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Medical Care Delivery in U.S. Nursing Homes: Current and Future Practice

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Abstract

The delivery of medical care services in U.S. nursing homes (NHs) is dependent on a workforce that comprises physicians, nurse practitioners, and physician assistants. Each of these disciplines operates under a unique regulatory framework while adhering to common standards of care. NH provider characteristics and their roles in NH care can illuminate potential links to clinical outcomes and overall quality of care with important policy and cost implications. This perspective provides an overview of what is currently known about medical provider practice in NH and organizational models of practice. Links to quality, both conceptual and established, are presented as is a research and policy agenda that addresses the gaps in the evidence base within the context of our ever-changing health care landscape.

Keywords: Medical provider, Nursing home, Quality

Nursing homes (NHs) are increasingly recognized as a critical part of the health care continuum. While the coronavirus disease 2019 (COVID-19) pandemic lays bare multiple infrastructure issues that have long plagued NHs, such as inadequate staffing and limited infection control resources, it also serves to highlight the essential services NHs provide. More than 15,000 NHs in the United States currently provide care to 1.3 million individuals, 90% of whom are aged 65 and older (Harris-Kojetin et al., 2019). Medicare spending on NH-based care was \$28.5 billion in 2018, whereas Medicaid spent \$58 billion in 2017 (MedPAC,

2020). NH residents are among our population's most frail and functionally dependent individuals with high rates of multimorbidity and advanced illness (Fashaw et al., 2020).

NH quality is a multidimensional construct influenced by a number of variables including nurse staffing levels, turnover and competence, NH size and proprietary status, as well as funding and regulatory mandates (Castle et al., 2007; Castle & Ferguson, 2010; Harrington et al., 2016). The perspective that follows focuses on yet another less well understood, but important, contributor to NH quality, namely, medical provider practice. A deeper understanding

of NH providers' characteristics and roles in NH care can illuminate potential links to clinical outcomes and overall quality of care, with attendant important policy and cost implications. In reviewing what is currently known regarding the scope of work and practice patterns of licensed medical providers engaged in NH care, we articulate a research and policy agenda that addresses evidence base gaps within the context of an ever-changing health care landscape.

Physician Care in the Nursing Home

In one of the earliest studies to describe physician NH practice in the United States, a 2009 survey found that only one in five primary care physicians engaged in the care of NH residents (Katz et al., 1997). Of these physicians, the majority spent 2 h or less per week in NH care. More recent studies, described in detail below, demonstrate that there has been a decline in physicians ever billing in a skilled nursing facility (SNF), currently estimated at 1 in 10 providers (Teno et al., 2017).

While much of the recent focus has been on NH specialists, or "SNFists," it is important to understand the full spectrum of provider practice in the NH. A variety of physician practice models exist based on the domains listed in Table 1.

Although Centers for Medicare & Medicaid Services (CMS) regulations recognize the physician's role of supervising NH resident care, the impact of physicians on NH quality has not been well studied. This paucity of systematic evaluation is not limited to the United States. For example, although the Netherlands has long recognized and funded physician specialization in NH care for decades, no controlled studies have compared those physicians with specialty training to those without.

Table 1. Physician Practice Models

| Domain | Physician practice model |
|---|--|
| Degree of focus on LTC Sites of care | SNFist versus non-SNFist NH, ALF, home care, hospice, PACE, VA |
| Funding source | Fee for service, managed care, APM |
| Employment/contractual arrangements | Staff hired full-time versus part-time for a specific entity such as NH, ALF, and CCRC |
| Primary care services with or without administrative responsibilities | Medical direction |
| Use of medical provider teams | MD/NP/PA |

Note: ALF = Assisted Living Facility; APM = alternative payment models; CCRC = Continuing Care Retirement Communities; LTC = long-term care; MD = Medical Doctor; NH = nursing home; NP = nurse practitioner; PA = physician assistant; PACE = Program of All-inclusive Care of the Elderly; SNF = skilled nursing facility; VA = Veterans Affairs.

A theoretical framework linking physician practice and quality in the NH, published over a decade ago (Katz et al., 2009), posited three determinants of quality: competence, commitment, and organizational structure as outlined in Table 2. While other factors influence the link between physician care and quality (i.e., level of engagement, the regulatory environment, societal/cultural drivers, and reimbursement), it remains a useful conceptual framework that is supported by recent research described below.

While "commitment" can be operationalized in various ways, a consistent positive relationship has been found between having fewer physicians responsible for resident care, physicians being on-site more frequently, and higher quality of care (Dwyer et al., 2015; Gard-Marshall et al., 2016; Laffon de Mazieres et al., 2015; Lukas et al., 2013; Table 3).

The conceptual link between NH medical staff "organization structure" and clinical outcomes stems directly from studies of physician practice in hospital settings (Roemer & Friedman, 1971; Shortell et al., 1976). The association between a structured medical staff and care quality in hospitals argues for a similar "closed" staffing model in NHs (Katz et al., 2009). The degree of "closedness" is determined by several factors including, but not limited to, the contractual relationship between the physician and the NH, the ratio of physicians to patients, the rigor of the appointment/credentialing process, the level of cross-coverage, and participation in facility-based committees. NH medical staff organization has been found to independently predict clinical outcomes such as restraint use, vaccination rates, and 30-day rehospitalization rates (Katz et al., 2011; Lima et al., 2012).

Linking physician "competence" and quality presupposes a clear definition of competence related to the provision of NH care. AMDA—The Society for Post-Acute and Long-Term Care (PA-LTC) Medicine—initiated a process in 2011 to specify competencies for NH physicians and other medical providers including nurse practitioners (NPs) and physician assistants (PAs). The resulting competencies

Table 2. Links Between Physician Practice and Quality in Nursing Homes

| Determinant of quality | Definition |
|----------------------------------|---|
| Commitment | Percentage of the physician's practice devoted to NH care and the amount of time, on average, spent per NH patient encounter |
| Physician NH practice competency | Defined by specialized training and experience necessary to handle the complex medical care in a highly regulated, interdisciplinary care context that is the contemporary NH |
| Organizational structure | Reflects the cohesive integration of the medical providers into the culture of the facility |

Note: NH = nursing home.

Table 3. Physician Commitment and Quality

| Author | Population | Methods | Outcomes |
|----------------------------------|---|---|--|
| Lukas et al. (2013) | 4,156 residents of seven European countries | Cross-sectional study of pharmacologic and nonpharmacologic pain management using InterRAI instruments | High turnover rates of regular staff and low-to-moderate physicians' availability were negatively associated with pharmacological pain management |
| Laffon de Mazieres et al. (2015) | 6,275 residents of 175 nursing homes in France | Cross-sectional | Residents who lived in NHs with 30 GP/100 beds had a higher likelihood of potentially inappropriate prescription versus those in NHs with fewer than 10 GP/100 beds |
| Dwyer et al. (2015) | 78 papers included all observational studies (54% from the United States) | Scoping review of studies reporting unplanned transfers from residential aged care facilities | Higher numbers of unplanned transfers associated with lower number of physician hours per resident and absence of specialized geriatrician consultation |
| Gard-Marshall et al. (2016) | 10 Long-term care facilities in Nova Scotia with 1,424 beds | Observational time series before and after implementation of the model which assigned physicians to specific units with scheduled on-site rounds (Care by Design) | Dedicated physicians participating in the Care by Design model resulted in a 36% reduction of ED transfers with improved relational and informational continuity of care |

Note: ED = Emergency Department; GP = general practitioners; NH = nursing home.

are framed around five domains as outlined in Table 4 and include a total of 26 related modules (Katz et al., 2014). It is important to note that competencies refer to the knowledge and skills necessary to perform a given job optimally.

These competencies highlight the “Physician Value Proposition” specific to the NH (Katz, 2015). Rather than predicating value on financially based measures, such as patient volume and net revenues, value stems from improvements in resident care and outcomes. This translates into a broad array of clinically meaningful quality measures such as accurate medication reconciliation, appropriate antibiotic use, and documentation and comprehensiveness of advance care planning. While the conceptual link between physician competencies and quality is clear, only recently have new measures been proposed to capture processes of care specific to medical providers in NHs (Mays et al., 2018). Such metrics, once operationalized and tested, will be invaluable in demonstrating the impact of “NH specialists” on care and costs and will hopefully provide a rationale for eventual specialty recognition.

Nurse Practitioner Care in the Nursing Home

NPs are registered nurses with additional graduate-level preparation to earn a Master's degree or a Doctor of Nursing Practice degree. In 2017, about 400 NP programs in the United States matriculated 28,000 NPs (American Association of Nurse Practitioners, 2020; Salsberg, 2018). NPs are nationally certified through either the American Nurses Credentialing Center or the American Academy of Nurse Practitioners Certification Board and licensed

by their State Board of Nursing. Since 2015, the national certifications for NPs in PA-LTC are typically as an Adult-Gerontology Primary Care Nurse Practitioner or as a Family Nurse Practitioner. There are approximately 3,100 NPs working in NHs (Ryskina et al., 2017; Teno et al., 2017). The NP's level of autonomy is highly dependent on each state's scope of practice regulations (Federal Trade Commission, 2014). NPs typically work across multiple sites, collaborating with an average of 3.4 physicians and spending about 8 h per month with the physician they collaborate with most often (Martin-Misener et al., 2015; McAiney et al., 2017).

Substantial and convincing research shows that NPs in NHs contribute overall to the quality outcomes of frail residents (Kilpatrick et al., 2020). NPs presence has been associated with reductions in emergency department visits and avoidable hospitalizations, improved advance care planning and palliative care consultations, reductions in pain, improvements in functional status, and other improved quality measures and quality of life outcomes (Arendts, 2018; Arnett et al., 2017; Christian & Baker, 2009; Miller, 2016; Mullaney et al., 2016).

Several current care models use NPs in PA-LTC settings (Cacchione, 2020). One of the most expansive care models is OptumCare CarePlus (formerly Evercare). This NH care model employs on-site NPs to provide preventive health care, triage and monitor change in condition, engage in care coordination, and lead advance care planning discussions (McGarry & Grabowski, 2019). Findings show that NP care results in lower rates of emergency department transfers, inpatient utilization,

Table 4. Competencies for the Attending Physician in the Nursing Homes**1. Foundational (ethics, professionalism, and communications)**

- 1.1 Addresses conflicts that may arise in the provision of clinical care by applying principles of ethical decision making
- 1.2 Provides and supports care that is consistent with (but not based exclusively on) legal and regulatory requirements
- 1.3 Interacts with staff, patients, and families effectively by using appropriate strategies to address sensory, language, health literacy, cognitive, and other limitations
- 1.4 Demonstrates communication skills that foster positive interpersonal relationships with residents, their families, and members of the interdisciplinary team (IDT)
- 1.5 Exhibits professional, respectful, and culturally sensitive behavior toward residents, their families, and members of the IDT
- 1.6 Addresses patient/resident care needs, visits, phone calls, and documentation in an appropriate and timely fashion

2. Medical Care Delivery Process

- 2.1 Manages the care of all post-acute patients/LTC residents by consistently and effectively applying the medical care delivery process—including recognition, problem definition, diagnosis, goal identification, intervention, and monitoring of progress
- 2.2 Develops, in collaboration with the IDT, a person-centered, evidence-based medical care plan that strives to optimize quality of life and function within the limits of an individual's medical condition
- 2.3 Estimates prognosis based on a comprehensive patient/resident evaluation and available prognostic tools and discusses the conclusions with the patient/resident, their families (when appropriate), and staff
- 2.4 Identifies circumstances in which palliative and/or end-of-life care (e.g., hospice) may benefit the patient/resident and family
- 2.5 Develops and oversees, in collaboration with the IDT, an effective palliative care plan for patients/residents with pain, other significant acute or chronic symptoms, or who are at the end of life

3. Systems

- 3.1 Provides care that uses resources prudently and minimizes unnecessary discomfort and disruption for patients/residents (e.g., limited nonessential vital signs and blood glucose checks)
- 3.2 Can identify rationale for and uses of key patient/resident databases (e.g., minimum Data Set [MDS]) in care planning, facility reimbursement, and monitoring of quality
- 3.3 Guides determination of appropriate levels of care for patients/residents, including identification of those who could benefit from a different level of care
- 3.4 Performs functions and tasks that support safe transitions of care
- 3.5 Works effectively with other members of the IDT, including the medical director, in providing care based on understanding the general roles, responsibilities, and levels of knowledge and training for those of various disciplines
- 3.6 Informs patients/residents and their families of their health care options and potential impact on personal finances by incorporating knowledge of payment models relevant to the post-acute and LTC setting

4. Nursing Home Medical Knowledge

- 4.1 Identifies, evaluates, and addresses significant symptoms associated with change of conditions, based on knowledge of diagnosis in individuals with multiple comorbidities and risk factors
- 4.2 Formulates a pertinent and adequate differential diagnosis for all medical signs and symptoms, recognizing atypical presentation of disease, for post-acute and LTC residents
- 4.3 Identifies and develops a person-centered medical treatment plan for diseases and geriatric syndromes commonly found in post-acute patients and LTC residents
- 4.4 Identifies interventions to minimize risk factors and optimize patient/resident safety (e.g., prescribes antibiotics and antipsychotics prudently, assesses the risks and benefits of initiation or continuation of physical restraints, urinary catheters, and venous access catheters)
- 4.5 Manages pain effectively and without causing undue treatment complications
- 4.6 Prescribes and adjusts medications prudently, consistent with identified indications and known risks and warnings

5. Personal QAPI (Quality Assurance and Professional Improvement)

- 5.1 Develops a continuous professional development plan focused on post-acute and LTC medicine, utilizing relevant opportunities from professional organizations (AMDA, AGS, AAFP, ACP, SHM, American Academy of Hospice and Palliative Medicine), licensing requirements (state, national, province), and maintenance of certification programs
- 5.2 Utilizes data (e.g., Physician Quality Reporting System indicators, MDS data, patient satisfaction) to improve care of their patients/residents
- 5.3 Strives to improve personal practice and patient/resident results by evaluating patient/resident results by evaluating patient/resident adverse events and outcomes (e.g., falls medication errors, healthcare-acquired infections, dehydration, rehospitalizations)

Notes: AAFP = American Academy of Family Physicians; ACP = American College of Physicians; AGS = American Geriatrics Society; LTC = long-term care. From Katz et al., 2014. Copyright 2014 by HMP Communications LLC.

and higher SNF utilization compared to those in a traditional Medicare fee-for-service model. Another care model in which NPs are central to the interprofessional

care team is the Naylor Transitional Care Model (TCM); SHM = Society of Hospital Medicine. The TCM, while developed and tested to improve care transitions between

home and acute care discharge, shows that SNFs with robust interprofessional care team interactions can enhance the delivery of transitional care and improve outcomes such as reducing rehospitalization (Toles et al., 2016).

In some states, NPs have expansive scopes of practice, whereas in other states NP roles are highly restricted and require significant oversight from collaborating physicians. Calls to modernize and lessen these restrictions are being made in order to increase access to quality care and decrease costs. The Department of Veteran's Affairs fully removed NP practice barriers in 2016 in their facilities (Advanced Practice Registered Nurses, 2016). In response to the COVID-19 pandemic, CMS announced a series of temporary regulatory waivers that included an expansion of NP scope of practice (CMS, 2020). Anticipating the future need, NP fellowship training programs in PA-LTC have been proposed to support training in the care of complex older adults in these settings (Ranz et al., 2017).

Physician Assistant Care in the Nursing Home

PAs are master's degree trained through a curriculum that is based on a medical model that addresses a range of medical specialties and settings, including geriatric medicine (Smith et al., 2019). PAs are certified by the National Commission on Certification of Physician Assistants (NCCPA) and receive state licensure through their respective state's Board of Medicine. The NCCPA reports that of the 131,152 certified PAs in 2018, 794 (0.8%) identified geriatrics as their primary medical specialty (NCCPA, 2018). Six hundred ninety-eight certified PAs (0.7%) reported their principal clinical practice setting as an extended care facility or NH in 2019 (NCCPA, 2019). PAs work with physicians and other providers with a scope of practice differing from state to state based on statute. PAs have prescriptive authority in all 50 U.S. states and are recognized by all payers.

The PA profession in the United States began in the mid-1960s and is growing internationally (Ballweg & Hooker, 2017). Data support PA's value in various medical settings and specialties demonstrating increased access to care, improved cost-effectiveness, and quality (Dies et al., 2016; Everett et al., 2016; Lovink et al., 2017; Timmons, 2016). While there is limited research on the role of PAs in NH care, their potential value has been increasingly recognized (Zimmerman & Sloane, 2018). This includes data that suggest PAs working in NHs can reduce medical costs and hospital readmission rates (Kim et al., 2017). In contrast to NPs, there are no published examples of different care models using PAs in NHs.

In response to workforce shortages, there have been increasing calls to ensure that PAs work to their highest level of training and licensure. Proponents of such "optimization of practice" advocate for the removal of practice barriers, burdensome administrative constraints, and enhanced reimbursement (American Academy of Physician Assistants, 2020). Similar to NPs, the COVID-19 pandemic

has led to some temporary scope of practice regulation changes with significant interstate variability.

As with NPs, there are opportunities to increase the number of PAs with specialized training in PA-LTC. In 2019, the 254 accredited PA programs in the United States graduated more than 9,000 PAs annually (Accreditation Review Commission on Education for the Physician Assistant, Inc., 2019; Physician Assistant Education Association, 2019). Increasing PA-LTC clinical experiences in the master's curriculum is one strategy. More problematic is relying on postgraduate training (Bell-Dzide et al., 2014; Swanchak et al., 2012). Few geriatric postgraduate programs exist and only a limited number of PAs participate (Hussaini et al., 2016, U.S. Department of Veterans Affairs, 2019).

Skilled Nursing Facility Specialist

SNFists are providers who specialize in NHs and include physicians trained in internal medicine, geriatrics, general practice and family medicine, physical medicine, and rehabilitation, in addition to NPs or PAs. Conceptually, providers who see large volumes of patients in a given care setting develop a special skill set and competency that result in better care. The proportion of NH care provided by SNFists is growing. Teno et al. (2017) characterized changes in the number of SNFists and the proportion of NH visits they provided from 2007 to 2014. They found that the number of clinicians providing more than 90% of their visits in NHs increased by 49% among physicians (from 1,496 to 2,225) and by 83% among advanced practitioners (from 1,678 to 3,074). The proportion of all NH visits provided by SNFists increased from 22.0% in 2007 to 31.5% in 2014 (test of trend, $p < .001$). Ryskina et al. (2017) extended this trend to 2015. They observed that the number of SNFists increased from 5,127 in 2012 to 6,857 in 2015, or 33.7% (test of trend $p < .001$), while the overall number of clinicians billing for NH care did not change. The growth rate of SNFists was not a result of increasing numbers of NH beds in hospital referral regions and was higher among NPs (vs. physicians) and clinicians providing post-acute visits (vs. long-term care; Ryskina et al., 2017).

Studies measuring the impact of SNFists on care quality and costs at the patient level found these clinicians to be associated with better outcomes. Kuo et al. (2013) compared outcomes of SNFists to non-SNFist clinicians in 1,094 Texas NHs in 2006–2008. Residents under the care of providers whose NH practice composed of less than 5% of their clinical effort had a 52% higher risk of potentially avoidable hospitalization compared to residents under the care of providers whose NH practice represented at least 85% of their total effort (Kuo et al., 2013). A national study of 2.1 million Medicare fee-for-service beneficiaries admitted to 14,526 NHs for post-acute care from 2012 to 2014 found that patients under the care of SNFists experienced more provider visits (5.7 vs. 3.9, $p < .001$), were less likely to be rehospitalized within 30 days (14.7 vs. 16.2, $p < .001$), and were slightly more likely to be

successfully discharged to the community (56.3 vs. 55.5, $p < .001$; Ryskina, Yuan et al., 2019).

Compared to the findings of studies conducted at the patient level, the impact of SNFists on NH care quality measured at the regional level was more mixed. In a study conducted using Nursing Home Compare and Medicare provider utilization files between 2012 and 2016, higher prevalence of physician SNFists in a hospital referral region was associated with better performance on three of the six NH clinical quality measures evaluated (Ryskina, Lam et al., 2019). Each additional SNFist per 1,000 NH beds in a region was associated with lower use of antipsychotic medications during both short-term stays (adjusted difference -0.02% , $p < .01$) and long-term stays (-0.6% , $p < .01$), in addition to lower use of indwelling urinary catheters (-0.07% , $p < .01$). There was no significant association between SNFist prevalence and the other three clinical measures evaluated (use of restraints, residents with urinary tract infections, and residents with symptoms of depression). When these regional differences were extrapolated nationally, if regions in the lowest decile of SNFist prevalence were to increase their use of SNFists to the highest decile, the regions would reduce antipsychotic medication use by 5% and indwelling bladder catheter use by 6% (Ryskina, Lam et al., 2019).

Evidence on the impact of SNFists on costs of care for NH residents is also mixed. Kuo et al. (2013) observed that

Texas NH residents under the care of SNFists cost Medicare \$2,179 less per year compared to residents under the care of providers whose NH practice represented less than 5% of their total effort. In contrast, Ryskina, Yuan et al. (2019) found that patients under the care of SNFists had slightly higher Medicare payments in the 60 days following SNF admission (\$31,628 vs. \$31,292; adjusted difference, \$335; $p < .001$). The difference was attributed to the higher intensity of treatment provided during the SNF stay (Ryskina, Yuan et al., 2019). Table 5 summarizes these evaluations comparing SNFists to non-SNFists.

Research Needs

There are a number of areas where additional research is urgently needed. Beyond prevalence estimates, very little is known about NH medical providers and the practices that include them. More information is needed on the characteristics of these clinicians—for example, we know very little about the formal and informal training NH specialists receive to do this work. Furthermore, participation in innovative care delivery programs (e.g., Accountable Care Organizations, Bundled Payments for Care Improvement), contractual or employment arrangements, affiliation with hospitals and health systems—and the association of these characteristics with the quality and cost of care. More

Table 5. Processes of Care, Outcomes, and Costs of Patients Under the Care of SNFist vs. Non-SNFists in the Nursing Home

| Author (year) | Population | Methods | Outcomes |
|-----------------------------|---|--|--|
| Kuo et al. (2013) | 12,249 residents admitted to long-term care in 1,094 Texas nursing homes between 2006 and 2008, under the care of generalist physicians or advanced practitioners | Outcomes were adjusted using CMS specifications, multilevel survival, and two-part log gamma models were used to estimate hospitalization and cost outcomes, respectively | Residents under the care of providers whose nursing home practice composed of less than 5% of their clinical effort had a 52% higher risk of potentially avoidable hospitalization and their care cost Medicare \$2,179 more per year compared to residents under the care of providers whose nursing home practice represented at least 85% of their total effort |
| Ryskina, Yuan et al. (2019) | 2.1 million Medicare fee-for-service beneficiaries admitted to 14,526 skilled nursing facilities for post-acute care from 2012 to 2014, under the care of generalist physicians or advanced practitioners | Outcomes were adjusted using the CMS risk-adjustment methodology for hospital readmissions, demographics, as well as time-invariant nursing home characteristics using nursing home fixed effects | Patients under the care of SNFists experienced more provider visits (5.7 vs. 3.9, $p < .001$), were less likely to be readmitted to the hospital within 30 days of skilled nursing facility admission (14.7 vs. 16.2, $p < .001$), more likely to be successfully discharged to the community, but had slightly higher Medicare payments in the 60 days following SNF admission (\$31,628 vs. \$31,292; adjusted difference, \$335; $p < .001$) |
| Ryskina, Lam et al. (2019) | Regional analysis of nursing home quality measures for 305 hospital referral regions using Nursing Home Compare and Medicare provider utilization files between 2012 and 2016 | Six clinical quality measures were a priori deemed to be under the influence of physicians: short- and long-term stay antipsychotic use, use of restraints, urinary tract infections, depression symptoms, and the use of indwelling catheters | If the regions in the lowest decile of SNFist prevalence were to increase their use of SNFists to the degree of the regions in the highest decile, those regions would reduce antipsychotic medication use by 5% and indwelling bladder catheter use by 6% |

Note: CMS = Centers for Medicare & Medicaid Services; SNF = skilled nursing facility.

information is needed on the characteristics of the organizational structure of NH clinician practices, including the composition of physicians, NPs, PAs, and physician specialties within those practices, and their impact on care. Community Living Centers within the Veterans health care system, many of which have dedicated medical providers within a closed staffing model (i.e., a limited number of MDs, NPs, or PAs dedicated to the unit and responsible for the care of all residents), can potentially provide unique insights into the links between practice and quality.

Aspects of clinician practice in NHs that may affect care delivery and patient outcomes include practice management and supports, and communication and care coordination supports. For instance, SNFists employed by NHs may be more likely to see the same patients on a daily basis, developing familiarity with patients and their families and caretakers. Alternatively, SNFists in practices that contract with NHs are more likely to care for patients in a larger number of facilities, which may not allow sufficient time with individual patients. These factors represent potentially modifiable targets for interventions to improve the delivery of provider-level care in NHs. A conceptually valid and reliable set of practice-based quality measures should be developed and tested to establish the expected associations between process and outcome measures of NH medical provider quality (Werner et al., 2013).

Once described, it would be important to determine whether these practice organization characteristics affect the quality or cost of care for both the subpopulations of patients receiving post-acute care and of those receiving long-term care in NHs, as the care needs of these two populations are different. Studies of residents with specific diagnoses are also needed as the medical provider's ability to diagnose and treat a given condition within the NH context may vary significantly. For example, SNFists could potentially have an outsized impact on the care provided to the more than 60% of long-stay NH residents with moderate or severe cognitive impairment (U.S. Department of Health and Human Services, 2015).

Research that further disentangles the links between provider commitment, competence, and the organizational setting is also needed but is currently hampered by limited access to data. For example, although all Medicare-certified NHs are required to have a medical director, there are no accessible lists of NH medical directors. Medical director insights are critical in further defining extant medical staff organizational models in NHs. Importantly, the impact of the medical director on quality of care has not been adequately investigated. There has been but one study on this topic that reported a significant and independent association between medical directors with formal certification and a composite quality score (Rowland et al., 2009).

The research to better understand the organization of provider practice in NHs should also aim to fill the significant gaps that exist in our understanding of the practice patterns, interactions and collaborations, contractual

relationships, team dynamics, and optimal workloads among physicians, NPs, and PAs. These are just a few of the variables that are critical in understanding the independent and complementary contributions from each discipline. Without these studies, it will be difficult to define best practice for clinicians in the NH.

Inherent in research to identify these characteristics is their importance for efforts to understand what characteristics are likely to improve the quality of resident care processes and outcomes. There is little, if any, rigorous research on the practice quality of medical providers in NHs and the impact of provider quality on resident outcomes. Most existing LTC quality measures speak to facility-level process and do not address the performance of individual staff roles such as medical providers or how much performance relates to nursing care. Process or practice-based quality measures, however, are ideal for this purpose given that they can be selected to highlight medical provider-specific care processes associated with improved outcomes. The creation of such measures (see [Supplementary Material](#) for examples) would allow assessment of medical provider adherence to key best practices, allow comparison across providers, provide opportunity for targeted feedback and education, and allow assessment of the value of specific provider models in LTC (Katz, 2015). While work is currently underway to pilot test a large set of internationally relevant practice-based quality measures designed to operationalize the AMDA competencies, more research is needed that will address barriers to widespread collection (Mays et al., 2018).

Finally, it is clear that COVID-19 will continue to change the face of PA-LTC for older adults. Evidence-based changes are urgently needed to ensure the safety of residents not only in the short term but to improve the value of NH-based care in the long term. A prime example relates to how providers can effectively use telemedicine as a scalable and affordable way to enhance the quality of and access to resident care while reducing avoidable hospitalizations and minimizing costs.

Policy Implications

While a variety of medical care models specific to NHs currently exist, none have been rigorously tested to the extent necessary to inform policy change at the national level. More clearly defining the link between medical provider practice in the NH with clinical outcomes, process-based quality measures, and cost is a necessary first step toward affecting health care regulatory and payment policy in the PA-LTC arena. Such information could be provided to consumers and purchasers of NH care. For example, if studies indicate that SNFists are associated with better care for NH patients, Accountable Care Organizations could steer patients to facilities with SNFists, and patients and their families could use the information when selecting NHs. Policy decisions on reimbursement for physician

services provided to NH patients could lead to payment models that further incentivize NHs to use SNFists. Other potentially modifiable aspects of provider practice in NHs could be explored as targets for local interventions (e.g., medical staff reorganization; advanced training in PA-LTC) to improve care delivery.

The broader question remains as to who will constitute the future NH medical provider workforce. Not only are the numbers of primary care family practitioners and internists declining, but even those who enter practice often have little meaningful exposure to long-term care during training (Colwill et al., 2008). The likely decline in the total number of providers devoting their practices to NH care will be exacerbated by a projected deficit of 27,000 geriatricians, physicians with explicit training in PA-LTC, by 2025 (U.S. Department of Health and Human Services, 2017). Challenges with recruitment and retention of physicians, NPs, and PAs in NHs will likely remain until there are systematic changes that recognize serious credibility issues. The so-called “credibility gap” refers to the low credibility/respect that many NH providers feel when compared to their peers (Katz & Pfeil, 2013). Their skillset is often not recognized or appreciated, especially by counterparts in acute care hospitals. Until NHs are seen as critical elements within the health care continuum, the credibility gap will remain.

Supplementary Material

Supplementary data are available at *The Gerontologist* online.

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Conflict of Interest

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