed to guide instructional design and educational practice<sup>14</sup>:

- (1) Adults want some control or responsibility over their own learning (self-directed).
- (2) They bring prior experiences to the learning environment.
- (3) They are most ready to learn when topics are related to their social role.
- (4) They learn most when there is a need and when immediate application is necessary.
- (5) They possess internal motivation to learn.
- (6) They need to know *why* they are required to learn a particular topic.

Adult learning theory holds important implications for curriculum and course design. Some strategies to incorporate andragogical principles include: provide opportunities for students to share prior experiences on the topic; incorporate opportunities to apply knowledge gained; and describe the clinical relevance of the content through patient cases and/or videos.

**Experiential learning theory.** Experiential learning theory (ELT) emphasizes the critical role of experience (or active engagement and experimentation) in learning. John Dewey<sup>15</sup> believed learning is an active, cyclic process with concepts being derived from and continually modified by experience. Each new experience helps refine learning. ELT involves 2 distinct processes: (1) information gathering, or how we take in information, and (2) information processing, or how we make sense of that information and begin to use it to solve problems.<sup>16</sup> These processes result in 4 abilities that form the basis of our problem solving skills: the abilities to (1) engage in new experiences (concrete experience); (2) observe and reflect on those experiences (reflective observation); (3) theorize and interpret those experiences to form new hypotheses, ideas, and concepts (abstract conceptualization); and (4) use and apply these new ideas and concepts in daily life (active experimentation).<sup>16</sup> Although learning can begin at any point in the cycle, a learner most often moves through all 4 stages to solve problems and create a new frame of reference for future actions or experiences. Some strategies to incorporate ELT include role-playing scenarios, laboratory experiences, and case-based problem solving.

**Reflective practice.** The reflective process is critical to creating meaning of our experiences.<sup>17-19</sup> *Reflection-in-action* involves reflection during an activity or interaction.<sup>19</sup> Two

concurrent levels of thinking are required; clinicians must focus on their interactions with patients, while simultaneously questioning, observing, reassessing, and altering their thoughts and actions throughout each session.<sup>20</sup> *Reflection-on-action* occurs after the patient interaction/activity has occurred, and involves thinking about what happened, evaluating what did and did not go as planned, and comparing this to the desired outcome.<sup>19</sup> *Reflection-for-action* is what enables clinicians to anticipate clinical problems and plan alternative solutions or clinical interventions in anticipation of their next encounter.<sup>20,21</sup> This occurs as clinicians ask themselves: What can I do differently to achieve a better outcome next time? What can I learn from this experience to enhance my future practice? Reflection facilitates deeper learning. All 3 types of reflection are critical to developing expertise in practice.<sup>20,22,23</sup> Some strategies to incorporate reflective practice include: reflective papers, blogs, video models in which the process of reflection is demonstrated, and reflective questions to uncover assumptions and misconceptions.

**Active learning.** Active learning strategies enable students to process information as they integrate and apply the information learned to solve problems. This active engagement helps learners make personal meaning of the content and facilitates retention.<sup>20,24</sup> In addition to active learning strategies in the classroom, pre-class activities can “prime the pump” and prepare students to better engage in classroom activities. Using active learning strategies changes the focus from the traditional instructor-led lecture to student-centered discussion and problem solving. A number of strategies have been described in the literature to achieve an active learning environment including: Just-in-Time teaching,<sup>25</sup> Learn Before Lecture (LBL),<sup>26</sup> the “flipped” or “inverted” classroom,<sup>27-29</sup> as well as preparatory activities, games, puzzles, panels, fishbowls, jigsaws, role-plays, response cards, polling, and learning partners.<sup>20,30</sup>

**Summary.** Andragogical principles, experiential learning theory, reflective practice, and active learning strategies provide a theoretical foundation for designing a focused geriatrics course that provides authentic experiences, engages learners in the reflective process, helps learners develop and analyze hypotheses, and actively engages learners in synthesizing, integrating, and applying what they have learned to the older adult population. In the next section, we will describe how each of the educational principles and active learning strategies was used to design the “Management of the Aging Adult” course at The George Washington University.

## METHOD MODEL DESCRIPTION AND EVALUATION

### Context

The required geriatrics curriculum in The George Washington University DPT program is comprised of an integrative thread through the curriculum and a dedicated 2-credit 16-week course. Content is threaded throughout the curriculum, starting in the first semester with the physical therapy examination and interventions courses, and continuing through courses in exercise physiology, kinesiology, and systems-based patient management courses. The dedicated 2-credit 16-week course occurs in the fifth semester of the program, optimizing the opportunity to integrate and extend previously learned concepts and skills. The purpose of this stand-alone geriatrics course is to provide the DPT students with basic level knowledge and experience related to the physical therapy management of older adults. A complete description of the course, including the weekly course schedule, is included in Appendix 1.

There are many benefits to having a specific course on the management of the aging adult as a component of the curriculum. This course exposes students to the health needs of older adults across the continuum from well elderly to frail and institutionalized elderly, as well as across practice patterns and clinical settings. It promotes a higher-level application of previously learned content to the complex needs of the older adult patient. For example, patient cases with multiple comorbidities, factoring in psychosocial, legal, and ethical aspects of care provide opportunities for analysis and synthesis of content at a higher level than is often possible when geriatric topics are solely threaded throughout other courses. Finally, it enables students to focus on the specific needs of the older adult client and develop a better appreciation for this population as a defined group, which is consistent with the recommendations from the IOM report.<sup>3</sup>

### Content Development

Content development involved consultation with a number of professional resources to ensure congruence with contemporary physical therapist practice. A *Normative Model of Physical Therapist Professional Education* was used to establish the core professional practice expectations a PT student should develop relevant to the care of the older adult.<sup>31</sup> The knowledge, skills, and attitudes in the Normative Model are general recommendations for graduating physical therapists. For example, objective 12.3 states, “Examine patients/clients by selecting and administering culturally appropriate and age-



related tests and measures.”<sup>31(p45)</sup> Although the practice expectations from the Normative Model were helpful in thinking about the geriatrics course on a broad scale, the *Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study* developed by the APTA Section on Geriatrics (now known as the Academy of Geriatric Physical Therapy) provided more specific practice expectations for the physical therapy management of an older adult.<sup>32</sup> These competencies incorporated 6 domains specific to the older adult: (1) Health Promotion and Safety; (2) Evaluation and Assessment; (3) Care Planning and Coordination Across the Lifespan; (4) Interdisciplinary Team Care; (5) Caregiver Support; and (6) Healthcare Systems and Benefits. Each domain also included specific goals and objectives to achieve each competency (A-E). This resource was exceptionally helpful for developing the GW course for the older adult.

Course goals were mapped to the expectations presented. Professional peers (experts in the care of older adults with teaching experience in physical therapist education programs) were consulted to further validate the content and provide feedback on proposed teaching methods. Based on recommendations from these experts, the final course goals were established and mapped to the es-

sential competencies:

- (1) Students will summarize current literature describing normal and pathological changes associated with aging (domain(s)/competencies: 2B, 2C).
- (2) Students will describe the legal, medical, and psychosocial issues pertinent to the geriatric patient/client (domain(s)/competencies: 1D, 1E, 3C, 3D, 5A, 6B, and 6C).
- (3) Students will apply the physical therapy patient-client management model taking into consideration the special needs of the older client/patient. (domain(s)/competencies: 1A-C, 2A, 2C, 2E, 3A, 3B, 5B-D, 6A, and 6C)
- (4) Students will demonstrate communication and professional behaviors consistent with established standards of practice (domain(s)/competencies: 2A, 4A, 4B, 6A, and 6B).

As development continued, more specific objectives were defined to achieve each goal, content was further defined to meet the objectives, and a schedule was devised.

### Course Framework

*Incorporating the needs of the learner.* Classroom teaching is a partnership between students and instructors. The instructor de-

termines the content; however, to be most effective, the instructor must take into consideration the needs of the learner.<sup>20</sup> To do so in this course, 2 strategies were used: (1) summative assessment from course evaluations from the previous cohort of students (2011), and (2) needs assessment from the current cohort. Feedback from the 2011 cohort of students resulted in a reorganization of the course schedule and addition of measures to increase student accountability for priming activities. For the current cohort, a needs assessment, in the form of a reflection paper, was completed at the start of the course. The needs assessment helped to answer questions such as:

- Where are my learners coming from (background knowledge)?
- What are my learners’ needs?
- How can the course help to achieve those needs?

A number of themes emerged from this needs assessment. Students identified knowledge, skills, and attitudes they hoped to improve, and based on their responses the instructor identified additional needs. The themes were then compared to the course goals, objectives, and instructional methods, and a number of activities were modified as a result (Table 1).

**Table 1. Incorporating the Needs of the Learners**

Domain of Learning	Theme & Description of Identified Needs	Exemplary Quotes	Changes to Course in Response to Learner Needs
Knowledge	<b>Age versus disease-related changes</b> differentiating normal physiologic changes from disease-related changes; prevention	“I want to learn what impairments are normal or expected in this population and which ones we can really improve. I want to be able to focus my interventions appropriately and know when a decrease in function is inevitable versus preventable.”	*This did not require a change; already a key component of the course.
	<b>Realistic goal setting and prognosis</b> , including managing expectations, measuring outcomes, and deciding on compensation versus recovery	“I am also excited to have a better understanding of how fast we can expect geriatric patients to improve ... I feel like I could have a good conversation with an average adult explaining how fast they could expect to see improvements, but I need to be able to do this with all populations of patients.”  “I want to develop a better sense of what reasonable goals are for older patients who have declining systems... [what] specific outcomes are the most helpful in determining success in this population.”	Added class discussion regarding goal setting for patients with multiple comorbidities.
	<b>Appropriate exercise prescription</b> across the continuum from frail to fit elderly, including prioritization, intensity, progression, modification, variety	“I hope to learn how to best maximize a treatment session with an older adult without pushing them too hard.”  “Ways to develop an ideal plan for an elderly athlete.”  “I would like to develop a better understanding of the exercise prescription applicable to the average aging adult and then prescription adapted for the aging adult with multiple comorbidities... [and to determine the] appropriate intensity of the exercise, the optimal progression of the intervention, the implications of postural dysfunction on the resistance exercises, and how to prioritize impairments.”	Added question to group presentations regarding prioritization of plan of care based on patient case’s comorbidities.  Modified exercise prescription for frail elderly laboratory activities.

**Table 1. Incorporating the Needs of the Learners *continued***

	<b>Role of the physical therapist</b> , such as to empower, advocate, support, and motivate	<p>"I would like to learn more effective strategies for working with and motivating an elderly patient."</p> <p>"I want to learn how to encourage questions and a critical ear in my older patients. I want to know they understand our course of treatment and...make sure they have all of the questions and concerns addressed."</p>	Redesigned priming activity background reading and questions for strategies to enhance exercise self-efficacy and exercise barriers for older adults.
	<b>Importance of family and caregiver burden</b> , including family in plan of care, recognizing the burden	<p>"I am interested in learning how to appropriately include the patient's family in the plan of care discussion. I am especially interested in learning to deal with situations where there is family conflict and how to best advocate for the patient."</p> <p>"[I am interested in] getting the patient's spouse involved in the plan of care."</p>	Invited guest speaker to discuss caregiving styles and application to home health physical therapy.
	<b>Impact of personal and psychosocial factors on aging</b> , including motivation (too little or too much), fear, anxiety, terminal illness, loss, death and dying, and palliative care	<p>"Death, depression, and anxiety are scary and challenging topics that are prevalent in this population and I would like to learn more about how to handle these challenges."</p> <p>"I would like to learn more of how the mental and psychological aspect of aging affects older adults and how to compensate for this."</p>	*This did not require a change; already a key component of the course.
<b>Skills</b>	<b>Managing complexity</b> such as multiple comorbidities and personal factors, including energy level, depression, cognitive impairment, sensory loss, and memory and attention impairments	<p>"I want to [learn] ... how to appropriately address and manage multiple comorbidities."</p> <p>"I would like to learn ...1. Prioritization of treatment, and 2. Creative/different exercise prescriptions for when patients have comorbidities."</p> <p>"I am very interested in how patients with dementia and Alzheimer's can benefit from physical therapy and what our treatment would look like."</p>	<p>Redesigned priming activity and required reading related to dementia.</p> <p>Increased class discussion and lab time related to dementia.</p>
	<b>Building rapport and communicating effectively</b>	<p>"I would love to master an effective and comfortable way to speak to individuals with hearing loss."</p> <p>"I would like to improve my personal skills when working with the geriatric population. I know that every patient will have his or her own perceptions of aging as well as ... of physical therapy.... I would like to learn strategies to build rapport with this population and make them feel comfortable working with me."</p>	Added hearing impairment laboratory session.
	<b>Patient education and adherence</b>	<p>"I would like to learn how to educate the complicated patient on what to expect with aging and how to offer guidance and motivation to maintain a good quality of life."</p> <p>"Another skill I would like to develop is how to promote patient adherence to home exercise plans."</p>	Redesigned priming activity background reading and questions for strategies to enhance exercise self-efficacy and exercise barriers for older adults.
<b>Attitudes (Students)</b>	<b>Uncovering assumptions</b>	<p>"Age shouldn't guide your interventions. You really need to plan your treatment on a case-by-case basis and may surprise yourself as to how challenging you can be with an older adult."</p> <p>"Not every elderly patient fits the stereotype of a non-active bingo player."</p> <p>"[Don't] make assumptions about the hobbies, goals, or capabilities of an older adult.... I learned the importance of letting patients take the lead and not showing a bias that just because an individual is older does not mean he/she is incapable of participating."</p>	Added reflection question to the community screening activity asking the students what assumptions about older adults had been confronted during the activity.
	<b>Student self-efficacy</b> , including timidity, fear	<p>"I would like to develop confidence to work with this population without fearing that I'm pushing them too hard or asking them to do things that are unsafe for their age."</p> <p>"I'd like to learn about red flags specific to the older adult population.... I want to feel confident that I know when those changes reach levels that increase my level of concern."</p>	*This did not require a change; already a key component of the course.
	<b>Being patient</b> by considering the patient's personal factors	"A big challenge I faced was being patient when being asked the same question repeatedly.... Ensuring the patient is cognitively in tune versus just going through the motions is very important."	Added class discussion regarding interview skills, commonly encountered challenges with history taking, and strategies to improve.

**Table 2. Incorporating the Principles of Adult Learning Into the Geriatrics Course**

Adult Learning Principles	Example of a Relevant Course Activity	Description
Adults want some control/responsibility over their own learning process (self-directed)	EBP Assignment	Students develop a PICO question related to a topic of their <i>choice</i> related to physical therapy for the older adult (eg, diagnosis, intervention, psychosocial factors)
Adults bring their own prior experiences to the learning environment	Small group discussion	Students work in small groups to reply to the following questions; then regroup: (1) Share an experience about working with an older adult with dementia. (2) What signs/symptoms did the patient demonstrate? (3) What strategies did you use to improve their participation in therapy? (4) What strategies were ineffective? Effective?
Adults are most ready to learn when topics are related to their social role	Introductory class session	Students learn about current PT practice trends related to percentage of older adults in different clinical settings to present the relevance of the information to their future clinical practice/role as a PT.
Adults learn most when there is a need and immediate application is necessary	Community screening activity	Students perform a fall and frailty screening with geriatric clients. This activity occurs in the last class of the semester as a cumulative activity for students to apply the skills, knowledge, and attitudes learned.
Adults possess internal motivation to learn	Blackboard <sup>45</sup> file share	After the first class session, a number of students verbalized a desire to be able to share news stories, educational websites, and other geriatric-related content they came across outside of class. An area on Blackboard <sup>45</sup> was established for students to share files and discuss content related to geriatrics not required by the course instructor.
Adults need to know <i>why</i> they should learn	Priming activities	Priming activities were designed to prepare students ahead of class through readings, guided questions, and application to patient case examples. The activities helped students see how the preparatory activities were directly related to patient care, and were carried over into live class sessions.

Abbreviations: EBP, evidence-based practice; PICO, Patient + Intervention + Comparison + Outcome; PT, physical therapist.

**Establishing the learning climate and learning expectations.** Although the needs assessment provided information about the learners, it did not provide information regarding the learning environment.<sup>33</sup> At the first class meeting, the instructor led a discussion on “class climate,” in which students shared desired aspects of course format, class environment, and educational methods, as well as aspects of prior courses that inhibited their learning. Although classroom norms, such as overall respect and professionalism in interactions with peers and instructors, are established early and emphasized throughout the DPT curriculum, the class climate discussion was important for this specific course so that students and instructor could build a mutual understanding of course expectations. The instructor was informed of the learners’

needs, and established classroom norms for the course-specific instructional methods and desired outcomes such as accountability, commitment to class preparatory work, and active involvement in higher-level thinking. Particular emphasis was placed on the course goals and objectives, how the course content was relevant to future clinical practice, and how the course fit into the DPT curriculum to ensure students were prepared to expect higher-level integration and synthesis of prior coursework. Because priming activities involve greater preparation and time than textbook or article readings alone, students were provided with specific rationale for the use of these assignments. Consistent with tenets of adult learning, priming activities maximize engagement in the learning process, provide opportunities for reflection on

prior experiences, allow for application of background reading through patient cases, and prepare learners to participate at a higher level in class. For sample priming activities, see Appendix 2.<sup>34-38</sup>

**Incorporating educational theory into the design of the geriatrics course.** Andragogical principles, experiential learning theory, reflective practice, and active learning strategies were all incorporated into the design of this course. Tables 2-4 and Figure 2 illustrate how these principles were integrated throughout this geriatrics course.

**Learner Assessment**

Efficacy of instructional strategies was assessed formatively at the conclusion of each class session and formally 5 weeks into the course to enable the instructor to better

**Table 3. Incorporating Principles of Reflection Into the Geriatrics Course**

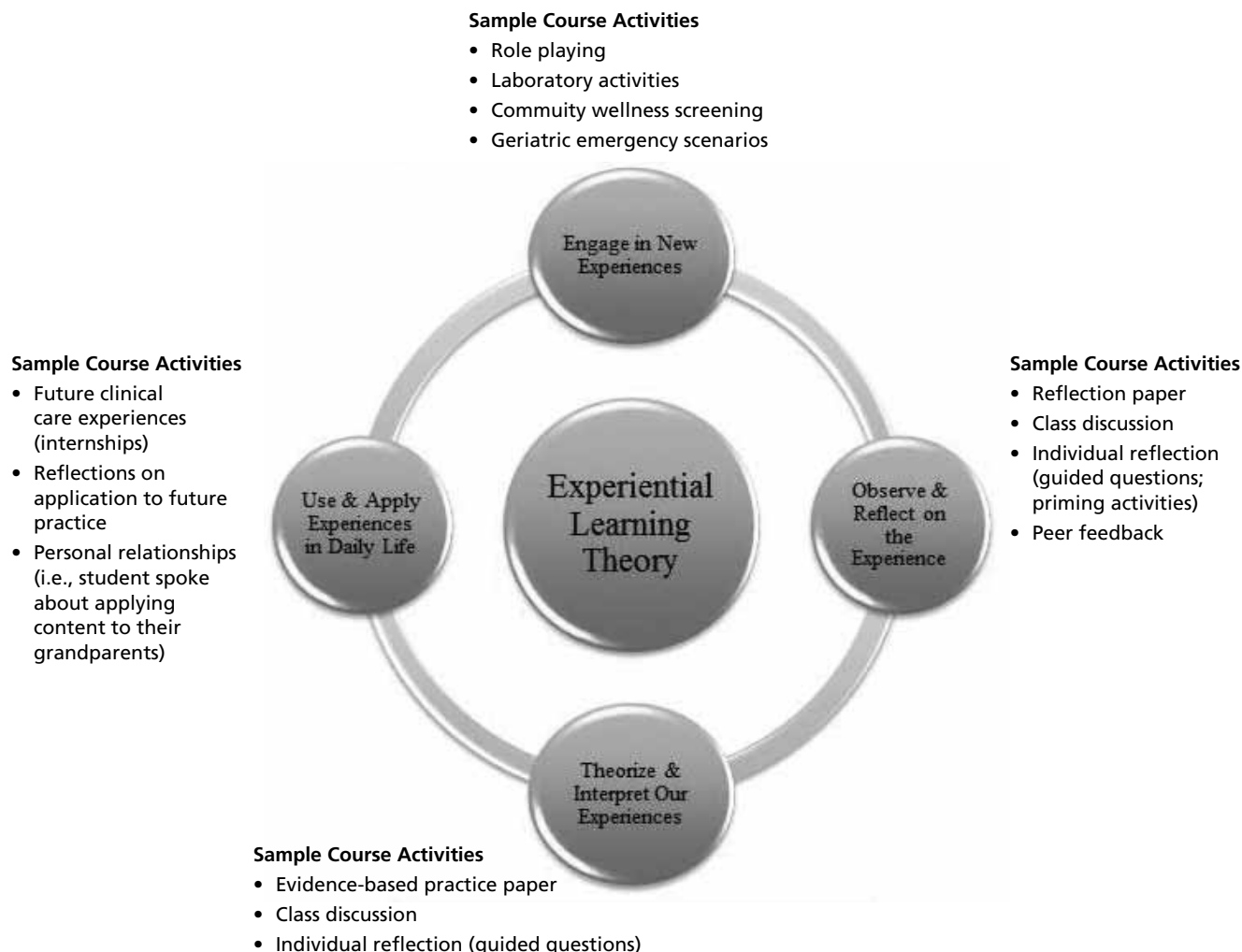
Sample Reflective Activities Used	Specific Reflective Activity: Post Community Screening	
	Individual Reflection	Group Reflection
Needs assessment Priming activity questions Group discussion post emergency scenario Individual reflective questionnaire on the community screening activity Group discussion post community screening activity Self-Efficacy Scale Formative feedback throughout the course	The learner individually spent 25 minutes answering the following questions after the screening experience: 1. What surprised you about this experience with your client? 2. What was the biggest challenge you experienced in working with your client? How did you overcome this challenge? 3. Considering your plan for this client screening, what aspects of your plan were an appropriate "fit" for your patient? 4. Considering your plan for this client screening, what aspects of your plan were NOT an appropriate "fit" for your patient? 5. How effective were you in changing your plan in the moment with your client? 6. Thinking about the experience, what would you do differently in the future?	In a large group format, the following questions were discussed: 1. What questions do you have about your patient encounter? 2. What surprises did you experience? 3. What challenges did you experience? 4. What stereotypes or biases were observed or challenged in the experience?

**Table 4. Incorporating Active Learning Principles Into the Geriatrics Course**

Activity	Sample Topic and Description
Jigsaw activity	<i>Demography of aging</i> Students divide into 9 small groups to research different demographic trends of older adults in America based on the "Profile of Older Americans 2011" <sup>47</sup> by the Administration on Aging (AOA). After brief instructor feedback to confirm main points, 1 team member joins a group with a member representing each of the other 8 groups. Each student then instructs his or her peers on the information gathered. This is an active learning technique that requires cooperative learning and peer instruction.
Small group linking activity	<i>Physiology of aging</i> Link the normal cardiovascular or pulmonary system physiologic change to a related exercise precaution during PT treatment/exercise prescription for older adults.
Role-playing activity	<i>Musculoskeletal changes with age</i> Choose a common participation-level role for an older adult (eg, grandparent, bowler, etc). Given the knowledge of typical joint ROM changes with age, demonstrate to the class how an older adult may perform a common functional task related to this role. Peers then hypothesize potential impairments based on their movement analysis.
Think-pair-share activity	<i>Balance and falls</i> Describe the objective measure you chose to assess the balance ability of the patient in the priming activity. In pairs, compare/contrast the measure chosen. Does your partner "buy in" to the rationale you provided? Did you change your mind?
Priming activities	<i>Medicare &amp; legal issues for older adults</i> View the YouTube video by the Henry J. Kaiser Family Foundation <sup>48</sup> on the history of Medicare. Answer 3 related questions relevant to health care literacy in older adults, implications of Medicare for the consumer and the therapist, and understanding of insurance payment methodologies and incentives. (Also view Appendix 2 for 2 sample priming activities.)
Geriatric emergency scenarios	<i>Pharmacology for the older adult</i> Students participate in interprofessional role-play scenarios with EMS students related to poly-pharmacy, drug toxicity, and drug interactions. Students must determine if the scenario requires emergency intervention and then facilitates the transfer of the patient from PT to EMS care.
Psychomotor activities	<i>Frailty and exercise adherence</i> Students work in small groups to develop a relevant group exercise program for frail older adults in the skilled nursing facility setting. Students demonstrate these exercises by role-playing as therapist with at least 3 patients with specific emphasis on safety, guarding techniques, methods to actively engage participants based on their exercise preferences, and safely increasing intensity.
Problem-solving video case scenarios	<i>Cardiopulmonary considerations for older adults</i> Students watch a video of an older adult completing the Short Physical Performance Battery assessment. Students score the results and develop a plan of care given the results of the assessment.
Creating a video case scenario	<i>Complex geriatric patient case presentations</i> Students work in small groups of 5-6 to review relevant course content related to a complex patient case, answer guiding questions from the instructor, and then model a specific skill in role-play scenarios of patient/therapist interactions. These are presented to the class as a review of course material with application to patient scenarios in the second to last class session.

Abbreviations: EMS, emergency medical services; ROM, range of motion.

**Figure 2. Activities Used to Incorporate the Principles of Experiential Learning Theory** <sup>15-16</sup>



understand what concepts remained unclear and to facilitate ongoing enhancement of instructional strategies. For a specific example of the formative assessment, see Appendix 3. In addition to written midterm and final exams, learning outcomes and achievement of the primary course goals were assessed through the geriatric community screening as well as a number of other assessment methods (Figure 3). Students also completed self-efficacy scales pre- and post-geriatric community screening.

The framework described above illustrates the comprehensive process used to develop the geriatrics course at GW. The iterative nature of course design requires frequent reexamination and flexibility on the part of the instructor to design a course that best meets the unique needs of each cohort of learners, as well as the greater societal needs for health care professionals who work with the older adult population.

### Evaluation of the Model

To evaluate the outcomes of this model, we collected both quantitative and qualitative data related to student self-efficacy; student perceptions of their knowledge, skills, and attitudes; student perceptions of the course; and measures of attainment of course goals. Descriptive statistics were used to summarize quantitative data in course evaluations and self-efficacy scales. The related groups Wilcoxon signed-rank test was used to analyze whether significant differences existed in the pre and posttest scores on the self-efficacy instrument. The statistical significance level was adjusted using Bonferroni correction methods to control for the potential of a family-wise error rate. SPSS<sup>39</sup> was used to analyze the quantitative data.

Analysis of the qualitative data began with open coding and progressed through the development of themes.<sup>40</sup> Two investigators used inductive analysis to independently examine a portion of the responses for clusters and patterns of meaning.<sup>41</sup> Codes were

defined and a coding schema developed by consensus. Two investigators independently coded the data, applying more than one code when warranted and continually searching for disconfirming or discordant information. The two investigators then worked together to analyze the open codes, which subsequently led to the development of categories and themes. An additional investigator, acting as “devil’s advocate,” reviewed the raw data, findings, and interpretations for plausibility.<sup>42,43</sup>

The following major steps were taken to maximize credibility and trustworthiness of the outcomes of this study:

- (1) Multiple researchers were used to analyze the raw data.
- (2) A third researcher was used as a peer reviewer to confirm the accuracy of the findings.
- (3) A search for negative cases and disconfirming information was ongoing.
- (4) Low inference data (ie, verbatim quotes) were obtained and reported to support the themes that emerged.<sup>42,43</sup>

Figure 3. Timeline for Structured Learner Assessments



## OUTCOMES

Student outcomes demonstrate that the process used in course design was effective. Students demonstrated a significant increase in confidence in managing older patients as measured by a self-efficacy scale developed by faculty. The overall design of the scale was consistent with Bandura's recommendations for self-efficacy scale development.<sup>44</sup> Content of the scale was derived from key constructs related to physical therapist management of an older adult, including *A Normative Model of Physical Therapist Professional Education*,<sup>31</sup> the *Guide to Physical Therapist Practice*,<sup>45</sup> and the *Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study*.<sup>32</sup> Faculty experts evaluated the measure for content and face validity, as well as overall structure (number of items and wording). The 10-item scale of confidence used in the survey was chosen to improve responsiveness and reliability.<sup>44</sup> Total or composite scores improved significantly from the pretest to the posttest. Table 5 summarizes the results of the pretest and posttest and identifies those items that changed significantly following completion of the culminating community screening application activity.

A number of themes emerged from open-ended questions following the community screening, which provided insight into the students' perceptions of their knowledge, skills, and attitudes in working with the older adult population. Students shared aspects of their experiences that surprised them, assumptions they made, challenges they encountered, and strategies they identified to overcome those challenges. Students also identified their own future learning needs.

Students were surprised by their own skills and abilities as this student noted, "It was really encouraging to be able to do all of the history taking, exam, and screens on my own and feel that I was doing a good job." The clients also surprised the students with their willingness to participate, and students continued to recognize assumptions they made about the older adult population (eg, older adults lacked motivation and were more impaired functionally). Exemplary quotes include:

I thought that most older adults in a SNF would be much lower functioning and it

would be very difficult to get a lot done.... However, our client was up for anything and we were able to perform many difficult measures.

I really was not expecting our client to be so active! At 77, she's still jogging, volunteering, and acting as primary caregiver for her husband. I expected activities much more along the lines of reading, taking walks, or going to social events. She definitely proved me wrong!

One student summarized it by saying, "Instead of thinking of aging and cognition as a linear decline, today I saw a much more complex picture."

Students also described their challenges and most were able to identify strategies to overcome those challenges. They described how communication can be challenging for a variety of reasons such as cognitive deficits, hearing impairments, or simply that the clients were a bit "chatty." The students described a variety of strategies they used such as rephrasing or repeating instructions, providing demonstrations, using physical cues, speaking more slowly and clearly, breaking down the tasks into small steps, asking targeted questions, and redirecting the discussion. Students stated:

The biggest challenge was learning to adapt my communication to fit her needs. I eventually found strategies that worked to use consistently, for example: keeping conversation focused, rephrasing after repetition, and staying in front of her.

She had cognitive impairments and could not follow multi-step commands, so it was difficult to tell her what we wanted to do in a simple way. We overcame this by demonstrating everything first and breaking tasks down into individual steps.

Students also described how they had to be flexible and prioritize their sessions to improve their efficiency. They were able to multitask, modify the sequence of the test, or use rest periods to gather more of the patient's history. They also noted how they were able to modify their sessions to be sure they prioritized their client's goals. For example:

We had hoped to do functional reach and sitting balance [assessments]. While we could have attempted these, it was more important to our patient that he attempted to stand up for the first time in 1.5 years.

We ordered [our] plan throughout the

session [to] allow our patient the ability to take breaks while still getting the information we needed.

We re-ordered our subjective questions and prioritized exam techniques in the time we had left.

In thinking about the future, students also noted the importance of having a "Plan A, a Plan B, and a Plan C"—as often times the clients were functioning at a lower or higher level than anticipated, either physically, cognitively, or both. They described how important it is to take time to get to know more about their clients and even observe them in their natural environments. Again, they reinforced the need to improve their communication and maximize their efficiency in collecting and synthesizing data as well as prioritizing and sequencing tests and measures to gain the most important/relevant information about the patient. Some key observations include:

Instead of having one back-up plan, have a spectrum of options spanning from low to very high level... [so I] stay flexible and constantly think about my toolbox of knowledge.

I'd like to be able to observe how the patient interacts with their environment before our exam so we get an idea of baseline.

I would find something to connect with the patient [about] and ask his caregivers.

Be more efficient in gathering subjective data with objective data—some things could be done while talking to a patient (eg, vitals, foot screen).

Interestingly, when asked about what they found most helpful in the class, each student cited a different aspect of the course, including age-related changes, setting realistic patient-centered goals, clinical decision making around balance measures, exercise prescription, geriatric-specific evaluations and how to prioritize them, as well as communication and teaching strategies. Students noted:

Learning about multiple tests and measures that can be useful for balance and gait [assessment] and how to determine which measure to use based off of patient presentation.

Suggestions like getting down to the level of the patient, not speaking too slowly, and being directly in front [of the patient].

I felt better prepared to interact with a client with dementia and possible hearing

**Table 5. Self-Efficacy Scores: Pre and Posttest Comparisons**

Item	Pretest <sup>a</sup> Range (Median)	Posttest <sup>a</sup> Range (Median)	Score Improved n <sup>b</sup> (%)	Score Unchanged n (%)	Score Decreased n (%)	P Value <sup>b</sup>
Establishing a safe environment for the client encounter	5-10 (9)	6-10 (9)	15 (40.6)	16 (43.2)	6 (16.2)	.028
Establishing rapport with an older client	6-10 (9)	3-10 (9)	23 (62.2)	11 (29.7)	3 (8.1)	.001 <sup>c</sup>
Communicating effectively with a client with a hearing impairment	3-10 (7)	5-10 (8)	23 (62.2)	9 (24.3)	5 (13.5)	.001 <sup>c</sup>
Communicating effectively with a client with a visual impairment	4-10 (7)	4-10 (8)	22 (59.5)	7 (18.9)	8 (21.6)	.022
Communicating effectively with a client with a cognitive impairment	3-10 (6)	3-10 (8)	29 (78.4)	6 (16.2)	2 (5.4)	.000 <sup>c</sup>
Prioritizing screening based on the history and observations	4-10 (7)	6-10 (8)	26 (70.3)	6 (16.2)	5 (13.5)	.000 <sup>c</sup>
Identifying psychosocial factors affecting the client's performance	4-10 (7)	5-10 (8)	15 (40.5)	13 (35.1)	9 (24.3)	.105
Executing outcome assessments competently for the healthy older adult	5-10 (8)	5-10 (9)	15 (43.3)	15 (40.5)	6 (16.2)	.109
Executing outcome assessments competently for the frail older adult	4-10 (7)	3-10 (8)	18 (48.6)	14 (37.8)	5 (13.5)	.035
Executing outcome assessments competently for the older adult with dementia	3-9 (6)	3-10 (7)	29 (78.4)	11 (29.7)	6 (16.2)	.001 <sup>c</sup>
Executing outcome assessments competently for the older adult with multiple comorbidities	4-9 (7)	4-9 (8)	25 (75.7)	4 (10.8)	5 (13.5)	.000 <sup>c</sup>
Executing outcome assessments efficiently	3-10 (7)	5-10 (8)	22 (59.5)	8 (21.6)	7 (18.9)	.012
Interpreting results of outcome assessments appropriately	4-10 (8)	4-10 (8)	10 (27.8)	20 (55.6)	6 (16.2)	.200
Engaging the client throughout the encounter	4-10 (9)	7-10 (9)	20 (54.1)	12 (32.4)	5 (13.5)	.005
Using motivational strategies to optimize the client encounter	4-10 (8)	5-10 (8)	18 (48.6)	11 (29.7)	8 (21.6)	.035
Responding to adverse responses in the client	1-9 (7)	3-9 (8)	23 (62.2)	8 (21.6)	6 (16.2)	.000 <sup>c</sup>
Prioritizing interventions for the plan of care	5-10 (7)	5-10 (8)	20 (54.1)	14 (37.8)	3 (8.1)	.001 <sup>c</sup>
Prescribing appropriate exercise intensity for the healthy older adult	5-10 (8)	6-10 (9)	17 (45.9)	15 (40.5)	5 (13.5)	.007
Prescribing appropriate exercise intensity for the frail older adult	4-10 (7)	3-10 (8)	19 (51.4)	11 (29.7)	7 (29.7)	.014
Prescribing appropriate exercise intensity for the older adult with dementia	3-9 (7)	3-9 (7)	18 (48.6)	12 (32.4)	7 (18.9)	.004
Prescribing appropriate exercise intensity for the older adult with multiple comorbidities	3-9 (6)	4-9 (7)	22 (59.5)	10 (27.0)	5 (13.5)	.000 <sup>c</sup>
Recognizing when modifications to exercise prescription are needed	4-10 (8)	6-10 (9)	20 (54.1)	14 (37.8)	3 (8.1)	.001 <sup>c</sup>
Educating the client on results of your assessment	5-10 (8)	5-10 (8)	19 (51.4)	10 (27.0)	8 (21.6)	.015
Referring to other health care professionals as needed	3-10 (8)	4-10 (8)	17 (45.9)	15 (4.5)	5 (13.5)	.007
<b>Composite Scores</b>	100-228 (176)	134-226 (198)	29 (78.4)	1 (2.7)	7 (18.9)	.000 <sup>c</sup>

<sup>a</sup>Scores are based on a scale of 0 to 10, with 1 indicating not all confident and 10, extremely confident.

<sup>b</sup>Related samples Wilcoxon signed-rank test.

<sup>c</sup>Significant when adjusted for multiple comparisons (Bonferroni).

**Table 6. Results of the Course Evaluation**

Criteria	Student Rating of 4/5 or 5/5 <sup>a,b</sup>	Mean ± SD	Exemplary Comments
Amount you learned in the course	35 (100%)	4.6±0.5	<ul style="list-style-type: none"> <li>I really appreciated the fact that the course was designed to help us integrate a lot of material we learned in other classes into the work we did in Geriatrics.</li> <li>The trip to the nursing home was a great opportunity to apply what we have been learning.</li> <li>Although it was tough having a priming activity to complete every week, they really helped enhance my learning. It helped me be more engaged during class. I also like that we had case studies, which helped us apply what we are learning.</li> <li>I appreciate that [the instructor] requested feedback at midterm and used it to guide the rest of the semester.</li> <li>Make this a 3 credit course! It seems like such vital material.</li> <li>I thought that always attaching a patient case to the subject we were on was helpful. It made what we were learning seem clinically relevant.</li> <li>Thank you for accommodating your teaching style to how we learned and coming up with activities that were meaningful and enhanced the material we learned in class.</li> <li>I really did not expect to have much interest in this course at all... However...the course material [was so] engaging and interesting that it ended up being one of my favorite classes this semester!</li> <li>[The instructor] used different teaching methods to keep us engaged.</li> <li>[The instructor] thoroughly considered what she wants us to learn from each lecture, obtains the latest research... [and] presents the material in a way that is easy to comprehend, designs activities with clear concepts in mind....</li> <li>I love the videos of real patients and discussion that challenged us to think about specific intervention prescriptions. Overall, the content was very comprehensive for the geriatric population.</li> </ul>
Overall, how would you rate your level of intellectual challenge in this course?	33 (94%)	4.4±0.6	
Overall, how would you rate your level of engagement in the subject matter?	30 (86%)	4.4±0.8	
Increased conceptual understanding and/or critical thinking?	32 (97%)	4.7±0.5	
Course content was organized in a manner that facilitated learning.	33 (100%)	4.8±0.4	
Overall rating of the course.	35 (100%)	4.7±0.4	

<sup>a</sup>Thirty-five out of 37 students completed the course evaluation anonymously on line.

<sup>b</sup>The range for possible scores is 1 to 5, with 1 being lowest and 5 being highest.

impairment. I also knew which muscles were going to be [most] important to test rather than performing a comprehensive strength screen.

Awareness of the expected physiologic changes that are a normal part of aging ... what are reasonable goals for the healthy aging adult.

Physically performing the outcome measures really helped being able to implement them [today].

Thirty-five of 37 students responded to the end-of-semester standardized online course evaluation providing their perceptions of the course. Results of these evaluations demonstrate students perceived they learned a great deal (n = 35/35); were challenged intellectually (n = 33/35); were highly engaged (n = 30/35); and perceived that the course increased their conceptual understanding and/or critical thinking (n = 32/33) and facilitated their learning (n = 33/33). Overall the course was rated very highly by 35/35 students. See Table 6 provides exemplary quotes supporting these ratings.

Student achievement of course goals were assessed through the grading of: priming activities, an evidence-based practice paper

on a topic related to physical therapy for the older adult, group presentations on a complex patient case, written documentation, and written midterm and written final exams. These assessment strategies were mapped to the essential competencies and course goals. All students attained acceptable scores to pass the course indicating successful achievement of course goals and objectives.

**DISCUSSION AND CONCLUSION**

As the population of older adults comprises an increasing percentage of the typical practitioner’s caseload, the need to prepare clinicians who value working with this population and have the knowledge, skills, and self-efficacy to do so is critical. As productivity demands increase and clinicians become less available to mentor students and novice clinicians, it is incumbent upon physical therapist education programs to ensure students and new graduates are prepared to enter the clinic well-prepared to manage the physical therapy needs of the older client. This paper presents a model for designing a focused geriatrics course grounded in educational principles and active learning strategies. Integrating the

needs of the learner, using active learning strategies, and ensuring individual accountability help to maximize student engagement and learning. Qualitative and quantitative measures of student and course outcomes provide evidence of learning as well as student engagement throughout this course.

Incorporating self-identified student needs capitalized on adult learning principles and made the course more relevant to the learners. Using a variety of experiential learning activities and active learning strategies optimized student engagement.<sup>7</sup> Students particularly commented on the priming activities, which the instructor developed as a means of holding students accountable for the background information needed for them to engage in higher-level thinking during class. Students commented on how priming activities prepared them to participate more effectively in each class session. Comments on the course evaluation clearly showed how students valued the instructor’s ability to meet their needs and maximize their ability to engage effectively with the content.

The reflective process is a hallmark of professional practice,<sup>7</sup> yet it is a skill that must



be practiced and perfected. Experiential learning activities provided the substrate for reflection. Experiential learning theory and reflection were among the instructional strategies used throughout this course. Themes that emerged demonstrated that, although still challenged, the students were able to reflect-in-action, problem solve, be flexible, and adapt to the needs of their older adult clients. Students demonstrated both reflection-on-action and reflection-for-action as they contemplated their interactions with the clients in the community screening and were then able to identify what worked and what they would do differently in the future to improve future interactions with their older patients.

Despite focused attention on the older adult client across the continuum from the healthy older athlete to the frail elderly, students continued to make assumptions, including that the older adult client would lack motivation or would be fairly impaired functionally. More important, however, was that through this process they began to recognize their assumptions, were open to being proven wrong, and began to recognize the complexity of the aging process, noting that it is not linear. This process of reflection is critical to continuous improvement in practice.<sup>19</sup> The ability to recognize personal assumptions is an advanced level of reflection, and it is only through this process we begin to transform perspectives and develop a more inclusive, open-minded, discriminatory, and integrative worldview, which is critical to professional practice, particularly in working with the older adult client.<sup>46</sup>

Students shared their challenges when interacting with the older adult client. Although they were challenged by the decreased physical, cognitive, and communicative capacities of some of their clients, they were challenged by the vitality of others. Despite the challenges, by the end of the course the students' perceived self-efficacy had improved significantly. The students demonstrated statistically significant increases in self-efficacy, particularly in the areas of building rapport, communicating effectively with patients with hearing or cognitive impairments, executing outcome assessments for individuals with hearing or cognitive deficits, prioritizing interventions for the plan of care, and appropriately prescribing and modifying exercise interventions. These areas are of particular note, because they were identified by the students early in the semester as part of the needs assessment as key areas they wished to learn more about. These results suggest that the course helped students develop the knowledge and skills necessary to perform

confidently in a clinical encounter.

In addition to uncovering assumptions and planning for the future, students demonstrated their flexibility and problem-solving skills, which is prerequisite to "hitting the ground running" in clinic. The skills students identified as needing future improvement were advanced patient management skills such as flexibility, prioritization, efficiency, and having a number of different plans in place; rather than the knowledge or skills to manage the older adult patient. A focus on advanced skills is consistent with their level of professional development. Most importantly, themes that emerged demonstrated that when faced with a challenge they were able to not only develop strategies to overcome those challenges but also develop strategies to maximize their efficiency, while still maintaining a client-centered focus.

It is evident from the student comments and self-efficacy scales that students gained the knowledge, skills, and attitudes essential to providing care for this very complex population. Having a dedicated course enabled students to apply previously learned skills at increasingly higher and more complex levels. Multiple iterations of active learning strategies fostered the integration of complex concepts including co-morbidities such as physical, cognitive, and communicative challenges with the psychosocial, legal, and ethical aspects of care. Student comments provided further evidence that an intense course dedicated solely to concepts related to the care of the older adult fostered a greater appreciation for defined group of individuals with unique and complex needs.

Finally, results of the course evaluation demonstrated that students were highly engaged and intellectually challenged. The course as designed facilitated students' learning, conceptual understanding, and critical thinking. Outcomes of this model demonstrated the efficacy of using educational principles and active learning strategies in designing a course to meet the needs of physical therapist students in managing the complexities of the older adult client. Although this model was applied specifically to a course on physical therapist management of the older adult, the same process can be applied to a wide variety of content area across the continuum of practice.

As we have emphasized, course design is an iterative process requiring on-going evaluation and modification. Based on the learner outcomes and feedback, a number of changes will be made to the course for the next academic year. A short activity will be added to the first class session, in which students will be required to reflect on assumptions they

have about the older population, followed by guided discussion about common myths versus truths about aging. An early discussion (versus later in the semester after the community screening activity as occurred this year) may enable students to more explicitly confront their own stereotypes and assumptions throughout the course. Another planned change for the course will be related to the class session regarding dementia and cognitive decline with age. Although improved overall, students' lowest perceived self-efficacy scores following the community experience were related to executing outcome assessments and prescribing exercise for individuals with dementia. Last, the course will continue to place a strong emphasis on laboratory activities where students perform and apply new skills actively in order to prepare them for the culminating community experience. These modifications will help to ensure that both the course objectives and students' needs are achieved through completion of this course.

Competence in geriatric patient management is necessary for physical therapists regardless of practice setting. This model provides a framework for course design to facilitate required competence, as well as confidence in geriatric physical therapy care. Our model demonstrates how educational principles and active learning strategies can be used to develop a course that optimizes student engagement, facilitates reflection and professional development, and enhances student self-efficacy in managing the older adult client. Students were able to think on their feet and problem-solve many of the challenges they faced and identify future learning needs. Beyond content, this model helped students prioritize and work on strategies to optimize efficiency, which is so critical in the current health care environment with its focus on productivity. Finally, recognizing the changing demographics in society increased the relevance of this course as this student clearly summarized, "I was shocked to learn how fast the elderly population is growing and it really made it clear to me that I will be seeing them a lot in my career. A good background in this area of physical therapy is vital to being a good physical therapist."

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## Appendix 1. Description of the Management of the Aging Adult Course at The George Washington University

The purpose of this course is to provide the DPT student with basic level knowledge and experience related to the physical therapy management of geriatric patients. This course will present an overview of current evidence-based interventions pertinent to the health, function, and physical therapy management of older adults. Normal and abnormal changes in body systems, cognition, and mobility will be addressed, along with the impact of neuropsychiatric, psychosocial, and pharmacologic concerns. Emphasis will be placed on the development of a therapy plan of care integrating multiple sources of evidence across the health care continuum (acute care, inpatient rehabilitation, outpatient, home health, skilled nursing, etc). Course content will also include analyzing relevant tests, measures, and functional outcome measures utilized during the physical therapy examination process. Students will develop their overall clinical decision-making skills, as well as enhance their level of clinical expertise in managing geriatric clients in a variety of settings.

Course Goals. (Note: Each course goal has multiple objectives not included in this appendix.)

1. Students will summarize current literature describing normal and pathological changes associated with aging.
2. Students will describe the legal, medical, and psychosocial issues pertinent to the geriatric patient/client.
3. Students will apply the physical therapy patient/client management model taking into consideration the special needs of the older client/patient.
4. Students will demonstrate communication and professional behaviors consistent with established standards of practice.

Date	Topic for Discussion & Lab
Week 1	Demography of Aging, Aging Theory, and Principles of Geriatric Rehabilitation
Week 2	Physiology of Aging <b>Geriatric Reflection Paper Due*</b>
Week 3	Exercise Prescription for Older Adults
Week 4	Hospitalization Considerations for Older Adults
Week 5	Alzheimer's Disease & Other Neurologic Considerations for Older Adults
Week 6	Musculoskeletal Considerations for Older Adults
Week 7	Posture & Gait Changes in Older Adults
Week 8	<b>MIDTERM EXAM</b>
Week 9	Frailty & Exercise Adherence for Older Adults
Week 10	Balance Assessment & Fall Prevention
Week 11	Psychosocial Considerations of Aging <b>*Evidence Based Practice Article Appraisal Due*</b>
Week 12	Geriatric Pharmacology
Week 13	Legal & Ethical Considerations for Older Adults
Week 14	Health & Wellness for Successful Aging <b>*Group Presentations*</b>
Week 15	Community Screening
Week 16	<b>FINAL EXAM</b>

## Appendix 2. Sample Priming Activities

### Priming Activity #1: Musculoskeletal Considerations for the Older Adult

#### This priming activity highlights:

- (1) Use of a patient case to immediately apply information from the reading, as well as to provide the learner with a context for why what they are learning is important/relevant to physical therapist practice
- (2) Referral to learners' needs by acknowledging desired knowledge areas from reflection papers
- (3) Reflection on prior clinical experiences and plan for change in action

#### Guiding Questions

Please answer the questions below in preparation for class by using the required reading, your knowledge from prior coursework, and/or other sources (including the internet) as necessary. It would be helpful to have an electronic or hard copy with you in class to facilitate discussion.

#### Case Example

Jim is a 72 y/o male and a recently retired biologist for the National Academy of Sciences. He presents to your outpatient clinic with primary complaint of left hip and occasional left knee pain while golfing with his friends. "We go out to the course every Monday and Wednesday morning and play 9-18 holes depending on how we're feeling," he states. "Lately, it's only 9 holes for me and my scores are the worst of the group."

Jim was diagnosed with left hip osteoarthritis about 5 years ago. His primary complaints include stiffness after sitting for long periods of time, as well as pain with standing activity (over ~30 minutes) and stairs. You noticed that Jim walked into the waiting room with a subtle limp, and decreased left lower extremity loading was noted with sit to stand. His past medical history includes diabetes and myocardial infarction 3 years ago.

- 1) Using Table 1 from Cann et al,<sup>34</sup> complete the table below for your initial evaluation with Jim:

Body system change with age that may be contributing to Jim's golfing difficulties	How would you assess this in your PT eval?	Assuming your testing shows a limitation in this area, how could you intervene in PT program? (Hint: try to keep it functional and related to golf!)
1.		
2.		
3.		
4.		

- 2) Many of your reflection papers have commented on learning more about motivating older clients to participate in regular exercise/therapy. Based on Petursdottir et al<sup>35</sup>, what are some questions you might ask in your subjective history with an older adult to get a better idea of their facilitators and barriers for exercise?
- 3) Reflect on a patient you've observed or worked with in clinic who was difficult to motivate. Would this article help you change your strategy at all?

### Priming Activity #2: Balance & Falls

#### This priming activity highlights:

- (1) Use of patient case to immediately apply information from the reading, as well as to provide the learner with a context for why what they are learning is important/relevant to physical therapist practice
- (2) Use of technology (YouTube video) to appeal to millennial learners
- (3) High-level application of prior coursework (ie, decision-making behind choosing a balance measure)

#### Guiding Questions

Please answer the questions below in preparation for class by using the required reading, your knowledge from prior coursework, and/or other sources (including the internet) as necessary. It would be helpful to have an electronic or hard copy with you in class to facilitate discussion.

#### Case Example

Bob is a 70 y/o male admitted to XXXXX with a 6 month history of changes in gait, decreased memory/concentration, and urinary incontinence. His wife states that these symptoms have progressively worsened over time. Bob is admitted to the neurosurgical service to evaluate for normal pressure hydrocephalus via a "lumbar drain trial." This means that Bob undergoes a lumbar puncture to place a lumbar drain (see photo) and has 10 cc's of cerebrospinal fluid drained every hour for three days in the acute care setting. Your role as physical therapist is to evaluate for any changes in his function, gait, and balance over the course of the 3 day lumbar drain trial. You perform these balance/gait assessments each day at the same time (including once on the day of admission before the drain is inserted for a baseline).

- PLOF = mod A for sit to stand and stand pivot transfers; ambulates with his wife with moderate physical assistance for balance (no assistive device) household distances (uses wheelchair in the community); recent fall at home in the bathroom
  - Medications = Naproxen (for osteoarthritis); Metoprolol (for hypertension); Ginkgo biloba (for memory changes)
  - Wears glasses for reading
  - Goals = return to gardening and playing with his grandchildren
1. Based on the YouTube video "NPH – The Untold Story".<sup>50</sup>
    - A) What are the 3 hallmark clinical symptoms of Normal Pressure Hydrocephalus?
    - B) What 2 common diagnoses are individuals with NPH often mistakenly given?
    - C) Describe the NPH gait pattern (as seen on the video).
    - D) Based on your knowledge of External Ventricular Drains (EVDs; ventriculostomy) which is another method for monitoring CSF/draining CSF but through the ventricles, what do you think are precautions for mobilization with a lumbar drain?

*Continued on page 84*

## Appendix 2. Sample Priming Activities *continued*

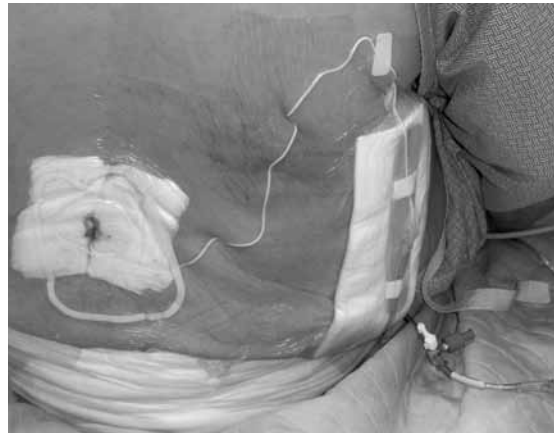
2. Walk Bob through the "Prevention of Falls" Algorithm (Figure 1) from the American Geriatrics Society/ British Geriatrics Society Clinical Practice Guidelines.<sup>37</sup>

STEP 2: Does Ralph have a positive answer to any of the "Sidebar: Screening for Fall(s) Questions"? Which one(s)?

STEP 3: If yes, does he have any positive answers to the screening questions (Box F)? Which one(s)?

STEP 3B: Is additional intervention indicated?

3. What objective balance measure for assessing Bob's fall risk would you choose? Provide **specific** rationale.
4. Would you ask Bob if he has a fear of falling? Why or what not?
5. Based on the Letgers review<sup>38</sup> of fear of falling, what are 2 potential interventions to include for an older adult who presents with a fear of falling?



## Appendix 3. Formative Assessment

**Completed by the students about a third of the way into the course (Week 5).**

In an effort to create the best environment for your learning, we would appreciate your feedback regarding class to date.

1. What do you find MOST helpful for your learning in the class? Why?
2. What do you find LEAST helpful for your learning in the class? Why?
3. What content remains unclear or "muddy" in your mind?
4. Discuss the efficacy of the different activities used in the course (eg. Priming activities, breakout activities, newsprint, laboratory sessions, etc.)

**Please be specific when answering the following questions regarding course content or teaching strategies.**

5. When have you been most engaged in the course? Why?
6. When have you been most disengaged in the course? Why?

# Development of Geriatric Curricular Content Within a Physical Therapist Assistant Education Program

Frances Wedge, PT, DScPT, GCS, Melissa Mendoza, PT, DPT, NCS,  
and Jennifer Reft, PT, MS, NCS

**Background and Purpose.** The number of older adults within the population of the United States (US) will increase dramatically within the next several decades, and a significant number of these older individuals will require physical therapy services. There is a concern that physical therapists (PTs) and physical therapist assistants (PTAs) will not be adequately prepared to deliver the best possible care to these older adults and those that are prepared will be few in number. Data suggests that PTAs may be more involved than PTs in the day-to-day care of the older adult, especially in skilled nursing facilities. There is little guidance on geriatric content within PT and PTA education programs, and research shows variability in depth of content and approach to geriatric education within physical therapy education programs. Few programs appear to offer dedicated units of geriatric instruction, with most integrating geriatric content across the curriculum. There does not appear to be similar research of PTA programs, but it can be assumed that geriatric content is delivered in similar ways in PTA programs. The purpose of this case report is to describe one approach to geri-

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atric education for the PTA that offers a dedicated unit of instruction on aging and physical therapy for the older adult.

**Case Description.** The PTA program of a small urban community college undertook a complete program review that resulted in a revision to the sequence of courses within the program and a critical look at the content of each course. As part of this review the geriatric unit that had been in existence since 2000, was moved from the first to the second year of the program. This move allowed for greater focus on geriatric specific content and less time spent on instruction in basic skills, which had been the case when the course was offered in the first year. The course was also sequenced in the program in such a way to prepare students for the first full-time clinical education experience.

**Outcomes.** Student reports supported the changes and recognized that the content in the geriatric unit built on previous knowledge and provided a greater understanding of the many issues faced by the older adult. Feedback from clinical instructors has also been supportive of the changes made in the program, although it is not clear whether these changes are directly related to the enhanced geriatric content or to changes made to the program as a whole.

**Discussion and Conclusion.** Although the data is limited, it does suggest that a dedicated unit of instruction in geriatric physical therapy, placed appropriately within a PTA program, not only serves to prepare students to be more successful during clinical education, but also increases awareness of older people in society and the role that physical therapy can play in health, wellness, disease, and at the end of life.

**Key Words:** Curriculum design, Geriatrics, Physical therapist assistant education.

## BACKGROUND AND PURPOSE

Increasingly physical therapists (PTs) and physical therapist assistants (PTAs) are encountering older adults within their clinical practices. It is projected that 20.95% (83.7 million) of the US population will be 65 and older by 2050, an increase from 43.1 million in 2012.<sup>1</sup> Although this number will include well older adults, it is likely that many of these individuals will require physical therapy services at some point, whether in a hospital, outpatient clinic, in their home, or in a skilled nursing facility. A survey of members of the American Physical Therapy Association (APTA) found that PTs working in acute care, subacute settings, rehabilitation hospitals, skilled nursing facilities (SNFs), and home care treat the largest percentage of patients over the age of 65 years.<sup>2</sup> Specifically, respondents working in SNFs reported that 82.2% of their patients were older adults, while 60% of the patients receiving in-home services were older patients. Balance and falls were reported as the most common presenting problems for patients seen in SNFs.<sup>2</sup>

A 2010 APTA member survey shows that 5.1% of member PTs worked in SNFs/long-term care and 6.8% worked in the patient's home/home care,<sup>3</sup> but a similar survey of PTAs completed in 2009 shows 17.9% of PTAs worked in SNFs/extended care facilities/independent care facilities and 6.6% worked in the patient's home/home care.<sup>4</sup> Although it is clear that both PTs and PTAs need to be prepared to adequately address the needs of this growing population of older adults, this data suggests that PTAs may be more involved in day-to-day care of the older adult, especially in the SNF setting.

Physical therapists and PTAs must be able to identify the need for and provide physical therapy interventions that are safe and effective for this older population. An understanding of normal aging and aging that is impacted by disease and disability is central to developing and implementing plans of care that address these objectives. Beyond this basic knowledge, however, PTs and PTAs need

to understand the cognitive, psychological, and social changes that can occur with aging and how these changes can impact the health and wellness of the older adult. It is also incumbent on the PT and PTA to understand the health care system as it relates to the older adult, not only addressing eligibility for benefits, but also providing information about community services and resources for both patient and caregiver.

Despite the clear need for the PTA to demonstrate skills and knowledge in the care of the older adult, there is little explicit guidance on geriatric content within PTA education programs. The 2007 *A Normative Model for Physical Therapist Assistant Education*<sup>5</sup> does consider certain elements for inclusion in a PTA curriculum; psychiatric disorders across the lifespan; end-of-life issues; lifespan growth and development with respect to cognitive, emotional, physical, and spiritual attributes and how roles change with age; cultural competence (age); and adapted communication. The Commission on Accreditation in Physical Therapy Education (CAPTE) criteria for PTA programs<sup>6</sup> do not consider aging or age-related issues specifically, but do require that: clinical education experiences are of sufficient quality, quantity, and variety to prepare students for their responsibilities as a physical therapist assistant (2.7.3). With limited guidance, programs vary not only in how geriatric education is delivered, but also how much content specific to the older adult is covered within the didactic curriculum.

Little is known about the delivery of geriatric content within PTA programs, although it can be assumed that this follows similar patterns to that seen in entry-level PT education programs. Studies suggest that the coverage of geriatric content in PT education programs has improved in recent years, although areas of significant deficit are apparent.<sup>7</sup> Wong et al<sup>7</sup> surveyed accredited and developing programs across the United States in 1999 to obtain data on the extent to which geriatric education was included in physical therapist education. Faculty responding to the survey felt that geriatric content knowledge and skills in the examination of the older patient were adequately covered in their programs. This survey did not identify how the geriatric content and skills were being delivered in the programs and the authors also noted that the survey relied on respondents' "perceptions" of how well the content was covered in the curriculum. Despite these limitations and a low response rate, the authors did conclude that their data suggested a significant increase in geriatric content addressed in physical therapist education programs when compared to studies completed 10-20 years earlier.<sup>7</sup>

In the mid 1980s, Granick et al<sup>8</sup> surveyed directors of physical therapist education programs in the United States to establish information on the programs' geriatric content. At that time only 8 (10%) of the 80 programs responding to the survey offered a formal course in geriatrics. Geriatric content was offered through elective coursework in 21 (26%) of the programs replying to the survey. The remaining programs indicated that geriatric content was addressed across multiple courses within the curriculum. The directors responding to the survey recognized geriatric education as important, but also noted that they were limited in how much geriatric content could be built into an already-full curriculum.<sup>8</sup> Limited education in geriatrics is seen across allied health professions in general,<sup>9,10</sup> and although physical therapy and occupational therapy may be ahead of the curve in the coverage of geriatrics in entry-level education,<sup>10</sup> it is still seen as generally inadequate to meet the needs of an increasingly aging population. Berger et al<sup>11</sup> report on the findings of an American Occupational Therapy Association (AOTA) ad hoc group on aging that found only a few occupational therapist (OT) and certified occupational therapist assistant (COTA) programs covered gerontology in any depth. The AOTA report recommended strengthening the geriatric content in OT and COTA curricula. There is little evidence to show how geriatric content is currently delivered in COTA education.

The research by Wong et al<sup>7</sup> and Granick et al<sup>8</sup> provide insight into the way in which geriatric education is delivered in physical therapist education. Although these studies did not include PTA program faculty or directors, it can be assumed that geriatric content is delivered in similar ways in PTA programs: either that the knowledge and skills required for providing physical therapy to older adults are integrated into the curriculum of existing courses, or that the program has a dedicated course devoted to geriatric content. However, unlike PT education programs, PTA education programs are constrained by CAPTE to deliver both general and technical education in 5 semesters, or 80 weeks.<sup>6</sup> Technical education is considered by CAPTE as that portion of the curricular content that is specific to PTA education and which is generally only open to students accepted into the program.<sup>6</sup> This restriction on the length of PTA education often makes it more challenging to add specialized content to the program. The purpose of this case report, therefore, is to describe how one program uses a dedicated unit of instruction on aging and physical therapy for the older adult to provide geriatric education for the PTA.

## CASE DESCRIPTION

The PTA education program at a small urban community college has provided a course devoted to geriatric content since 2000. The course "Interventions for Special Populations" ("Special Populations") provided instruction in pediatrics and geriatrics in a lecture and laboratory format (1 hour:3 hours) and for several years had 1 instructor teaching both pediatric and geriatric content. The first half of the 16-week course was devoted to pediatric content, and the second half covered geriatric material and interventions. The course was originally offered in the second semester of the technical education phase of the program, occurring after students had taken introductory coursework in pathology, body mechanics, gait, transfers, and basic physical therapy skills, but before classes offering instruction in neurologic and orthopedic conditions and interventions.

The PTA associate degree program at the college is full time and follows the 5-semester sequence required by CAPTE. Students begin the technical education phase of the program after a semester of basic science, medical terminology, English, and other required general education coursework. Twenty-eight students are admitted into the first semester of the technical phase of the program each August. Students in the program do not attend class during the summer session between the first and second year, and as such start the third semester in the fall of the second year. The first full-time clinical affiliations are offered during the third semester.

A review of the program, involving an examination of course content and sequence, was undertaken in 2008. As a result, major program revisions were implemented in the fall of 2010 for the cohort graduating in 2012. During this review several courses were identified as inappropriately sequenced. The "Special Populations" class was identified as being placed too early within the program and was moved to the third semester. While the program was to be commended for offering dedicated geriatric and pediatric content, an assessment of the student's preparation for such content revealed that they were not adequately prepared at that stage in their physical therapy education to manage the specialized knowledge and skills required by the material.

Due to faculty turnover, 2 new adjunct instructors taught the "Special Populations" material for the first time in spring 2008, in the semester before the program review took place. The new instructor teaching the pediatric section had extensive pediatric experience and is a board-certified specialist

in neurologic physical therapy. The new instructor for the geriatric content had over 20 years' experience in geriatric physical therapy and is a board-certified specialist in geriatric physical therapy. Both instructors were concerned that the students did not have sufficient mastery of basic skills or understanding of general orthopedic or neurologic disorders to perform well in the specialized areas of pediatric and geriatric physical therapy. Time was taken away from the specific aging and pediatric content to teach students therapeutic exercise related to specific diagnoses and reinforce basic skills of gait, transfers, positioning, and bed mobility. These instructors identified several areas of concern related to the students' limited understanding of motor learning and activity and exercise progression. The limited knowledge and exposure to these content areas were exemplified by a lack of insight and critical thinking necessary to identify safety risk and address balance and fall prevention, identified in APTA workforce data as a common presenting problem in the older adult.<sup>2</sup> In addition, the students had not been able to develop adequate documentation skills and struggled to produce notes that reflected the content and quality of information needed to address Medicare requirements of skilled practice.

These findings were considered during the program review that started during the summer of 2008. The program review was undertaken with consideration of input from various documents and stakeholders including both former and current faculty, students, clinical instructors (CIs), CAPTE feedback following a site visit, and the CAPTE criteria for PTA education programs. Courses in orthopedics and modalities were placed earlier in the curriculum, and 2 new courses were added to the second semester. One of these courses is devoted to therapeutic exercise. These changes were made based on feedback from the CIs who felt that students were often inadequately prepared for the first clinical affiliation from a musculoskeletal and exercise perspective. The "Special Populations" course was moved to the third semester along with a new course on cardiopulmonary and integumentary management.

Moving courses and reorganizing content within existing courses has resulted in a course sequence where content builds both horizontally and longitudinally within the program. Thus, by the time a student enters the "Special Populations" course in the third semester they have knowledge of general orthopedics and related interventions; are competent in assessing range of motion and muscle strength; can demonstrate therapeutic exercise techniques for flexibility, strength, endurance, and balance; have an awareness of

motor learning and motor planning; are proficient in bed mobility, transfers, and gait; and can write a basic progress note with minimal errors. (See Tables 1a and 1b for a comparison of old and new course sequences.) With the program changes a decision was made to try, wherever possible, to have faculty with specialized expertise in a given area teach that content. The "Special Populations" class continues to have 2 instructors with clinical and academic experience in the relevant content areas.

When the "Special Populations" course

was moved to the third semester, it was decided to place the geriatrics section before the pediatric content. While at first consideration this might seem counterintuitive, this decision was made to better prepare students for the first full-time clinical affiliation. Clinical I falls mid semester and lasts 4 weeks. The affiliation occurs primarily in outpatient and SNF settings and consists of a patient population of adults and older adults. Pediatric affiliations are not offered until the second clinical affiliation in the spring. It was argued that placing geriatric content ahead

**Table 1a. Changes to Curriculum: Bold Type Indicates New or Changed Course (Prerequisites and Year 1)**

Semester	Old Course Sequence	New Course Sequence	Rationale for Change
Spring	Prerequisite coursework	Prerequisite coursework	
Fall (after acceptance into PTA program)	ENG 102 or SPE 101	ENG 102 or SPE 101	Revision of course content  Added content on role and scope of practice of PTA, ethics, and legal issues to existing material
	Anatomy & Physiology 2	Anatomy & Physiology 2	
	Introduction to Physical Therapy	<b>Patient Management 1: Basic Skills for PTA</b>	
	Communication Skills for the PTA	<b>Principles of Practice 1: Introduction to Physical Therapy</b>	
	Introduction to Disease	Introduction to Disease	
	Kinesiology 1	Kinesiology 1	
Spring	Kinesiology 2	Kinesiology 2	Moved orthopedic content earlier in course sequence  Revised course updating focus on testing and assessment only and removing interventions  New course to focus on exercise interventions  Moved content earlier in course sequence, and included soft tissue management  New course to prepare students for clinicals in the next semester
	Soft Tissue Management	<b>Systems and Interventions I: Orthopedics</b>	
	Testing and Intervention	<b>Patient Management 2: Tests and Measurements</b>	
	Cardiopulmonary Rehabilitation	<b>Therapeutic Exercise</b>	
	Interventions for Special Populations	<b>Therapeutic Modalities</b>	
	<b>Introduction to Clinical Education</b>		



**Table 1b. Changes to curriculum: Bold Type Indicates New or Changed Course (Year 2)**

Semester	Old Course Sequence	New Course Sequence	Rationale for Change
Fall	Neurologic Therapeutic Exercise	Systems and Interventions II: Neurology	<p><b>Moved cardiopulmonary content to later in course sequence and adds integumentary disorders, which had not been covered in detail in the previous curriculum</b></p> <p><b>Moved pediatric and geriatric content later in course sequence to provide students with better foundational knowledge</b></p>
	Orthopedic Therapeutic Exercise	<b>Systems and Interventions III: Cardiopulmonary and Integumentary Systems</b>	
	Therapeutic Modalities	<b>Interventions for Special Populations</b>	
	Clinical Affiliation I	Clinical Affiliation I	
		<b>PSY 215 or 210</b>	
Spring	Advanced Techniques	Advanced Techniques	<b>Course content updated</b>
	Seminar in Health Care Literature	Seminar in Health Care Literature	
	Professional Issues in Physical Therapy Practice	<b>Principles of Practice 2: Professional Issues in PT Practice</b>	
	Clinical Affiliation II	Clinical Affiliation II	

of the pediatric content would focus the students' learning on the population most likely to be encountered during Clinical I. Feedback from CIs in previous years had indicated a lack of preparedness in some students for this first clinical experience. It was hoped that this change would serve in part to address this issue. It would also provide an opportunity to revisit basic skills in bed mobility, transfers, and gait, prior to clinical education.

Moving the course to the third semester did result in the loss of 2 weeks of face-to-face education for both the pediatric and geriatric sections of the course because Clinical I began 6 weeks into the semester. Therefore, the final 2 weeks of geriatric content now occur online, concurrent with the first 2 weeks of clinical education; as such, course content needed to be modified to address this change. Holding 2 weeks of the geriatric content online required a shift in content organization to ensure that all geriatric laboratory activi-

ties were accomplished in the first 6 weeks of the semester. However, the students were warned at the conclusion of the spring semester that they would be expected to come back to class in the fall "up and running," with a first lab session scheduled on therapeutic exercise and a second-week lab session on motor learning principles for improving balance. Table 2 shows the current geriatric content and schedule. Threaded throughout the content is discussion on the impact that changes due to normal aging and changes that are attributed to pathology have on the individual from a societal perspective.

In addition to the weekly assignments and quizzes specific to the content of that week, the students are involved in 2 web-based discussions. The first discussion is assigned 2 weeks into the semester; the students are asked to interview an older adult to identify how their physical activity levels have been impacted by age or disability.

Discussion question 1:

For this assignment you are to talk to an older person about their general health and the impact that their health and/or age has on their levels of physical ability and exercise. Please keep the identity of the person that you interview anonymous. Your post (using Blackboard) should provide detail on age, state of health, medications, and levels of physical activity.

This assignment encourages communication with older individuals, but also makes the students aware of variability in physical ability with aging as examples are shared across the class. Students are often surprised at how active and independent some older people remain, even at advanced ages. There is also discussion on the impact of disability on mobility and the problems associated with chronic illness and polypharmacy.

Discussion 2 occurs later in the geriatric section of the "Special Populations" course, just prior to the start of the clinical affiliation, and is focused on the health benefits of regular physical activity. The students have been introduced to health promotion theories during the therapeutic exercise class in the second semester. The "Special Populations" course reintroduces the concept of health promotion, with a focus on behavior change in older individuals. This material is covered online and students are provided with written material and links to relevant sites. The discussion question asks the student to consider how easy or hard it is for them to make changes to their lifestyle.

Discussion question 2:

A big problem for many people is the need to overcome barriers to changing behavior. This is no less a problem for the older adult. As a PT or PTA we have the ability to work with our patients to help facilitate change and to promote active aging. We can educate people on the risk factors associated with poor lifestyle choices and help them develop strategies to become more active. For this discussion question you are to discuss your success or lack of success in maintaining or implementing an active lifestyle. Discuss why you started exercising or why you want to become more physically active. Discuss barriers that you have faced or continue to face with respect to increasing activity levels.

Clearly this assignment is asking the students to consider their own efforts at adopting a healthy lifestyle, but it is expected that they then consider how the steps that they made to change behavior can be modified to meet the needs of an older population and to realize that for some older adults changing ingrained behaviors may be very difficult.

**Table 2. Geriatric Content By Week, Beginning in 2012**

Week	2012 Content
1	<b>Lecture:</b> Effects of aging on body systems: musculoskeletal, nervous system, cardiac and vascular, pulmonary, integumentary, and consideration of changes to the immune system and thermoregulation in older adults <b>Lab:</b> Exercise for older adults with consideration of parameters for well elderly, chronic illness, and frail elderly
2	<b>Lecture:</b> Pharmacology and the elderly, nutrition, bowel and bladder dysfunction and iatrogenic effects, including consequences of immobility on the elderly <b>Lab:</b> Balance testing, motor control/motor learning principles specific to balance reeducation
3	<b>Lecture:</b> Musculoskeletal disorders in the elderly, postural assessment and intervention <b>Lab:</b> Interventions for patients with musculoskeletal disorders: osteoporosis, THA, TKA, TSA, fracture (includes therapeutic exercise, positioning, and mobility training)
4	<b>Lecture:</b> Neuromuscular and neurologic disorders in the elderly: central and peripheral nervous system disorders, post polio syndrome, balance and falls <b>Lab:</b> Interventions for patients with neurological disorders: CVA, Parkinson disease (includes therapeutic exercise, positioning, and mobility training)
5	<b>Lecture:</b> Cardiac and respiratory disorders in the elderly <b>Lab:</b> Interventions for patients with congestive heart failure, COPD including exercise, monitoring of vital signs, recognition and reporting of adverse events
6	<b>Lecture:</b> Medicare and reimbursement, dementia and cognitive changes, end-of-life considerations <b>Lab:</b> Practical exam
7	<b>Online:</b> Elder abuse, the geriatric rehabilitation team, health promotion and wellness in the elderly <b>Activity:</b> Establish a handout for an elderly individual addressing health promotion/disease prevention and suitable exercises
8	<b>Online:</b> Final exam

Abbreviations: COPD, chronic obstructive pulmonary disorder; CVA, cerebrovascular accident; THA, total hip arthroplasty; TKA, total knee arthroplasty; TSA, total shoulder arthroplasty.

**OUTCOMES**

Feedback from CIs during site visits and through survey response does indicate that the changes made to the program as a whole have resulted in students who are better prepared for the first clinical education experience. Whether this can be attributed to the changes in the “Special Populations” course specifically is not known, since many changes across the program were implemented at the same time. Anecdotal evidence from the students however, is supportive of this move as reflected by comments on the course evaluations:

The way that it branched from previous courses and became more in depth really

assisted in the transition and knowledge retention.

I liked that it overlapped with other courses, which reinforced the material and the orderly manner [in which] the information was presented.

Several students have reported that it has been advantageous to review basic skills immediately prior to the clinical and have noted that as many of their patients are older adults, considering those skills and interventions from a geriatric perspective has been very helpful:

I liked how it broke down how to monitor and treat elders.

Students have also reported a greater awareness and understanding of changes associated with aging and the value of having the content delivered by an instructor with experience in the area of geriatric physical therapy:

I learned a lot about the older population.

The course helped me understand the many issues that the older adult must confront or deal with in their advancing age and the affect they have on [the patient’s] physical and emotional health.

[The instructor] is able to integrate real world examples to keep the material relevant and does so with passion and compassion. [The instructor’s] interest and experience in geriatric care helps students to be drawn to the course.

The greater appreciation of the role of physical therapy with the older adult and a deeper understanding of the older adults themselves has led many students to consider working with older adults a real possibility, whereas they had often entered the program with other ideas of how and where they planned to work after graduation.

From the perspective of an instructor, it is clearly an improvement. Although basic skills are revisited, the students are stronger in those skills due to the opportunity to have practiced them in orthopedics and therapeutic exercise during the second semester. An increased focus on documentation throughout the first and second semesters has also resulted in less teaching and more refinement of that skill. The lab activities have run smoother as students come in prepared with a basic understanding of therapeutic exercise and exercise progression based on motor learning principles.

**DISCUSSION AND CONCLUSION**

This case report has described one PTA education program’s attempt to incorporate geriatric education into the curriculum and has specifically presented an example of dedicated geriatric content falling within a lifespan-type course. Consideration is given to the placement of geriatric education within a program to optimize the learning experience for the student. Gebhardt et al<sup>12</sup> considered curriculum mapping when considering geriatric content within a baccalaureate nursing program and identified this as a valuable tool to help “streamline the curriculum and reduce redundancy.”<sup>12(pp247-248)</sup> In this program, mapping course content helped PTA faculty identify where the “Special Populations” course could be placed for maximum effect and where content would build on knowledge covered in coursework presented

in the first and second semesters of the technical phase of the program.

At the time of this program review, and during examination and subsequent modification of the geriatric content, the program had limited resources to guide decision making. In 2011 the Section on Geriatrics (now known as the Academy of Geriatric Physical Therapy) published the document *Essential Competencies in the Care of Older Adults at the Completion of the Entry-Level Physical Therapist Professional Program of Study* (see page 91 of this issue).<sup>13</sup> This document was a significant milestone towards considering what a physical therapist graduate should know when entering the workforce. The Academy of Geriatric Physical Therapy has since established a task force to examine competencies in the care of the older adult for the PTA entering the workforce. Both documents are derived from multidisciplinary competencies developed by the Partnership for Health in Aging<sup>14</sup> and so will likely address similar topics. The PTA competencies, not to be approved by the Academy's Board of Directors, nor published until later in 2014, will give guidance on curricular content, both academic and clinical. This will provide an additional opportunity to reexamine the program's geriatric content.

Increased exposure to older people in clinical and service learning situations and increased knowledge about older individuals has been shown to improve students' attitudes and knowledge towards the older adult.<sup>15-17</sup> Many PTA students in this program had considered aging only associated with disease and frailty. They had not, until taking this course, considered healthy aging or thought about how older adults could modify their activities to remain independent. The first discussion question and introductory lecture, which includes material on active aging, serve to bring a new perspective to the students. Conversely, the PTA student is often unaware of the role of the PT and PTA at the end of life. The lecture on this topic often generates many questions, especially as the students have to change perspectives on physical therapy from a rehabilitative process to physical therapy as improving the quality of the remaining days for patient and caregiver alike. While classroom instruction by an individual with expertise in geriatrics has been shown to have a positive outcome,<sup>17</sup> actual direct interaction with the older adult in either clinical or service learning environments has been shown to significantly impact knowledge and attitudes of physical therapy students towards older adult individuals.<sup>16,17</sup> Hobbs et al<sup>15</sup> noted improvement in attitudes and knowledge of physical therapy students

over time, but they were concerned that the increase in knowledge did not improve as expected. The authors suggested including a dedicated unit of study addressing physical therapy for older people and a specific community health placement in care of the older person as possible ways to further increase knowledge in this area.

Anecdotal reports from our students suggest that a dedicated unit of instruction in geriatric physical therapy placed appropriately within the PTA education program not only serves to prepare students to be more successful during clinical education, but is also able to increase awareness of older people in society and the role that physical therapy can play in health, wellness, disease, and at the end of life. Further studies are needed to consider more reliable data to support this theory and to compare this model of geriatric education in a PTA program to a model of integrated geriatric education. It is acknowledged that time and an already-full curriculum may prevent many PTA programs from providing dedicated course content in geriatrics, and so alternative approaches should be considered. Future studies should also consider the impact of instruction from a specialist in geriatric content, whether a PTA with advanced proficiency in geriatrics or a PT who is a board-certified geriatric clinical specialist, as it has been suggested that delivery of geriatric content by a specialist may improve student attitudes and ultimate desire to work with the older adult.<sup>17</sup> Even though a best model for entry-level education in geriatrics and geriatric physical therapy has not been identified, it is important that PTA educators examine curricular content in geriatrics to ensure that the future PTA workforce is competent in the delivery of care of the older adult.

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# Essential Competencies in the Care of Older Adults

## DOMAIN 1: Health Promotion and Safety

- A. Advocate to older adults and their caregivers about interventions and behaviors that promote physical and mental health, nutrition, function, safety, social interactions, independence, and quality of life.**
1. Identify and apply best available evidence to advocate to older adults and caregivers about interventions and behaviors that promote physical and mental health, nutrition, function, safety, social interactions, independence, and quality of life across domains and care delivery settings.
  2. Value the advocacy role of the physical therapist in promoting the health and safety of older adults.
- B. Identify and inform older adults and their caregivers about evidence-based approaches to screening, immunizations, health promotion, and disease prevention.**
1. Translate best available evidence about screening, immunizations, health promotion, and disease prevention to patient/client/caregiver(s) in a culturally appropriate manner using health literacy principles.
  2. Implement disease prevention, health promotion, fitness and/or wellness education programs that incorporate best available evidence targeted to older adults and their caregivers.
- C. Assess specific risks and barriers to older adult safety, including falls, elder mistreatment, and other risks in community, home, and care environments**
1. Perform health, fitness and wellness screens (e.g., screens for fall risk, elder mistreatment, environmental hazards) that identify older adults at risk of injury.
- D. Recognize the principles and practices of safe, appropriate, and effective medication use in older adults.**
1. Locate best up-to-date medication resources clarifying common uses, side-effects, and signs and symptoms of under and over dosing of prescription and non-prescription medications commonly used by older adults.
  2. Discuss common pharmacokinetic factors that should be considered when providing physical therapy interventions to older adults.
  3. Describe the influence of age and polypharmacy on pharmacokinetics and drug interactions.
- E. Apply knowledge of the indications and contraindications for, risks of, and alternatives to the use of physical and pharmacological restraints with older adults.**
1. Define physical and chemical restraints as they relate to physical therapist practice.
  2. Identify regulatory agencies responsible for monitoring and enforcing restraint policies across health care settings.
  3. Cite evidence that validates the impact of physical and chemical restraint use on the restrained individual, the restrained individual's caregiver(s), and society.
  4. Describe and advocate alternatives to physical and chemical restraint use that are safe and least restrictive (e.g., positioning devices, enabling devices, environmental adaptation, caregiver/careworker supervision or intervention).

## DOMAIN 2: Evaluation and Assessment

- A. 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.**
1. Describe the concept of, and various formats for, interdisciplinary, comprehensive geriatric assessment and explain the benefit of this approach over single discipline assessment for complex older adults.
  2. Describe the role and contributions of each member of a typical comprehensive geriatric assessment team (such as geriatrician, geriatric nurse practitioner, pharmacist, physical therapist, social worker, case manager, occupational therapy, speech therapy).
  3. Explain the role of the physical therapist as the movement specialist on the geriatric assessment team.
- B. Apply knowledge of the biological, physical, cognitive, psychological, and social changes commonly associated with aging.**
1. Incorporate knowledge of normal biological aging across physiological systems, effects of common diseases, and the effects of inactivity when interpreting examination findings and establishing intervention plans for aging individuals.
  2. Describe, identify, and appropriately respond to normal biological changes of somatosensation and the special senses that commonly occur with aging and as a result of diseases common in older adults.
  3. Interpret a patient/client's behavior within the context of various psychological and social theories of aging; selecting appropriate action including referral.
  4. Recognize the differences between typical, atypical, and optimal aging with regards to all systems; develop appropriate recommendations to reflect the person's goals, needs, and environment.
- C. Choose, administer, and interpret a validated and reliable tool/instrument appropriate for use with a given older adult to assess: a) cognition, b) mood, c) physical function, d) nutrition and e) pain.**
1. Select and administer valid and reliable tests for cognition and depression (e.g., MMSE, Geriatric Depression Scale, Clock Drawing Test); and determine need for referral.
  2. Administrate and interpret functional tests that can identify risk for falling and mobility deficits (e.g., Berg Balance Scale, Timed Up and Go, Timed Walk Tests, Gait Speed, Balance Confidence scales); communicating the findings, and making recommendations to the health care team.
  3. Objectively assess pain in any older person regardless of cognitive or communication abilities.
  4. Administer a basic nutritional assessment including key questions regarding protein, calcium, Vitamin D, and fluid intake; taking appropriate action as indicated including referral.

*Domain 2 continued on next page*

# Essential Competencies in the Care of Older Adults

## DOMAIN 2: continued from previous page

### D. Demonstrate knowledge of the signs and symptoms of delirium and whom to notify if an older adult exhibits these signs and symptoms.

1. Differentiate between depression, delirium, and dementia based on presentation and related conditions; and refer as appropriate.

### E. Develop verbal and nonverbal communication strategies to overcome potential sensory, language, and cognitive limitations in older adults.

1. Identify and assess barriers to communication (e.g., hearing and/or sight impairments, speech difficulties, aphasia, limited health literacy, cognitive disorders).
2. Analyze how patient/client attributes and limitations, health care professional and family attitudes, and societal and cultural perspectives may impact communication during the rehabilitation process.
3. Modify communication, including the use of adaptive equipment, to deliver effective patient management for older adults with depression, dementia, anxiety, or for older adults who are in bereavement.
4. Develop alternative communication methods to deliver effective patient management for older adults with limited health literacy, hearing, sight impairments, or speech difficulties.
5. Consult other disciplines and make referrals where appropriate.

## DOMAIN 3: Care Planning and Coordination Across the Care Spectrum (Including End-of-Life Care)

### A. Develop treatment plans based on best evidence and on person-centered and person-directed care goals.

1. Develop evidence-based and patient-centered physical therapy interventions for conditions commonly encountered with older adults, utilizing enablement-disablement frameworks, emphasizing functional movement, and considering principles of optimal aging across physiological systems:
  - a. Musculoskeletal (e.g., osteoarthritis, spinal stenosis, spinal disc disease, fractures, joint arthroplasty, amputation, disuse atrophy, incontinence).
  - b. Neuromotor (e.g., stroke, Parkinson's disease, Alzheimer's disease, DJD with spinal nerve compression injuries, vestibular disorder).
  - c. Cardiopulmonary (e.g., post-myocardial infarction, post-coronary artery bypass surgery, cardiomyopathy, COPD, pneumonia, aerobic deconditioning).
  - d. Integumentary (e.g., cellulitis, pressure ulcers, vascular insufficiency ulcers, lymphedema, burns).

2. Develop evidence-based prevention and risk reduction programs for conditions prevalent in older adults (e.g., skeletal demineralization, sarcopenia, flexibility restrictions, falls, cardiopulmonary disorders, impaired integumentary integrity, postural deficits).
3. Develop a plan of care for the physical therapy management of patients/clients with complex medical profiles (e.g., frailty, heart failure, mechanical ventilation dependency, multiple chronic health conditions, dementia, malignant neoplasm, multiple traumatic injuries).
4. Adapt plan of care to address disabling psychosocial factors (e.g., depression, learned helplessness, anxiety, fear of falling).

### B. Evaluate clinical situations where standard treatment recommendations, based on best evidence, should be modified with regard to older adults' preferences & treatment/care goals, life expectancy, co-morbid conditions, and/or functional status.

1. Synthesize and recommend intervention modifications based upon patient/client values and lifestyle, life expectancy, co-morbid conditions, pharmacological profile, lab values, domicile setting, and financial resources.
2. Suggest environmental modifications to the clinical practice settings that better meet the needs of older adult (e.g., equipment adaptations, privacy, lighting, climate control, accessibility).

### C. Develop advanced care plans based on older adults' preferences and treatment/care goals, and their physical, psychological, social, and spiritual needs.

1. Define advance directives and discuss implications for physical therapy management.
2. Develop physical therapy plan of care for older adults receiving end-of-life care which integrates the:
  - a. Patient/client goals
  - b. Treatment setting
  - c. Functional and palliative needs of the patient/client

### D. Recognize the need for continuity of treatment and communication across the spectrum of services and during transitions between care settings, utilizing information technology where appropriate and available.

1. Identify methods used to communicate among health care professionals regarding the status and well-being of geriatric clients (e.g., team meetings, electronic documentation and review of medical records, discharge summaries, falls surveillance tools, community visit sessions).
2. Identify relevant evidence/literature guiding best practice regarding continuity of treatment across services and during transitions between care settings.
3. Value continuity of treatment across services and during transitions between care settings.

*Continued on next page*

# Essential Competencies in the Care of Older Adults

## DOMAIN 4: Interdisciplinary and Team Care

- A. **Distinguish among, refer to, and/or consult with any of the multiple healthcare professionals and providers who work with older adults, to achieve positive outcomes.**
  - 1. Differentiate and choose appropriate healthcare professional or provider for referral or consultation to best meet the specific needs of an older adult.
  - 2. Communicate appropriately and in a timely manner with each individual provider the reason for referral or consultation.
  - 3. Provide consultation within the scope of practice of the physical therapist.
- B. **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.**
  - 1. Select, prioritize, and communicate essential physical therapy findings to contribute to a team care plan.
  - 2. Adapt communication to accommodate learning styles and cultural, social, and educational perspectives and stressors effecting:
    - a. Older adults
    - b. Caregivers
    - c. Healthcare providers
    - d. Direct care workers

## DOMAIN 5: Caregiver Support

- A. **Assess caregiver knowledge and expectations of the impact of advanced age and disease on health needs, risks, and the unique manifestations and treatment of health conditions.**
  - 1. Effectively assess caregiver knowledge and perceptions of the functional impact of advanced age and health conditions on optimal aging.
  - 2. Determine caregiver expectations of the health needs of his or her patient/client/family member; and caregiver ability to recognize and manage manifestations of the patient's common health conditions.
  - 3. Communicate with caregivers in a culturally competent and age-appropriate manner.
- B. **Assist caregivers to identify, access, and utilize specialized products, professional services, and support groups that can assist with care-giving responsibilities and reduce caregiver burden.**
  - 1. Assess caregiver and patient goals for the care-giving relationship, identify potential areas for conflict, and refer to other providers as appropriate.
  - 2. Analyze needs and recommend products, services, and support systems to provide ADL and IADL assistance, considering individual needs of the patient and caregiver, with sensitivity to resource constraints.
  - 3. Advocate for caregiver access to appropriate services and products that reduce caregiver burden and support effective care.

- C. **Know how to access and explain the availability and effectiveness of resources for older adults and caregivers that help them [the patient] meet personal goals, maximize function, maintain independence, and live in their preferred and/or least restrictive environment.**
  - 1. Identify options for least restrictive environment that maximizes physical functional ability and independence.
  - 2. Educate caregiver in accessing and using resources for optimal functioning in least restrictive manner.
- D. **Evaluate the continued appropriateness of care plans and services based on older adults' and caregivers' changes in age, health status, and function; assist caregivers in altering plans and actions as needed.**
  - 1. Monitor and adjust the plan of care in response to changes in the patient, caregiver capacity, or care-giving environment.

## DOMAIN 6: Healthcare Systems and Benefits

- A. **Serve as an advocate for older adults and caregivers within various healthcare systems and settings.**
  - 1. Take history and ask questions regarding unmet needs of older adults and caregivers.
  - 2. Assist in obtaining needed services through referral or consultation to facilitate optimal functioning of the patient/client.
  - 3. Provide information on best practice/evidence-based practice to older adults, caregivers, colleagues, and health care providers and agencies.
- B. **Know how to access, and share with older adults and their caregivers, information about the healthcare benefits of programs such as Medicare, Medicaid, Veteran's Services, Social Security, and other public programs.**
  - 1. Describe the various public programs for healthcare available to older adults and the physical therapy services available within each (e.g., Medicare, Medicaid, Veterans Services, Social Security).
  - 2. Utilize information technology to obtain information on eligibility for services; effectively communicate these resources with older adults and caregivers; and/or refer patient to appropriate healthcare professional/social services as indicated.
- C. **Provide information to older adults and their caregivers about the continuum of long-term care services and supports - such as community resources, home care, assisted living facilities, hospitals, nursing facilities, sub-acute care facilities, and hospice care.**
  - 1. Discuss appropriate care settings available to extend geriatric rehabilitation services (e.g., sub-acute rehabilitation, home health care, skilled nursing facilities, assisted living centers, senior centers, hospice care).
  - 2. Identify resources available to facilitate community-dwelling older adults' ability to live independently (e.g., meal delivery, home care resources, social services, electronic alert devices, community support groups, transportation services, home modifications, adaptive equipment).

# Guide to Authors

The *Journal of Physical Therapy Education* considers for publication manuscripts pertaining to all aspects of education in physical therapy. Manuscripts are invited describing qualitative and quantitative investigations and descriptions of educational interventions and innovative methods used in academic, clinical, community, or patient education. The author(s) must have methodically examined the outcomes of the educational intervention or innovation and drawn conclusions about its usefulness in physical therapy education and practice.

The *Journal of Physical Therapy Education* endorses the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals* put forth by the International Committee of Medical Journal Editors (ICMJE).

## Manuscript Categories

Manuscripts submitted to the *Journal of Physical Therapy Education* are reviewed under 1 of 5 categories:

- Research Papers
- Position Papers
- Reviews of the Literature
- Method/Model Presentations
- Case Reports

**Research Reports:** Authors should report the results of original experimental or observational research projects.

**Introduction:** Briefly state the relevance of the study for physical therapy education, the specific purpose of the study, and the research question(s) or hypothesis(es).

**Review of Literature:** Briefly describe the methodology and findings from published literature germane to the study being presented (eg, justify the variables, hypotheses, sample, or methodology). A summary at the end of the review of literature section should point out the relevance of the review to the study at hand.

**Subjects:** Describe the sample, including selection criteria and process.

**Methods:** Describe the research design and procedures; the nature of the data; the data collection instrument(s); and methods of data collection, reduction, and analysis.

**Results:** Give a verbal summary of the results together with any statistical summary of the data or other representations of the findings and analyses (tables, figures).

**Discussion and Conclusion:** First state conclusions based directly on the research question/hypothesis and the results of the study, then expand with an explanation of the relationship of the findings to the review of the literature. A discussion of the implications of the findings for physical therapy education and conclusions should be included.

**Position Papers:** Authors should adopt and defend a position on some issue of current concern and importance to physical therapy educators.

**Background and Purpose:** A brief introduction states the purpose of the article.

**Position and Rationale:** The position and the author's rationale for taking that position are elucidated. Issues should be stated clearly and theoretical foundations with literature citations for the rationale stated. The logic of the argument and stance on the position should be clear.

**Discussion and Conclusion:** A conclusion should summarize the

position relative to the concern or issue addressed. An abstract is required (see Manuscript Preparation and Requirements).

**Reviews of the Literature:** Authors should provide a critical overview of the research on specific topics related to physical therapy education. These reviews may be qualitative in nature, providing a summary of relevant work; they may be systematic reviews following a specific analysis format; they also may be statistically based meta-analyses of relevant literature.

**Background and Purpose:** In all cases, the authors should include an introduction.

**Methods:** Selection criteria, search strategy description of studies, methodological quality.

**Results:** When applicable, they should include tables and figures showing characteristics of the reviewed studies, specification of the interventions that were compared, and the results of studies. Parameters for excluding studies in the review should also be included.

**Discussion and Conclusion:** The value of the conclusions in guiding educational policy and practice will be a determining factor in the decision to publish the review.

**Method/Model Presentations:** Authors should describe the development and implementation of an innovative approach to education used in physical therapy. Evidence of testing the reliability and validity of the method or model to education and a clear description of its elements should be included. Evidence from the literature supporting the use of the method or model should be cited. Educational outcomes related to the implementation of the method or model must be included. Essential in the summary of this method/model presentation should be conclusions about its usefulness and the feasibility and generalizability of the application of the innovation to physical therapy education. Areas for future investigation based on the method/model should be identified.

**Background and Purpose:** A brief introduction states the purpose of the paper.

**Method/Model Description and Evaluation:** Provide a description of the method or model that can be easily understood or replicated.

**Outcomes:** Identify measures used to assess the educational innovation.

**Discussion and Conclusion:** Provide a discussion that addresses the value found in the reported innovation.

**Case Reports:** Authors should submit descriptions of educational practice and interventions not previously described in the literature. Case reports differ from method/model presentations insofar as they may describe an intervention or educational innovation with a smaller sample of individuals (or even an N = 1). Case reports must state the purpose of the case report, citing relevant literature. Case reports should provide a clear and thorough description of the case, including the following: the rationale for and implementation of an educational intervention, methods or instruments used to evaluate the intervention, and outcomes. Since case reports cannot document efficacy, discussion of the case should include recommendations for further study (eg, method/model or research investigations).

**Background and Purpose:** A brief introduction states the purpose of the case report.

**Case Description:** Describe the individuals/institutions involved in the case report in sufficient detail.

**Outcomes:** Identify measures used to assess the changes identified during the case.

**Discussion and Conclusion:** Provide a discussion that addresses the educational value found in the case report.

Also welcome are letters to the editor that support or refute material in the last issue, make pertinent comments on current issues, or encourage future discussion in the physical therapy education community and journal. Letters to the editor should be submitted to the editor directly, not through Scholar One.

### Submission Requirements

All manuscripts must include the following: category of manuscript (from the 5 choices above); title; authors' full names, credentials, job title, place of work, city/state (the lead author should provide both mailing address and email address); 3-5 key words for the manuscript; an abstract (no more than 1 page, double-spaced) that follows the same structure as the manuscript (see below for manuscript structures).

Articles must be written in English and should be limited to 15 typed, double-spaced pages of text. Authors should follow the style guidelines in **the American Medical Association's (AMA) Manual of Style (10th edition) for text and reference formats.**

### Figures and Tables

**Please submit all illustrations, figures, and photos as high-resolution files in JPG, TIFF, or EPS format (300 dpi or higher).** Tables may be embedded in the Word document. Legends must be included with each table, illustration, or photo (please see AMA's 10th Edition of *Manual of Style* for correct table and figure formatting). Tables, figures, and appendixes should follow the text and references (in that sequence) and should be numbered consecutively. Include only 1 table or figure per page.

### Terminology

Consistent with APTA Department of Education guidelines, the terms "physical therapist education program" and "physical therapist assistant education program" should be used when referring to particular programs. Authors should also indicate whether they are referring to professional (entry-level) programs or postprofessional education programs. If referring to education in general, for both physical therapists and physical therapist assistants, then "physical therapy education" is acceptable. For abbreviations, "PT" may be used to refer to physical therapists; "PTA" may be used to refer to physical therapist assistants. The abbreviation "PT" should not be used when referring to the profession in general or to interventions that physical therapists or physical therapist assistants provide. Finally, "people-first" language should be used throughout all manuscripts.

### Submission Process

To submit manuscript for potential publication, please access <http://mc.manuscriptcentral.com/jopte> or the APTA link at [www.aptaeducation.org/jopte/jopte.html](http://www.aptaeducation.org/jopte/jopte.html). Once in manuscript central, you will be asked to provide the following:

- A cover letter designating 1 primary author, with address, telephone number, and e-mail address, to whom correspondence should be sent. The category of manuscript submission should be noted in cover letter.
- An original and blind copy of the manuscript along with any tables or figures.
- A signed copyright transfer form.

Prospective authors may access <http://mc.manuscriptcentral.com/jopte> and click on the resource link to find an electronic version of this Guide to Authors. All authors are strongly encouraged to seek external review of, and feedback on, their manuscripts by published authors prior to submission to the editor. Such reviews and feedback can expedite the review and publication process.

Each paper is accepted with the understanding that it is to be published exclusively in the *Journal of Physical Therapy Education*. Authors agree to execute a copyright transfer if the manuscript is accepted for publication.

All materials submitted in accordance with the categories of manuscripts prescribed by the *Journal of Physical Therapy Education* are peer reviewed in a blind process by designated reviewer(s) and a member of the Editorial Board before acceptance and publication.

Potential contributors desiring more specific information about a publication topic should contact the editors, Jan Gwyer ([janet.gwyer@duke.edu](mailto:janet.gwyer@duke.edu)) and Laurie Hack ([lhack001@temple.edu](mailto:lhack001@temple.edu)), or visit the Web site at [www.aptaeducation.org/jopte/jopte.html](http://www.aptaeducation.org/jopte/jopte.html).

### Authorship

As noted in the *Uniform Requirements for Manuscripts*, an author is generally considered to be someone who has made substantive intellectual contributions to a published study. Authorship credit should be based on (1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and (3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3.

Groups of persons who have contributed materially to the paper but whose contributions do not justify authorship may be listed under a heading such as "clinical investigators" or "participating investigators," and their function or contribution should be described—for example, "served as scientific advisors," "critically reviewed the study proposal," "collected data," or "provided and cared for study patients." Authors will be required to disclose their role in manuscript preparation.

Authors also agree to be held accountable for the contribution each has made to the paper and to take responsibility for the accuracy and integrity of the work done by themselves and their co-authors.

### Ethical Standards on Protocol Approval

Research submitted to the *Journal of Physical Therapy Education* must comply with ethical standards for human and animal research. For any research involving humans or animals, authors must confirm that their institution or other similar body approved the protocol. For studies involving human subjects, authors must also indicate in the manuscript that they obtained informed consent from participants or that the requirement of informed consent was waived by the institution's internal review board.

### Conflict of Interest

Conflict of interest exists when an author (or the author's institution), has financial, professional or personal relationships that may inappropriately influence (bias) his or her actions. When authors submit any type of manuscript, they are responsible for disclosing all financial and personal relationships that might bias their work. On a conflict of interest notification page that follows the title page, authors must state explicitly whether potential conflicts do or do not exist and provide additional detail, if necessary, in a cover letter. For studies funded by an agency with a proprietary or financial interest in the outcome, authors should describe the role of the study sponsor(s), if any, in study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the report for publication. If the supporting source had no such involvement, the authors should so state.



