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Editorial

The Future Includes Nurse Practitioner Models of Care in the Long-Term Care Sector

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The Current Residential Long-Term Care Context

The COVID-19 pandemic hit the long-term care (LTC) sector hard, illuminating long-standing deficiencies. The pandemic revealed the consequences of years of inattention to the many challenges facing nursing homes, including lack of access to primary care providers (PCPs)—physicians or nurse practitioners (NPs)—both of whom bring a complementary skill set to the LTC sector. Although multiple studies have focused on the practices of NPs,[1] there is limited evidence examining physicians' practice patterns in nursing homes; however, a recent study suggests that nursing home physicians were more likely to be aged ≥70 years than non–nursing home physicians and full-time nursing home physicians were less likely to take part in innovative delivery models, than occasional nursing home physicians.[2] In one of the few surveys examining physician in LTC homes, a 1991 survey demonstrated that physicians with a nursing home practice spent ≤2 hours per week with residents,[3] and a more recent examination of same-day physician availability in Ontario, Canada, revealed that only around 30% of 161 surveyed homes had same day physician access.[4] The lack of on-site availability of PCPs may contribute to adverse health outcomes among residents[5] and dissatisfaction from residents and their families related to the frequency of interactions with their physician.[6,7] Finding physicians focused on care of LTC residents will no doubt become increasingly more challenging, with data from the United States demonstrating that these providers have decreased from 83% in 2008 to 59% in 2018.[8] In contrast, there has been a growth in full-time NPs from 14% in 2008 to 36% in 2018, representing 60% of full-time PCPs in the LTC sector.[8] This editorial focuses specifically on the different models of NP practice that have been developed, barriers that influence NPs' ability to provide care, the influence of COVID-19 on NPs' practice in the United States and in Canada,[9] and recommendations for the future that include NP models of care as a way in which to optimize team managed care to a vulnerable complex population.

Nurse Practitioner Models of Care

NPs, otherwise known as advance practice registered nurses, are graduate prepared registered nurses, typically with a Master of Nursing or Doctor of Nursing Practice degree, whose education and practice specializes in one of several specific areas, including adult-gerontological care. The role was established in the 1960s in the United States and Canada to meet the primary health care needs of the population in light of physician shortages, particularly in rural areas.[10] NPs can perform a wide range of care services including diagnosing, prescribing medications, and performing some medical procedures as appropriate through training and scope of practice guidelines. Because of their nursing background and baccalaureate degree education, NPs have a strong focus on advanced nursing skills and medicine, psychosocial care, resident and family education and problem solving, and engaging family as care partners. In addition, NPs allocate a large part of their time coaching and educating direct care staff,[11] during which NPs act as catalysts to develop and strengthen the staff's clinical skills and increase confidence.

There are multiple currently operating models of care employing NPs in the LTC sector each involving collaboration with physicians. Generally, in the United States, these include situations in which the facility hires the NP (either directly or contracted as a faculty position/provider through an academic setting), the physician group hires the NP, the NP is employed by a primary care practice (usually with several physicians), via an independent NP practice group, through an acute care system with a focus on decreasing hospital readmissions, or through managed care programs such as the OptumCare CarePlus model (formerly EverCare) who employ NPs to oversee the care of residents in several facilities. In Ontario, models of care include attending NPs who work full-time on site and are hired by the LTC home; and NPs employed by acute care facilities [NP-Led Outreach Teams (NLOTs)] who oversee multiple homes (upwards of 15) with the aim to provide episodic support and reduce avoidable emergency transfers. In each of these models, NPs are on site in the LTC homes on an ongoing basis, some full-time, while others for episodic care, and their role complements that of physicians.[12] However, the level of

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Table 1
Outcomes Associated with Care Provided by Nurse Practitioners

Author	Population	Methods	Outcomes
Donald et al (2013)[16]	4 studies described in 15 articles	Systematic review of studies examining effectiveness of APRNs compared to other providers in long-term care settings	Long-term care residents with APRNs had lower rates of depression, urinary incontinence, pressure ulcers, restraint use, and aggressive behaviors; more residents who experienced improvements in meeting personal goals; and family members who expressed more satisfaction with medical services
Kilpatrick et al (2020)[15]	Six long-term care facilities in Quebec, Canada, 538 residents, 6 NPs	Mixed methods quality improvement study including a prospective cohort	A decrease in polypharmacy, falls, restraint use, and transfers to acute care were observed with care provided by part-time NP
Lovink et al (2017)[1]	12 studies (2 RCTs, 4 before-after, and 6 observational studies)	Systematic review of studies examining APRNs' and physician assistants' substitution of physicians	Substitution of physician-only care with NP or physician assistants produce equivalent or better patient (quality of life, hospital admissions, mortality, health status), process (treatment, adherence and compliance to guidelines, quality of health care), and resource use (emergency department visits, number of medications, unplanned consultations, hospital admissions, hospital days, outpatient and primary health care contacts) outcomes and no increase in cost.
Newhouse et al (2011)[17]	69 studies, 37 of which examined NPs (14 RCTs and 23 observational)	Systematic review of studies reporting comparisons in patient outcomes associated with APRNs vs other providers	When comparing NPs to physicians, a high level of evidence was found that NPs contribute to equivalent outcomes in patient satisfaction, self-reported patient perception of health, functional status, glucose control, serum lipid levels, blood pressure control, emergency department visits, hospitalizations, and mortality rates. Moderate levels of evidence were found to support equivalent length of hospital stay for patients of physicians and NPs, and there was low levels of evidence supporting equivalent duration of mechanical ventilation.
Christian and Baker (2009)[18]	7 studies (non-RCT and before-after studies) including 12,681 residents in 238 long-term care homes	Systematic review of studies reporting outcomes associated with NPs as the primary care provider for long-term care nursing home residents	Lower hospitalization rates, a decrease in emergency department transfers, and shorter length of hospitalizations were found to be associated with NPs as primary care providers or part of the medical team. One study found no difference in emergency department use, although NP patients were less likely to be admitted to the hospital later in their trajectory of care.
Tchouaket et al (2020)[19]	538 residents in long-term care homes in Quebec, Canada	Prospective observational study following 6 long-term care homes between September 1, 2015, and August 31, 2016	The total cost savings for the Canadian health care system associated with a reduction in adverse events (falls, pressure ulcers, short-term hospital transfers) due to care provided by NPs were estimated to be between $1,942,533.6 and $3,253,403.4

APRN, advance practice registered nurse; RCT, randomized control trial.

compensation may influence NPs' willingness to work in the LTC sector, as salaries are lower than other health care settings.[13]

Impact of the Models

Although there is a paucity of evidence reporting the impact of physicians on outcomes in LTC homes,[14] there is convincing research that shows NP models of care contribute to quality resident outcomes.[15] Systematic reviews have consistently demonstrated that regardless of the model they work within, NPs have a proven record of providing high-quality resident care across settings (Table 1).[1,16–18] Employing NPs to provide primary and acute care in LTC facilities benefits resident outcomes,[15] and reduces the overall cost of care.[19] Managed care models have resulted in lower rates of emergency department transfers than those in traditional fee-for-service models.[20] LTC homes with NPs had lower rates of depression, urinary incontinence, pressure ulcers, and residents with aggressive behaviors; more residents experienced improvements in meeting personal goals; and family members who expressed more satisfaction with medical services.[16] By being on-site, NPs can identify changes in residents' status, treat acute medical problems prior to progression to more complex, life-threatening situations, prevent adverse outcomes, and reduce resident suffering.[15]

Barriers to Nurse Practitioner Practice

Restrictive state practice acts and prescriptive privileges continue to be systemic barriers impeding NPs from providing optimal care.[21] In the United States, NPs have full independent practice authority in only 44% of the states,[22] and in states with restrictions on their practice, NPs cite difficulty with finding physicians to supervise them and the costs to beginning and maintaining the collaborative agreements as prohibitive to establishing practices.[23] Depending on the state, NPs' scope of practice may limit them from prescribing some medications, ordering laboratory tests or therapies, assessing newly admitted residents or obtaining reimbursement for their services.[24] Variations in NPs' scope of practice exist across Canada's provinces and territories as well, with the fewest restrictions in place in the Northwest Territories and Nunavut. One instance of this can be seen in Ontario, Saskatchewan, and Newfoundland, as NPs are restricted from ordering and interpreting diagnostic tests (ie, computed tomography scans, magnetic resonance imaging), but are allowed to do so in 8 other regions.[25]

In the United States, opposition from some organized medical groups to removing legislative barriers poses an additional barrier. This opposition had been described as "outdated and from a bygone era,"[9] lagging in translating research into practice, and acknowledging

Table 2
Recommendations to Leverage Nurse Practitioner Models of Care in Long-Term Care Settings

Recommendation	Description
1. Maintaining legislative reforms that were initiated during COVID-19 and continuing to remove barriers to NP practices	Continual reform of legislation and maintenance of the changes in legislation that occurred in response to COVID-19 is necessary to ensure that NPs across all states and countries can perform care activities for which they are educated, such as completion of advance directives, determination of capacity, diagnosis, management of medical conditions, prescription of medication, and ordering appropriate tests and appropriate medical supplies for residents. The successful implementation of the full scope of the NP practice may also require a collective effort to revise organizational and payer policies accordingly.[32]
2. Clearly articulating the roles and responsibilities of NPs and physicians within the different models of care	Clear articulation of the roles and the respective responsibilities of the NP and Physician is required for the different models of care along with acknowledgment of these roles by administrators, staff, and external partners. Future collaborative models in LTC homes will require significant formal and informal consultation between NPs, physicians, and acute care specialists to ensure a truly collaborative model. Planning and provision to address the NPs' role in LTC homes must respond to the increased complexity of LTC residents and the needs of their families and the multiple roles NPs have, including supporting staff, management, and building and maintaining links between health systems.
3. Conducting additional research to determine the optimal care models with which to achieve the best outcomes for residents, staff, and the health care system	Research aimed at examining and determining optimal NP-physician collaborative models of care is needed. Appropriate models are needed to ensure all residents receive timely high-quality care, positive practice outcomes, and retention of other staff in these settings. Most recently, the Long-Term Care COVID-19 Commission, which was the independent commission launched by the Government of Ontario, Canada, recommended 1 NP for every 120 residents.[33] Future research is required to affirm the optimal ratio of NP to residents in LTC homes, but this benchmark can be used as a starting point.
4. Incentivizing work in the LTC sector by providing competitive salaries for NPs	Competitive salaries and benefits for NPs in LTC settings need to be comparable to those NPs in other care settings, including acute care and outpatient care. To ensure this benchmark is met, separate funding for NP positions is required.
5. Developing innovative programs to engage and educate new NPs to work in LTC settings	Innovative programs to train and engage new NPs to work in LTC settings are required. Examples include the expansion of the Post-Acute and Long-Term Care Futures Program provided by the Veterans Administration,[34] the Weitzman Institution,[35] or the Academic-Practice Partnership for APNs.[36] Such programs allow NPs to participate in residency in the LTC setting post graduation and were proposed to support NPs in training in the care of complex older adults in these settings.[37]

complementary and interdependent roles of physicians and NPs.[21] The Institute of Medicine advocates for NPs to practice at the full extent of their education and scope and to address regulatory and cultural barriers to provide the best care possible to residents.[24] Moreover, researchers have found that when NPs can work under less restrictive regulations there is an associated decrease in hospitalization rates and subsequent positive impact on quality of care and costs of health care.[26] COVID-19 provided an opportunity to understand contributions of NPs when barriers to practice restrictions were lifted.

What We Learned From the COVID-19 Pandemic

COVID-19 resulted in some immediate changes in scope of practice to increase access to care for residents in LTC settings and provided us with a natural experiment to discover if there were any negative or positive impacts to these changes in Canada and the United States. One of the changes that was made included an increased use of telehealth and having more providers, particularly Medical Directors, working offsite.[27,28] For example, in Canada, Medical Directors in LTC homes were advised by their Medical Association to work virtually,[29] and changes were enacted granting NPs authority to assume the role of the Medical Director.[30] In the United States, federal and state legislation changes provided temporary waivers of all or select practice restrictions, for instance, permitting NPs to independently order tests and medication that previously required a physician's order.[9] Although some NPs also worked virtually, many NPs, particularly those hired by the facility, provided direct face-to-face care throughout the pandemic.[28]

The removal of restrictions to NP practice did not result in any known negative outcomes. Conversely, during COVID-19, NPs contributed to positive outcomes such as successfully diagnosing and treating residents in place[28]; minimizing adverse outcomes of residents and ensuring dignified deaths[31]; establishing links between fragmented systems of care; coordinating and implementing care pathways with acute care facilities; developing resources, such as flow sheets outlining the process of consulting with specialists; and developing programs for virtual visits with these specialists.[27] NPs working in the LTC sector as PCPs throughout the pandemic consulted and collaborated with physicians, specialists, and other external stakeholders to ensure optimal resident care was received.[27]

In addition, NPs supported the frontline staff, residents' families, and LTC homes' management teams, similar to what researchers found before COVID-19.[11] They continued to develop and strengthen the skills of staff, whose competencies required upgrading in order to provide care to the very complex COVID-19 residents.[27] Through listening, role-modeling, and working with staff at the bedside, NPs acted as a resource by providing emotional support to frontline staff who were often overworked and anxious about contracting the virus.[27] This may have helped to optimally ensure retention of staff within the home. Moreover, NPs' ability to build relationships with residents, families, and staff and provide a comprehensive, integrative approach with a more consistent presence provides further evidence that NPs are essential in LTC homes. These types of facility-based services are not consistently provided by physicians.

Recommendations

Based on the lessons learned during the COVID-19 pandemic and the demonstrated value NPs have provided in LTC, it is important to continue to leverage NP models of care in these settings. Recommendations include (1) maintaining legislative reforms that were

initiated during COVID-19 and continuing to remove barriers to NP practices; (2) clearly articulating the roles and responsibilities of NPs and physicians within the different models of care; (3) conducting additional research to determine the optimal care models with which to achieve the best outcomes for residents, staff, and the health care system (eg, costs, rehospitalizations); (4); incentivizing work in the LTC sector by providing competitive salaries for NPs, and (5) developing innovative programs to engage and educate new NPs to work in LTC settings. Specifics of each recommendation are provided in Table 2.

Conclusion

The role of the NP in working collaboratively with physicians has been demonstrated as essential in LTC even prior to the pandemic and, as such, NPs represent an efficient solution in addressing the health care needs of residents in LTC. NPs' holistic approach to care is grounded in their nursing training, and they bring to LTC a unique role that not only supports residents but families, staff, and managers. The COVID-19 pandemic provided a useful natural experiment allowing for some expansion of practice for NPs that resulted in no negative outcomes. Skills of both the physician and NP are required in these collaborative models of care going forward. Optimistically, in response to what we have learned during COVID-19, we will continue to see a removal of barriers to practice and an increase in use of the many different models of care to ensure that all residents receive cost-effective, high-quality care.

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