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## Demonstrating Occupational Therapy's Distinct Value: Addressing the Quadruple Aim of Health Care Through Doctoral Capstone Projects

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## Demonstrating Occupational Therapy's Distinct Value: Addressing the Quadruple Aim of Health Care Through Doctoral Capstone Projects

### Abstract

The quadruple aim of health care focuses on enhancing health care systems through improving quality patient care, improving the health of populations, providing care in cost-efficient ways, and improving the experience of providing health care by decreasing provider and caregiver stress and burnout. The purpose of this retrospective review is to share how the curricular design and doctoral capstone process from one postprofessional occupational therapy doctorate program have been designed to support students in recognizing occupational therapy's distinct value in creating sustainable practice changes to move their respective health care systems forward. The postprofessional occupational therapy doctorate curriculum over 12 years has supported over 250 students in creating sustainable practice change projects in various work settings across the US. Doctoral capstone projects can be an effective platform for illustrating occupational therapy's distinct value by showing how occupational therapy services are unique and valuable in health care institutions. A strong curricular design with supports related to focusing on all aspects of the quadruple aim is an effective mechanism for enhancing care.

### Comments

The authors report no potential conflicts of interest.

### Keywords

quadruple aim, post-professional capstone projects, curricular design

### Credentials Display

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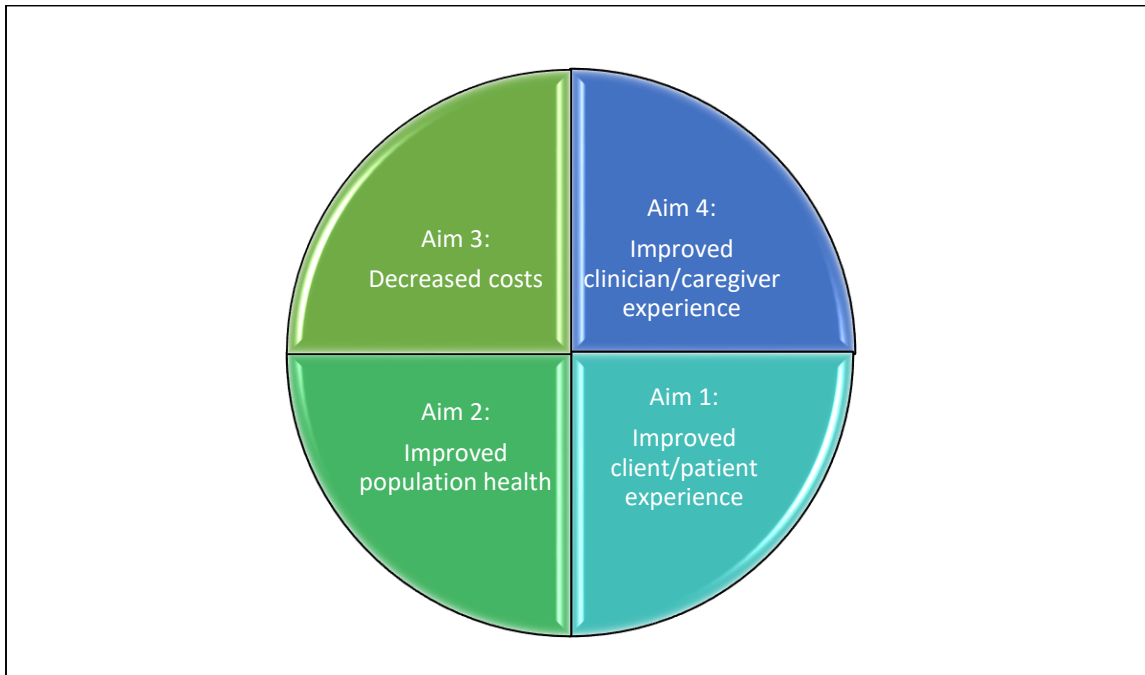
The Institute for Healthcare Improvement proposed a focus on three components, known as the “Triple Aim,” to enhance the performance of the U.S. health care system (Berwick et al., 2008). The three focus areas include “improving the individual experience of care; improving the health of populations; and reducing the per capita costs of care for populations” (Berwick et al., 2008, p. 760). While the triple aim was initially conceived in the US, it has been adopted by many organizations across the globe in efforts to enhance health care systems and experiences. Since the triple aim’s inception, a fourth component has been proposed that focuses on improving the experiences of care providers, including their engagement in their work and their feelings of success, resulting in what is now termed the “Quadruple Aim” (Sikka et al., 2015). Discussions related to the stressful working conditions of health care workers have been published, adding to therapists’ awareness that the caregiving burden is real for health care workers (Zeman & Harvison, 2017).

Similar to the quadruple aim, AOTA’s (2017) Vision 2025 encourages occupational therapists to maximize “health, well-being, and quality of life for all people, populations, and communities through effective solutions that facilitate participation in everyday living” (para. 1). Occupational therapists have a distinct skill set that can be used to push the profession toward Vision 2025 and to apply current best evidence to meet the foci of the quadruple aim (Arbesman et al., 2014; Lamb & Metzler, 2014). Therefore, the purpose of this retrospective review is to share how the curricular design and doctoral capstone process from one postprofessional occupational therapy doctorate (OTD) program have been modified to support clinicians in recognizing occupational therapy’s distinct value in creating sustainable practice changes to move health care systems forward.

### **Theoretical Concepts of the Quadruple Aim**

The original triple aim and the subsequent quadruple aim of health care serve as frameworks for enhancing health care for consumers and clinicians in the US and around the world. This framework includes aims to improve the care experience for consumers, to address the health concerns of populations, to provide cost-effective care, and to address stress and burnout of clinicians providing care (Sikka et al., 2015). These four elements of the quadruple aim, illustrated in Figure 1, are interdependent and, at times, in opposition to one another; addressing one aim will likely impact the others (Berwick et al., 2008). For example, providing care in a timelier fashion in line with higher productivity standards may result in lower costs of care but ultimately decrease both consumers’ and care providers’ satisfaction. Conversely, providing one-on-one care using the latest technologies is likely to improve patient satisfaction with care and perhaps the health of populations but may tax the system economically.

The importance of each aim in the framework cannot be argued, yet the barriers to achieving these aims simultaneously are many. Current health care systems are primarily driven by supply and centralized around physicians and physician extenders. Technology is rapidly expanding in the health care arena, but an equitable improvement in patient outcomes has not been realized (Berwick et al., 2008). Rising health care costs, current health care policies, socioeconomic disparities, and the proliferation of chronic diseases create additional barriers to an already stressed health care system (Bodenheimer & Sinsky, 2014). These barriers, as well as overwhelming workloads, high productivity standards, limited resources and administrative support, and safety concerns, all contribute to decreased job satisfaction, moral distress, rising workplace stress, and clinician burnout (Bodenheimer & Sinsky, 2014; Laskowski-Jones, 2016; Zeman & Harvison, 2017).

**Figure 1***Four Interdependent Foci of the Quadruple Aim***Occupational Therapists Embracing Evidence-Based Practice to Reach Goals of Quadruple Aim**

Evidence-based practice has been identified as “the integration of the best research evidence with our clinical expertise and our patient’s unique values and circumstances” (Straus et al., 2011, p. 1). With an understanding of evidence-based practice and current health care dilemmas, occupational therapists can design practice change projects to optimize client performance and satisfaction, to illustrate the ability to lead, and to foster innovation with traditional and emerging practice areas. In addition, occupational therapists are highly skilled professionals considered underused in their capacity to fill roles generally performed by physicians (Bodenheimer & Smith, 2013). Occupational therapists have the distinct skills to fill many of these roles; postprofessional OTD programs that have structured the doctoral process to support occupational therapists in evidence-based practice projects have the potential to impact the health care system positively in congruence with the goals of the quadruple aim. These evidence-based practice change projects are imbedded in real-life work settings and are focused on improving the quality of care for populations of patients for singular or multiple purposes, including improved client and patient experiences, improved overall health of the population, decreased costs for the health care setting, and improved clinician and caregiver experiences.

**Educational Context and Curricular Design of the OTD Program**

Since the early 1990s, the postprofessional clinical OTD has been an option for licensed occupational therapists to further their education and advance their understanding of the profession. The postprofessional online OTD program at Chatham University is designed as a cohort model for occupational therapists with bachelor’s and master’s degrees working in the field. The program began in 2006, with the first graduating cohort in December 2007. The cohort model was chosen and purposefully maintained to create a community of learners from geographically and professionally diverse areas that work together through 10 online courses over 16 months. The majority of the postprofessional OTD students in this program are employed and work in a variety of practice settings

where they are guided to identify a practice problem for which they design and implement an evidence-based solution through the capstone sequence of courses in the OTD program. The OTD curriculum at Chatham University has been continually refined since its inception in 2006 to include curricular supports that allow students to demonstrate their evidence-based skill mastery while applying this knowledge to real clinical problems in their setting. Each student is expected to translate the best available evidence to create a practice change project at their employment setting. This process occurs over four academic semesters, each of which has a capstone course that takes the students through the systematic process. The sequential capstone courses are: evidence-based practice, capstone project design, proposal development, and capstone implementation and evaluation. In each course, the students use professional writing skills to conceptualize and plan their individualized project in the structure of a six-chapter capstone document. The contents of each chapter are clearly delineated and purposefully guide the student to systematically think about creating a sustainable quality improvement project.

During the first semester in the evidence-based practice course, the students propose a focused question that addresses a problem in their workplace and perform a comprehensive and exhaustive search of the literature on their chosen topic area. The course instructor challenges the student to think beyond his or her facility and situate the identified problem in a larger population context. For example, if a student identifies that consultative occupational therapy practice (i.e., providing teachers handwriting skills and strategies to use with their students) may be a useful practice change in a school-based setting (rather than intervention delivered one-on-one to a student in a classroom for handwriting), the effect on the system is discussed in the online forums of the class. In the prior example, the OTD instructor and peers in the cohort could discuss Quadruple Aim 1 and the effect this change could have on the elementary student experience: a single student may not feel singled out as having a handwriting problem and may be more inclined to use the strategies delivered to all students in the classroom. Quadruple Aim 2 could be highlighted in this example by emphasizing that the occupational therapist, as a consultant, could effect change in the handwriting abilities of other students in the classroom as a result of the teacher being knowledgeable of and delivering handwriting interventions to all pupils in the classroom. OTD course forum discussions could also focus on how costs to the school system might be decreased by reducing individual referrals for students who present with handwriting issues (Quadruple Aim 3). Quadruple Aim 4, which relates to the caregivers' experiences, could be examined. In this example, the occupational therapist, who is providing the intervention consultatively to the teacher instead of as an intervention for individual students, may experience a reduction in individual student caseloads, enhanced quality of the services delivered, and improved job satisfaction. These facilitated online discussions guide the OTD student to consider the effect of the proposed practice change on the other elements of the system, such as cost, quality and reach of service delivery, and student and teacher satisfaction.

In the second semester in the capstone project design course, the students systematically assess their gathered literature to develop a realistic project design to apply in their setting and to construct the institutional review board (IRB) proposal for their project while thinking about the larger systems in place to guide occupational therapy practice. The students are guided to make direct links in their proposal designs and to share how their project relates to an occupational therapy conceptual model, how it fits AOTA's Vision 2025, and the degree to which they have designed the project to be sustainable in their setting. Instructors challenge the students to apply evidence-based resolutions to their clinical problems and to think broadly about how they can become instruments of change.

In the third semester, the students are guided through the process of IRB during the proposal development course. During this time, the importance of protecting human subjects while carrying out practice change capstone projects in the clinical setting is emphasized. In addition, the students are educated on opportunities to disseminate the results of their capstone projects in the larger community via presentation or publication. The students are supported in drafting both a presentation and a publication proposal.

In the fourth and final semester, in the capstone implementation and evaluation course and after receiving IRB approval, the students implement their capstone projects over 6 weeks, evaluate their project outcomes, and complete the writing of the chapters of their capstone project. The students analyze their individual results, make recommendations for the future, and finalize a draft manuscript for potential submission on the project.

### **Method**

To determine the extent to which the capstone projects completed by the postprofessional OTD students align with the four goals of the quadruple aim, the authors designed a retrospective study of the completed capstone projects. A comprehensive list of the 264 capstone projects completed from 2007 through 2018 at Chatham University's postprofessional OTD program were independently reviewed and coded by the authors and two graduate assistants. The abstract of each project was reviewed for descriptions related to each goal of the quadruple aim; each project was then listed under each of the quadruple aims that it addressed. The authors, who were the primary instructors of the capstone courses and served as capstone advisors of the projects, were inherently knowledgeable of the capstone projects. The coding was independently performed; once each author completed categorization of the capstones into quadruple aim categories, the lists were compared, and any discrepancies were reconciled via discussion or review of the entire six-chapter capstone to ensure accurate coding and categorization. This retrospective review was exempted by Chatham University's IRB.

### **Results**

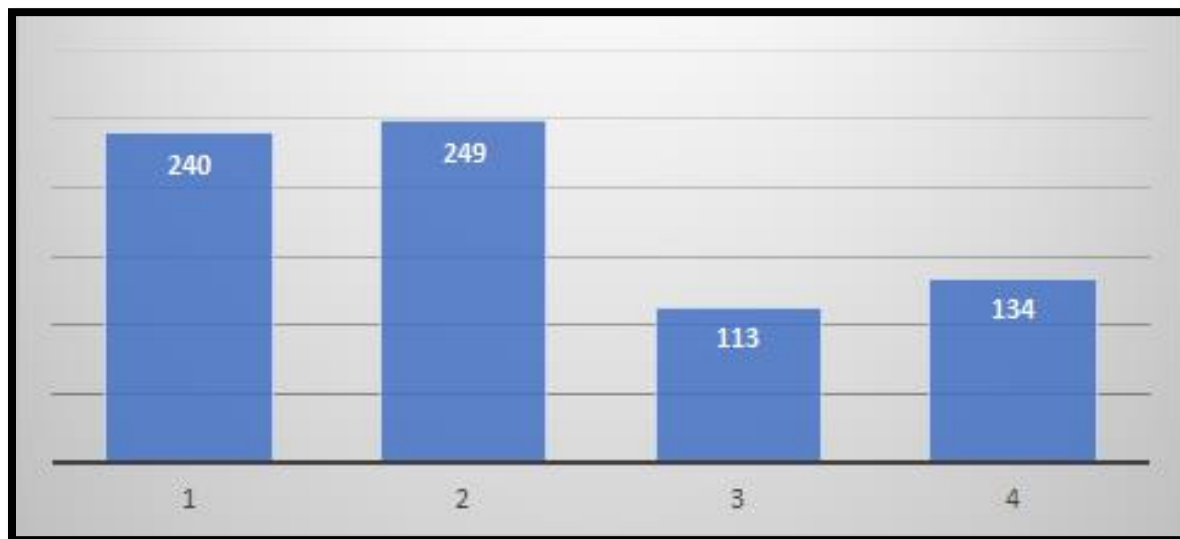
The capstone projects completed during the 12 years occurred in a variety of practice settings, including neonatal intensive care units, elementary and secondary schools, acute care hospitals, long-term care settings, outpatient facilities, nursing homes, home health care agencies, community settings, higher education institutions, assisted living centers, and in virtual contexts. The types of practice change projects were extremely varied and were designed to solve institutional problems related to one or more of the four areas of the quadruple aim. The projects geared toward individual client concerns addressed issues like dementia, self-feeding, low vision, ergonomics, or home modifications. Some of the projects focused on larger group needs, including solutions related to fieldwork training, fall prevention programs, self-regulation, attention, handwriting, or stress reduction for specific populations. Furthermore, the projects likely resulting in cost savings for the institution or health care system often included services provided under consultative models rather than direct intervention, staff training programs, or interventions delivered in a group format. Finally, the projects identified that focused on reducing health caregiving burden included those related to mindfulness or stress reduction trainings, online support groups, or educational programs facilitating goal attainment for clinicians working together. Some of the projects successfully addressed all four foci of the quadruple aim, while others only addressed one or two.

Descriptive analysis revealed that 91% of the capstone projects effectively addressed individual patient and client concerns and positively impacted the experience of care for these individuals (Aim 1).

Similarly, 94% of the projects addressed the health care needs of a larger population (Aim 2). These figures are not surprising given the foundational principles of the occupational therapy profession as well as the primary objectives of the postprofessional occupational therapy curriculum. The percentage of projects that successfully addressed Aim 3 (cost-effectiveness) and Aim 4 (improving the experience of clinicians) came in significantly lower at 43% and 51%, respectively. The number of capstone projects that focused on each of the specific foci of the quadruple aim is shown in Figure 2.

**Figure 2**

*Number of Capstone Projects Representing Each of the Quadruple Aim Foci*



In an effort to further illustrate how the individual, evidence-based capstone projects were structured to address the specific foci of the quadruple aim, we selected one capstone that addressed all four foci. We provide the details to allow the reader to better understand the application of the quadruple aim theoretical concepts in this context. The chosen project, entitled “Use of Multisensory Environments to Decrease Negative Behaviors in Clients with Dementia,” was conducted in a skilled nursing facility (Lape, 2009). This project was initially conceived to address the increased incidence of mood and behavior changes in clients with dementia in the facility where the student worked. Facility reports indicated increased use of psychotropic medications for this population and frequent incident reports related to behaviors resulting in staff or client injuries. While the project idea held value in one specific facility, the student was also guided to think about this problem from a population-based perspective. Literature supported that the problem of managing mood and behavior changes, one of the most common symptoms of dementia, was indeed a more global one: There was a projected increase in the elderly population through 2050 (U.S. Census Bureau, 2008); 47% of nursing home residents were shown to have some form of dementia (Centers for Medicare and Medicaid Services, 2009); and the cost of managing behaviors was noted to be approximately \$183 billion per year, with an increase to 1.1 trillion projected by 2050 (Alzheimer’s Association, 2011).

For this project, a multisensory environment was created in the skilled nursing facility and clients with dementia who exhibited negative behaviors were assessed related to their sensory processing. Individualized sensory-based treatments were designed for appropriate clients, and data was collected regarding the type and incidence of behaviors before and after the sensory-based treatments.

The results, measured by the Agitated Behavior Scale (Bognar, 2000; Bognar et al., 2000), indicated a decrease in negative behaviors in 50 out of 52 sessions in the initial pilot (Lape, 2009).

In relationship to the quadruple aim, this project effectively improved the individual experience of health care for the clients with dementia who participated (Aim 1). The clients demonstrated decreased behaviors and anecdotally became more engaged in conversations, leisure activities, and activities of daily living. The impact to population health can be argued, as this project has been published and presented in multiple venues, and collaboration on this topic in the US and globally has been ongoing since the student's graduation (Aim 2). This project also resulted in a cost savings to the health care system when comparing the relatively low cost of creating the sensory space (approximately \$500) to the staggering costs of managing client behaviors noted previously (Aim 3). Finally, while this project was not targeted to nursing home staff or caregivers, the impact of the project's positive outcomes on the work environment were noted (Aim 4). The staff and caregivers alike reported more meaningful interactions with clients, less time spent on documentation and incident reports, and a more calming environment on the units. Clients who frequently wandered, yelled out, or exhibited anxious behaviors were more tranquil and relaxed.

### **Discussion**

While the percentage of projects that addressed Aim 1 (91%) is not surprising, the strength of Aim 2 (94%) may be related to the instructors' facilitation of the online discussions of the description and rationale for addressing the problem and its link to population-based issues. This is an area that students initially struggle with as they are often more focused on the immediate concerns at their site or with individual clients or patients. The instructors challenge the students to think beyond the site or individuals to locate more global evidence of the problem they plan to address.

In regard to cost (Aim 3), most of the projects required little cost to implement but did not necessarily result in or measure a cost savings to the facility or health care system over the 6-week implementation. Even though a cost savings may not have been realized initially, these projects were still deemed valuable since they resulted in improvements to one or more of the other aims and may demonstrate cost savings to the facility in the future. A few examples of projects expected to result in cost reductions were those related to fall prevention, behavior management in dementia care, and response to intervention in school systems. All three of these areas are well researched, with strong data to support interventions and resulting long-term cost savings. Because of the curricular structure of a 6-week implementation plan and subsequent graduation from the OTD program, long-term cost benefit is beyond the scope of the capstone projects but could be considered if projects are continued postgraduation. Graduates are encouraged to design sustainable projects so cost savings may, in fact, be realized by the institutions in which these programs remain.

Concerning Aim 4, clinician and caregiver burnout and stress has received increased attention in recent years, especially related to quality of care, patient and client satisfaction, and employee retention and satisfaction. While a respectable number of projects (51%) addressed Aim 4, this may not be enough, given the impact of this aim on all of the others. Sikka et al. (2015) proposed that this fourth aim is the missing link to achieving the other three. The capstone projects that addressed this fourth aim were primarily focused on providing education, support, or mentoring directly to clinicians and caregivers themselves, but the projects directed toward clients and patients clearly gave less attention to this element. In looking at the representation of Aim 4 over time, more recent projects addressed this aim, perhaps related to the addition of the sustainability piece to the curriculum. The students are now



asked to consider how their project is sustainable beyond the initial implementation. This often results in students streamlining processes to gain support from other members of the team or facility who will be a part of the sustainability plan.

The evidence-based capstone projects completed over the past 12 years have resulted in positive outcomes at varying levels in health care systems, and sharing these outcomes can assist others in making positive changes. Occupational therapists need to seize opportunities to demonstrate their distinct value; one way of doing so is through dissemination of research and evidence-based practice outcomes (Lamb & Metzler, 2014). To support this goal, the curriculum was revised in several ways. First, increased focus was placed on selecting and creating quality outcome measures and surveys to measure project outcomes. Second, content related to data analysis was expanded to help the students understand the process of data analysis, how to add credibility to the process, and how to explain this process in a manuscript. Third, drafting a peer-reviewed manuscript was added as a central thread to the last capstone course, with the goal of submission at graduation or soon after. An upward trend of publication postgraduation is being realized, thereby working toward greater dissemination.

### **Implications for Occupational Therapy Education**

Throughout the health care industry, there is a growing emphasis on balancing quality care, patient and client satisfaction, cost containment, and provider and caregiver stress and burnout. The implications for OTD education include the need to educate students on the quadruple aim of health care and the interdependency of the four foci. Since Aims 1 and 2 are more inherent to the occupational therapy profession, greater supports should be established to guide students to consider cost savings (Aim 3) to the health care system as well as reducing the burden on clinicians and caregivers (Aim 4). Contemplating how changes to one aim can impact the other three should also be emphasized to help clinicians think more system wide. Doctoral capstone projects can be an effective platform for illustrating occupational therapy's distinct value and for propelling health care systems forward; a strong curricular design with supports related to all aspects of the quadruple aim is suggested to maximize student success.

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