As the population ages, the number of people living with serious illness is increasing and the demand for quality, timely, person-centered palliative care is growing. We need specialized, trained health professionals working in collaborative teams to answer this call. It is upon health care leaders and policymakers to jointly design, build, and sustain a workforce to ensure all North Carolinians have access to care during a serious illness or end of life.

As an educator, researcher, health care leader, nurse, member of the North Carolina Institute of Medicine’s Task Force on Serious Illness Care, and caretaker over the last 10 years, I have observed North Carolina’s response to the growing care demands of individuals with serious illness and their families. As a caretaker of my 84-year-old mother, over the years I have experienced the personal challenges of the serious illness journey as we have navigated the maze of finding the right health care team, facilities for serious illness hospitalizations, home health, hospice, assisted living, and now home care during a pandemic. These experiences have provided a laboratory for understanding the reality of serious illness care within our state. One thing that is constantly clear: individuals with serious illness need timely access to quality care provided by an interprofessional collaborative team.

This commentary is a call to action for North Carolina to grow its specialty palliative care and hospice workforce by: 1) developing and enhancing palliative and hospice interprofessional collaborative care teams through purposeful designs of proofs of concept in various transitional models of care (e.g., acute care, community, hospice); 2) recruiting and building a sustainable palliative specialist workforce that can lead, train, and prepare interprofessional collaborative team practices to enhance engagement with serious illness patients and families to meet their goals of care; and 3) pursuing legislative and grant funding for the development of a sustainable serious illness workforce and further research on the evaluation of serious illness workforce capacity and impacts.

Team Science and Health Systems Science

As a scientist, I subscribe to the “science of team science” (SciTS) methodological strategy aimed at understanding and enhancing the processes and outcomes of collaborative, team-based research. SciTS seeks to shed light on what makes effective teams produce the best outcomes [1]. The Institute for Healthcare Improvement Triple Aim Initiative goals of improved patient experience, improved care for patient populations, and decreased cost utilize teams to create change within our health systems [2, 3]. In addition, applying the creativity of new science to building stronger academic and clinical partnerships within palliative care delivery can assist in creating new care models. For example, the American Medical Association in 2013 recognized a gap in medical school education and initiated a change process that involved recruiting innovative thinkers through the Change in Medical Education Consortium; as part of that work, the East Carolina University Brody School of Medicine (BSOM) was selected as the first of 11 schools to develop a Redesigning Education to Accelerate Change in Healthcare (REACH) team. As a member of this process, I witnessed the powerful impact of a curriculum redesign that incorporated quality improvement principles, tools, and interprofessional collaborative teams [4-6]. This work also culminated in the national development of Health Systems Science, which is the fundamental understanding of how health care is delivered, how health care professionals work together to deliver that care (team science), and how health systems can improve health (quality principles with interprofessional collaborative teams) [7].

Although SciTS and Health Systems Science are new and still undergoing evaluation and further study, they are only...
the beginning of a movement toward acquiring new thinking to improve care delivery.

**Workforce Demand**

As the palliative care workforce grows, especially in oncology and geriatrics [8] and in pediatrics [9], there is evidence that interprofessional collaborative teams are also growing and showing improved quality of care and cost savings [9-12]. Most studies have shown that palliative care reduces the cost of health care by $1,285–$20,719 for inpatient care, $1,000–$5,198 for outpatient and inpatient combined, $4,258 for home-based, and $117–$400 per day for home/hospice combined outpatient/inpatient palliative care [12]. Across the United States, the National Palliative Care Registry recorded 1,404 palliative care teams across 1,905 care settings and 2.6 million initial patient consultants in 2020 [13]. The National Palliative Care Registry Seminar reported in 2008 that 41% of participating programs had a full, core interprofessional team of physician, advanced practice nurse (APRN - typically a nurse practitioner), registered nurse, social worker, and chaplain, with a 150% increase in full-time-equivalent APRNs since 2008 [14]. The registry also found a reported increase of 54 pediatric palliative programs in teaching hospital academic centers and medium 200-bed facilities [14].

From a population health perspective, North Carolina is the ninth most populous state, with 10.49 million residents [15]. North Carolina also has a high prevalence of economic distress, with 40% of all counties ranked as Tier One, being the most distressed based on average unemployment, household income, adjusted property tax per capita, and population growth [16]. In addition to health professional workforce challenges to include physicians, nurses, social workers, and mental health providers, key issues confronting health care in North Carolina include the rising cost of coverage, gaps in coverage, increased chronic conditions, an aging population, and limited access to care facing most of our rural populations.

The North Carolina Institute of Medicine’s Task Force on Serious Illness Care recognized the critical importance of developing a system and culture that aims to improve the quality of living for individuals with serious illness, their families, and their communities. Among all adults aged 65 and over, it is estimated that around half will develop an illness serious enough to need long-term care or services, and about one in seven will need service for longer than five years [17].

**Workforce Challenges**

A recent study by the Center to Advance Palliative Care found that two-thirds of community palliative care programs are operated by hospitals or hospice care facilities, with the remainder operated by home health agencies, long-term care facilities, and office practices or clinics [18]. Only 6% of programs serve children only, and less than one-quarter (24%) treat children in addition to adults [18].

Recent national estimates show the nation has 4,400 hospice and palliative medicine specialists, the equivalent of 1 for every 20,000 older adults with serious illness [19]. In order to meet the growing need for specialty palliative care, an additional 6,000-10,000 specialty palliative care physicians and an equal number of advanced practice nurses would be needed (email communication, Julie Spero, MSPH, director of the North Carolina Health Professions Data System, UNC, February 26, 2020). In addition, only 25% of national hospital-based palliative care programs meet staffing recommendations (include at least one physician, one advanced practice nurse or registered nurse, one social worker, and one chaplain) [19]. In community palliative care services, training, demand, and turnover were cited as workforce-related barriers to access [19].

In North Carolina, there are a reported 221 active, licensed physicians in practice who were board certified in Hospice and Palliative Medicine [20]. Palliative care has grown significantly over the past two decades—less than 25% of hospitals had a palliative care program in 2000 [21], and 93.7% of hospitals with more than 300 beds had a palliative care team in 2019 [22]. Despite the growth of the field, access to palliative care varies widely and many communities lack access, particularly in rural areas where health care access remains challenging across types of care. For example, in 2019 there were 62 counties in North Carolina without a physician that specialized in palliative medicine [23]. Overall, hospital palliative care is most common in urban communities.

North Carolina is experiencing workforce shortages in palliative and hospice care. These shortages limit access to care and are expected to increase over the coming decades due to provider burnout, an aging workforce, low wages, and an inadequate workforce pipeline [24]. The bulk of day-to-day care is provided by frontline staff, and the median pay for home health aides in 2018 was $11.57 per hour, or $24,060 per year [25]. In 2019, there was an 82% turnover rate among home care workers [26]. Over the next two decades, the number of patients eligible for palliative care is expected to grow by 20%, while the physician workforce grows by only 1% [20]. Nurses are critical providers of palliative care and interact with those who are seriously ill and their families more than any other sector of the workforce [27]. While there is not an overall shortage of nurses in North Carolina, there is disparate distribution of nurses within the state, such as in rural counties [28].

These challenges ring a clear sense of urgency for patients and their families, policymakers and legislators, and health professionals to reprioritize our commitment to improving palliative care and hospice care.

**Interprofessional Collaborative Team-based Care**

Interprofessional collaboration in health care, defined as workers from different professional backgrounds working
together with patients, families, caregivers, and communities, dates back to 1972, with the Institute of Medicine calling for team-based patient care as a way to improve patient outcomes and safety. In 2009, the United States formed the Interprofessional Education Collaborative (IPEC), involving over 20 health professional education associations. For over 10 years, students have been learning how to work together for improved patient care and health outcomes in schools of medical, nursing, pharmacy, and physical therapy, however, this has been a slower process in practice [29].

Interprofessional collaboration supports person-centered care and takes place through teamwork; it is more than sharing data and efficient communication between nurses and physicians. It requires team members to engage with the patient and with each other, a process that relies on trust, respect, and understanding of each other’s role in the care of the patient and family. Interprofessional collaboration in health care requires culture change [30].

A growing body of literature has produced models for interprofessional collaborative practice and identified core competencies. In the 2016 release of the Core Competencies for Interprofessional Collaborative Practice, the IPEC Board updated its original 2011 document to reflect the focal areas of 1) values and ethics, 2) roles and responsibilities, 3) interprofessional communication, and 4) teams and teamwork [29]. In North Carolina, Four Seasons Compassion for Life, a state leader in serious illness care, uses an interprofessional collaborative practice model to develop competency in care teams across these focal areas (Figure 1). Primary elements of the model include continuous assessment of team performance and learning, training on team-based care, and relationship building across team members. This model also demonstrates how the team can deliver goal-concordant, coordinated, collaborative interprofessional team care for individuals with serious illness via competent communication skills and teamwork with physicians, nurses, social workers, chaplains, and volunteers. Of particular importance in collaborative team-based care for individuals with serious illness is the recognition of the individual and their family as integral members of the care team.

**FIGURE 1.** Interprofessional Collaborative Practice Model
The Four Seasons Interprofessional Collaborative Practice (IPCP) model in end-of-life care guides the development of IPCP competency in four domains: roles and responsibilities of each team member, communication, collaboration, and values and ethics.

Strategies for Building a Stronger Health Professional Workforce

There is evidence indicating an improvement in outcomes for patients, caregivers, and health systems in the area of serious illness care when specialty palliative care teams are integrated. Based on the literature, palliative care may occur at the time of diagnosis and throughout the course of a serious illness. The palliative care field has experienced growth in the following areas: consultation teams, outpatient clinics, community-based models, and medical specialty societies that recommend specialty palliative care involvement. However, the data also shows significant stressors in lack of specialty providers and overwhelming patient demand.

There is a need for data regarding workforce size, training pipeline, training needs, and care delivery. Early data from an innovative research team at the Duke Cancer Institute suggests the average annual growth of palliative care fellowship programs in 2009-2018 (25 fellowship positions per year) will continue through 2028, with an average sustainable number of 575 fellowships per year [31]. The researchers determined an average patient load by analyzing the patient-to-physician service ratio based on Medicare enrollees set to receive palliative care, and projected a future average of 23 seriously-ill-to-critical patient visits per day [31]. The researchers stated the gaps will make palliative care unsustainable over time, arguing that there exists no tenable way forward without the increased use of interprofessional palliative care team members in the assessment and management of seriously ill patients [31].

There is also a need for legislative policies at the national and state levels to enhance health professional workforce numbers. For example, US House Bill 647, the Palliative Care and Hospice Education and Training Act, addresses the adequacy and sustainability of the specialty palliative care workforce and interprofessional team-based funding [32]. As of this writing, the bill has passed the House and is awaiting approval in the Senate. If this legislation passes, it will fund 50 physicians in the first five years and 183 interprofessional trainees through palliative care academic career development awards, as well as funding training centers and short-term intensive training programs to build clinical skills in caring for people with serious illness. This would meet a significant need, as there are currently only six palliative care fellowship positions for advanced practice registered nurses, with three more in the planning stages; six graduate schools of nursing have palliative care as an additional subspecialty focus, and eight programs offer masters degrees or certifications in palliative care (personal communication, palliative care specialist Connie Dahlin, director of Professional Practice, Hospice & Palliative Nurses Association).

The current education and training programs for certified palliative care team members are not sufficient to meet growing needs. Evidence shows that many practicing health care professionals report a lack of education in the knowledge and skills needed to practice palliative care [31]. Therefore, there is a need for a champion leader to create an innovative statewide planning team to provide legislative proposals and funding for specialty training for the serious illness workforce during this time of increased demand for this specialty [32]. North Carolinians deserve timely, accessible health care during a serious illness or end of life, and this is a proposal to consider in moving us forward together.

Donna Lake, PhD, RN, FAAN Professor, Advanced Nursing Practice and Education, College of Nursing, East Carolina University, Greenville, North Carolina.

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32. Palliative Care and Hospice Education and Training Act, HR 647 (2019).