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Policy Research Challenges in Comparing Care Models for Dual-Eligible Beneficiaries

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Abstract

Providing affordable, high quality care for the 10 million persons who are dual eligible beneficiaries of Medicare and Medicaid is an ongoing health care policy challenge in the United States. However, the workforce and the care provided to dual eligible beneficiaries is understudied. The purpose of this paper is to provide a narrative of the challenges and lessons learned from an exploratory study in the use of clinical and administrative data to compare the workforce of two care models that deliver home- and community-based services to dual eligible beneficiaries. The research challenges that the study team encountered were: (a) comparing different care models, (b) standardizing data across care models, and (c) comparing patterns of health care utilization. The methods used to meet these challenges included expert opinion to classify data and summative content analysis to compare and count data. Using descriptive statistics, a summary comparison of the two care models suggested that the coordinated care model workforce provided significantly greater hours of care per recipient than the integrated care model workforce. This likely represented the coordinated care model's focus on providing in home services for one recipient, whereas the integrated care model focused on providing services in a day center with group activities. The lesson learned from this exploratory study is the need for standardized quality

measures across home- and community-based services agencies to determine the workforce that best meets the needs of dual eligible beneficiaries.

Keywords

nursing workforce; Medicaid; Medicare; outcomes (measurement); care coordination; dual eligible beneficiaries

Providing affordable, high quality care for the 10 million people who are dual eligible beneficiaries of Medicare and Medicaid is an ongoing health care policy challenge in the United States (US) (Medicare Payment Advisory Commission, 2016). Entitled to Medicare and eligible for some level of assistance from their state Medicaid program, dual eligible beneficiaries receive fragmented health and behavioral services, often falling through the cracks between the two public programs that finance their health care (Medicare Payment Advisory Commission, 2016; Meyer, 2012; Young, Garfield, Musumeci, Clemans-Cope, & Lawton, 2013; Zainulbhai, Goldberg, Ng, & Montgomery, 2014).

Policymakers and researchers agree that care coordination or care integration could improve the quality of care for dual eligible beneficiaries while generating cost savings for Medicare and Medicaid. For example, a study analyzing published clinical studies of successful approaches in managing chronically ill persons found that care models using care coordination or care integration for dual eligible beneficiaries could save federal and state governments up to \$159 billion over a ten-year period. These savings would accrue primarily by preventing Medicare hospitalizations and Medicaid nursing home admissions (Thorpe, 2011a, 2011b).

Although care models using care coordination or care integration are potential sources of cost savings, the two models are conceptually distinct. Care coordination is the “deliberate organization of patient care activities between two or more participants (including the patient) involved in a patient’s care to facilitate the appropriate delivery of health care services” (McDonald et al., 2014, p. 6). Care integration refers to models of care that integrate acute care, behavioral health and mental health services, and long-term services and supports (Meyer, 2012; Zainulbhai et al., 2014).

As care coordination and care integration differ conceptually, the structure of their workforces may also differ. The workforce of these two models are understudied, though, limiting clear understanding of the workforce that best meets the needs of dual eligible beneficiaries. Therefore, as part of a large research project (herein referred to as the parent study), funded by the National Institute on Aging and the National Institute of Nursing Research, the study team conducted an exploratory study (herein referred to as the exploratory study) to assess whether clinical and administrative data could be used to compare the health care workforce across two home- and community-based care models that provided either care coordination or care integration for dual eligible beneficiaries.

In 2009, at the time the study team initiated this research, health services researchers were just beginning to recognize the potential use of medical records data for analyzing health

care services, and health care systems. Thus, the study team entered into this exploratory study uncertain of what the medical records contained and whether the data could be used to quantify attributes of the workforce for different care models.

The purpose of this article is to provide a narrative of the challenges and lessons learned from research using clinical and administrative data to compare the workforce of two care models that deliver home- and community-based services to dual eligible beneficiaries. These challenges were: (a) comparing different care models, (b) standardizing data across care models, and (c) comparing patterns of health care utilization. Our goal in presenting this narrative is to inform others who may encounter similar challenges during their research of the home- and community-based services workforce that delivers care to dual eligible beneficiaries.

Background

Health care policymakers and researchers focus on dual eligible beneficiaries because the population has disproportionately high health spending compared to the general population. Further, dual eligible beneficiaries are among the sickest and poorest individuals covered by Medicare or Medicaid insurance. In 2011, dual eligible beneficiaries comprised 14 % of Medicaid enrollees, yet accounted for 33% of all Medicaid expenditures for medical services (Centers for Medicare & Medicaid Services, 2016). Similarly, dual-eligible beneficiaries comprised 20% of the Medicare enrollees, yet accounted for 35% of Medicare expenditures (Centers for Medicare & Medicaid Services, 2016).

As one of the sickest and poorest populations, dual eligible beneficiaries are more likely than other Medicare beneficiaries to need help with at least one activity of daily living (i.e. toileting, mobility, dressing, transferring, and feeding self). (Medicare Payment Advisory Commission, 2016). Accordingly, in 2011, nearly half (49%) of dual-eligible beneficiaries received long-term services and supports (Medicare Payment Advisory Commission, 2016), a broad range of services that are intended to maintain quality of life and independence for those unable to perform self-care activities (Commission on Long-Term Care, 2013; Medicare Payment Advisory Commission, 2013; O'Shaughnessy, 2014).

Traditionally, long-term services and supports are delivered in nursing homes. However, with the high costs of institutional care and desire of persons to age in place, legislative and other policy changes have promoted the expansion of long-term services and supports into the community as home- and community-based services (Wenzlow, Eiken, & Sredl, 2016). Reports by the Center for Medicare & Medicaid Services indicate that these same policy and legislative changes may be affecting the care of dual eligible beneficiaries. These reports show that the percent of full benefit dual eligible beneficiaries enrolled in fee for service programs who received home- and community-based services increased from 9% in 2009 to 22% in 2011 (Centers for Medicare & Medicaid Services, 2016).

Although demand for home- and community-based services is increasing, the workforce remains understudied, especially the workforce that delivers long-term services and supports as home- and community-based services to dual eligible beneficiaries (Kaye & Harrington,

2015). For example, a search of PubMed, using the search terms of “dual eligible” AND (“manpower” OR “workforce”) did not return any titles. To promote such a study, home- and community-based services organizations that participated in the parent study opened their clinical and administrative databases to the study team. Uncertain of what the medical records contained and whether the data could be used to analyze attributes of the care models’ workforce, the study team conducted an exploratory study. The purpose of this paper is to present a narrative of the lessons learned during this exploratory study to illustrate the challenges in conducting policy research across home- and community-based care models.

Parent and Exploratory Studies

The parent study, funded by the National Institute on Aging and National Institute of Nursing Research, entitled Health Related Quality of Life: Elders in Long Term Care Study (HRQoL) (Naylor et al., 2015; Zubritsky et al., 2013) has been described in detail elsewhere (Naylor et al., 2016). In brief, the parent study assessed changes in multiple health-related quality of life domains over a two year period among 470 older adults newly enrolled in long-term services and supports living in nursing homes, assisted living facilities, or in home- and community-based settings. In the parent study, researchers found that, overall, health-related quality of life ratings significantly decreased over time. Researchers also found that quality of life ratings were highest among participants who at baseline resided in assisted living facilities, followed by participants in nursing homes, when compared to participants in home- and community-based settings (Naylor et al., 2016).

The exploratory study was conducted between 2009 and 2013 in the northeastern United States. The data for the nursing workforce were collected between June 2009 and October 2010. After receipt of funding to extend the study, the data for other health team members were collected between December 2011 and May 2013. Between June 2009 and October 2010, during the nursing workforce data collection, the study’s principal investigator (PI) was a post-doctoral fellow. After October 2010, during the non-nursing data collection, the PI was clinical assistant professor at a different institution. Thus, the study underwent and received Institutional Review Board approval at two sites, University of Pennsylvania, and New York University, as well as the two home- and community-based agencies that housed the data.

The exploratory study of the home- and community-based services workforce evolved from an exploratory aim of the parent study - to explore the relationships among selected organizational characteristics of the long-term services and supports delivery option, structural features of the physical environment, and changes in the multiple health related quality of life domains. Recognizing the exploratory nature of the study, the team limited the population to a subset of participants enrolled in the parent study. This subset consisted of 49 recipients of home- and community-based care (coordinated care: the first 31 enrolled in the parent study; integrated care: 18 persons enrolled in the parent study). The population for the exploratory study was newly enrolled into home- and community-based services between April 2007 and September 2008.

To guide the exploratory study, the study team used Donabedian's classic framework on assessment of quality (Donabedian, 1988). Donabedian proposed that quality of care should be measured using the constructs "structure," "process," and "outcome." For the exploratory study, structure was conceptualized as attributes of the health care setting in terms of the delivery of care by the provider workforce, and operationalized as hours of care by specific type of clinician (i.e., physician, nursing, nurse practitioners, social work, ancillary therapists, and health aide providing personal services). Process of care was conceptualized as the giving and receiving of health care, and operationalized as type of care (i.e., direct care or care coordination). Outcome was conceptualized as the value of health care, defined as health outcomes achieved per dollar spent (Porter, 2010), and operationalized as health care utilization and cost of care associated with each care model.

The data were extracted from two home- and community-based services organizations that used different care models: the coordinated care model and integrated care model. All data for the exploratory study were extracted from clinical and administrative databases of each care model. To capture the typical care received over one week, the study team extracted workforce data from encounters over one week at 5, 17, and 29 weeks after enrollment in home- and community-based services. First, the PI extracted nursing workforce data from the coordinated care model. Next, the PI extracted nursing workforce data from the integrated care model. These data were recorded onto scan forms and uploaded to SPSS data files using Verity® TeleForm®.

After receiving additional funding to extend the study, the PI collected non-nursing workforce data from the coordinated and integrated care organizations. For the coordinated care model, the PI extracted non-nursing workforce, baseline functional status, chronic conditions, and health care utilization data. These additional data were recorded in Microsoft Excel and stored on an encrypted, password-protected device. For the integrated care model, the PI no longer had access to the clinical and administrative databases after her fellowship. Therefore, the PI contracted with the integrated care model's personnel to extract and de-identify non-nursing workforce, baseline functional performance, chronic conditions, and health care utilization data. The study PI reviewed the quality of the de-identified data with the agency personnel, and, then, recorded the data in Microsoft Excel files on an encrypted, password-protected device.

Research Challenges

The study team encountered three major research challenges: (a) comparing different care models, (b) standardizing data across care models, and (c) comparing patterns of health care utilization. The following section presents a description of each challenge and the study team's actions in responses to these challenges.

Challenge 1: Comparing Different Care Models

One of the major challenges during this exploratory work was identifying appropriate methods to compare two different care models. The two care models for this study, the coordinated care model and integrated care model, were based on different conceptual

frameworks. The study team learned that these differences were also reflected in the care models' organizational structure and the services provided to their patients.

The coordinated care model combined a managed Medicaid program with fee for service Medicare services. To operationalize this model, the coordinated care model contracted with a broad network of health care professionals to provide essential care management and home-based nursing and personal care services (Nadash, 2004). Nurse consultants coordinated patients' care across all health care settings, including transitions between sites. The patients who received home- and community-based services through the coordinated care model were nursing home eligible adults ages 65 and older.

The integrated care model was as a Program of All-Inclusive Care for the Elderly (PACE) program. The integrated care model enrolled nursing home eligible persons who met dual eligibility for Medicare and Medicaid coverage. Originating in San Francisco in 1971, PACE is a community-managed care model that integrates acute and chronic care for frail, chronically ill older adults to prevent or delay nursing home placement (Eng, Pedulla, Eleazer, McCann, & Fox, 1997; Friedman, Steinwachs, Temkin-Greener, & Mukamel, 2006). The structure for PACE programs is a socio-medical model that consists of a recreation day center integrated with the full-service health clinic. Members who enroll meet nursing home level of care and can live in the community safely. Members agree to remain in the program for the long term and only use PACE approved team members. Based on the PACE model, the integrated care model combined primary care, acute care, long-term care, medications, emergency care, hospitalizations, rehabilitation, and skilled or respite care services as needed. Payment for the integrated care model was capitated, meaning that payment was a set fee per member that covered both Medicare- and Medicaid-covered acute and long-term care services. The integrated care model employed an interprofessional team to deliver home- and community-based services. The team included health aides who assisted with personal care needs of members participating in the program's day center. Primary care services were provided largely by nurse practitioners with a physician medical director in a clinic located in the integrated care model's day center. Other members of the interprofessional team provided services such as mental health, nutritional support, rehabilitation, and recreation therapies. Although the integrated care model primarily delivered care in the day center, it also included visits to the patients enrolled in the PACE Program.

The differences between the two care models were reflected in the type and structure of the clinical and administrative data available for analysis. As a managed Medicaid program with fee for service Medicare services, the coordinated care model's records consisted of both narrative notes and the amount of time that each team member spent providing care for each patient. In contrast, the integrated care model's clinical and administrative records primarily consisted of interprofessional team members' narrative notes in which team members communicated to each other about the care provided to patients. As a capitated program with a set fee per person, the integrated care model did not record the amount of time that each team member spent providing care for each patient for billing purposes.

To compare the workforce across the different care models, the study team combined the data from the two care models' clinical and administrative data sets. Published literature provides evidence that researchers can combine data from extant data sets to investigate an over-arching phenomenon, such as the workforce caring for dual eligible beneficiaries, that may be difficult to answer in randomized clinical trials (Smith & Glass, 1977; The Cochrane Collaboration, 2011; Van Cleave, Egleston, Bourbonniere, & McCorkle, 2011). However, to combine the data, researchers must standardize the data across the data sets (Kiecolt & Nathan, 1985).

Challenge 2: Standardizing Data across Care Models

After collecting data for the coordinated care model, the study team began collecting data for the integrated care model. At this time, the study team recognized the lack of standardized data across care models. Thus, the researchers created methods to standardize the data across care models. To create these methods, the study team consulted the literature. The study team found published methods on using expert opinion to convert qualitative to quantitative data (Smith & Glass, 1977) and summative content analysis to compare and count data (Hsieh & Shannon, 2005). Thus, the study team used expert opinion to standardize the data across care models, then summed the data for comparison across the two models. The procedures are described below.

Recipients data.—The study team found that forms for baseline assessment of recipients' functional performance differed between the two care models. Using expert opinion, the study team identified common assessment items across the forms, and collapsed the coordinated care model assessment to match the integrated care model assessment. Ultimately, the functional performance assessment data were coded as follows: independence = 0, requires assistance = 1, and dependence in activities = 2. These scores were summed, with higher scores representing increased need for assistance with basic activities of daily living (toileting, mobility, dressing, transferring, and feeding self).

The study team also found differences in recipients' baseline assessment of chronic conditions across the care models. The coordinated care model's baseline assessment form limited the number of chronic conditions that could be documented. In contrast, the integrated care program enrollment form had space to record all chronic conditions of each study participant. To combine the data, the study team assumed that the most clinically relevant chronic conditions were recorded for the coordinated care model. The Charlson Comorbidity Score (Charlson, Pompei, Ales, & MacKenzie, 1987), a standard measure of comorbidity (Austin, Wong, Uzzo, Beck, & Egleston, 2015), was used to represent disease burden. The Charlson Score was calculated based on selected chronic conditions using integer weights from one to six with a weight of 6 representing the most severe condition (Charlson, Pompei, Ales, & MacKenzie, 1987).

Hours of Care Provided by the Workforce.—To standardize the hours of care provided by the integrated care's workforce, the study team worked closely with the experts from the integrated care model. Together, the study team and the integrated care model experts constructed the rule that members who attended the senior center received on

average 90 minutes of health aide time per visit. This rule was based on the daily average number of health aide hours per average number of members attending the center.

Type of Care Delivered by the Workforce.—The study team first collected data from the coordinated care model's clinical and administrative data, which classified the type of care delivered as direct care or coordinated care. This classification showed that the direct care was delivered in person. In contrast, coordinated activities consisted of actions such as telephone calls to arrange for delivery of supplies or meetings to coordinate transfers of care across services. To standardize the integrated care model data, the team used this conceptual depiction of direct or coordinated care to classify the type of care.

Challenge 3: Comparing Patterns of Health Care Utilization

The conceptual and organizational differences were also reflected in variations of health care utilization. The study team collected data on hospitalizations and nursing home stays as these events represent transition of health and health care (Van Cleave et al., 2013). For the coordinated care model data, the PI collected hospitalization and nursing home stays from the clinical and administrative data. For the integrated care model, similar to the non-nursing workforce data, the PI contracted with the integrated care model's personnel to provide hospitalization and short-term nursing home data. After collecting and analyzing health care utilization data, the study team found that the patterns of use of hospitalizations and nursing home stays differed between the two care models.

The study team learned that, as in the patterns of health care utilization, the estimates of the cost of care, either to the care model or to the federal agency financing the care, would also likely vary across care models, introducing unintentional bias into analyses. These variations of cost estimates arise from multiple causes, including geographic variations of wages and each organization's accounting procedures (Diehr, Yanez, Ash, Hornbrook, & Lin, 1999). To prevent introducing bias due to variations in cost estimates, some researchers may use a relative value approach to standardize cost of health care utilization across organizations (Diehr et al., 1999), such as federal estimates of hourly wages per occupation. Because of the differences in healthcare utilization between the two models and small study population, the study team used the hours of care provided by the workforce for each care model for a summary comparison of care models.

A Summary Comparison of Care Models

Descriptive statistics were used to analyze and compare data from the two care models (see Table 1). This comparison showed that the coordinated care model and the integrated care model study recipients differed in education, race, and ethnicity, reflecting the diversity of the general population of dual eligible beneficiaries. The coordinated care model recipients were less educated than the integrated care model recipients (coordinated care: mean = 9 years of education + 4 SD; integrated care: mean = 11 years of education + 3 SD). Additionally, the coordinated care model recipients were mixed racially and included Hispanic ethnicity, whereas the integrated care model recipients were primarily black (coordinated care = white 39%, black 35%, other 23%; integrated care = black 89%, other 11%).

Workforce Hours of Care.—A comparison of the total hours of care provided by the workforce for each care model found that the coordinated care model workforce provided significantly more hours of care per recipient per week than the integrated care model (see Table 2). This likely reflected the emphasis of the coordinated care model on services for one person within the home, whereas the integrated care model emphasized services within a day center and group activities. To analyze whether function or comorbidity accounted for some of the differences of hours of care between the two models, we used a generalized linear modeling regression analysis (Gamma family with log link) using Generalized Estimating Equations (GEE) to control for age, education, race, ethnicity, gender, functional performance, and Charlson score. We used GEE to account for having examined hours worked in one week increments at 5, 17, and 29 weeks after enrollment in long-term services and supports for each recipient. We also controlled for bias introduced by heterogeneity in function by removing from the analysis seven recipients who had missing data (coordinated care = 1, integrated care = 6). Our findings demonstrated again that the coordinated care workforce provided significantly more hours of care per recipient per week than the integrated care workforce (Relative Ratio (RR) = 4.0, 95% Confidence Interval 2.85 to 5.5, $p < .001$).

For both models of care, health aides, defined as unlicensed personal care workers, delivered the majority of care hours to recipients (coordinated care: 19.84 of 21.01 hours per recipient per week, 94% of total hours of care; integrated care: 4.06 of 4.73 hours per recipient per week, 86% of total hours of care) (see Table 2). Registered nurses and nurse practitioners were the next most frequent providers of care (coordinated care: 0.72 of 21.01 hours per recipient per week, 3% of total hours of care; integrated care: 0.52 of 4.73 hours per recipient per week, 11% of total hours of care).

Type of care.—Staff in the two care models delivered a total of 960 visits from encounters over one week at 5, 17, and 29 weeks after enrollment in home- and community-based services (coordinated care = 736; integrated care = 224). Among these 960 visits with recipients, 72% (692 of 960) were for direct care and 28% (268 of 960) were for coordinated care. In terms of number of visits, the coordinated care model delivered significantly greater number of visits than the integrated care model (coordinated care: mean = 7.9 ± 3.5 visits per recipient per week, integrated care: mean = 4.1 ± 3.0 visits per recipient per week, $t = -3.8$, $p < .001$). However, as indicated by the large standard deviations, there was great variation in the number of visits among recipients in both care models (coordinated care range = 9 to 66 visits across the study period; integrated care range = 3 to 36 total visits during the study period). The coordinated care model also delivered significantly greater number of coordinated care visits than the integrated care model (coordinated care: mean = 2.7 ± 3.5 visits per recipient per week, integrated care: mean = $.3 \pm .5$ visits per recipient per week, $t = -2.8$, $p < .01$), and greater number of direct care visits (coordinated care: mean = 5.2 ± 1.7 visits per recipient per week; integrated care: mean = 3.8 ± 2.9 visits per recipient per week, $t = -2.1$, $p < .05$).

Hospitalizations or Short Term Stays.—Across the two care models. There were six hospitalizations or short-term stays throughout the study period (see Table 1). In the

coordinated care model, two recipients had a total of three hospitalizations; none of the recipients of coordinated care experienced short-term stays in a respite or a skilled nursing facility care. In the integrated care program, three recipients experienced one hospitalization and two short-term stays for respite or skilled nursing facility services.

Discussion

The purpose of our exploratory work was to investigate whether clinical and administrative data could be used to analyze the workforce of two care models for dual eligible beneficiaries. We learned that the two care models' clinical and administrative data sets were fundamentally different in data type and structure. Although the study team created methods based on published literature to standardize the data across care models, conclusions from this exploratory research work are limited due to the lack of standardized measures used by both of the care models. Thus, the lesson learned from this exploratory study is the need for the implementation of standardized quality measures across care models providing home- and community-based services to determine the workforce that best meets the needs of dual eligible beneficiaries.

At the onset of this exploratory study, researchers were beginning to recognize that use of existing medical record data could be an efficient way to conduct clinical studies, especially in hard-to-reach populations such as dual eligible beneficiaries (Kiecolt & Nathan, 1985). Implementation of the Health Information Technology for Economic and Clinical Health (HITECH) Act (U. S. Department of Health and Human Services, 2010a) and the Patient Protection and Affordable Care Act (U. S. Patient Protection and Affordable Care Act, 2010) were accelerating the adoption of health care technology. However, as demonstrated in this exploratory study, there are barriers to the use of existing medical record data to compare care models across home- and community-based services care models. For example, sophistication of medical records varies across home- and community-based services care models. Moreover, long-term services and supports organizations lack standardized measures that reflect changes in quality of care delivery over time that could be embedded in medical records (Zainulbhai et al., 2014). For example, measures are needed to identify the dual eligible beneficiaries that most benefit from home- and community-based services delivered in the home and the dual eligible beneficiaries that most benefit from home- and community-based services delivered through a day center.

Opportunities exist to advance standardization of measures to assess quality of care for dual eligible beneficiaries. For example, under Section 3021 of the Patient Protection and Affordable Care Act (U. S. Patient Protection and Affordable Care Act, 2010), the Centers for Medicare & Medicaid (CMS), through its Medicare-Medicaid Coordination Office, funded demonstration projects to improve care and control costs for dual eligible beneficiaries (Meyer, 2012; Musumeci, 2015). By March, 2016, 13 states signed agreements to conduct demonstration projects. Ten of the 13 states agreed to test capitated models that provide the full range of Medicare and Medicaid benefits to enrollees. Two states agreed to test fee for service models that provide care coordination. One state agreed to test an alternative model that integrates the administrative functions (i.e. care delivery) without financial alignment (Medicare Payment Advisory Commission, 2016; Musumeci, 2015). In

January, 2017, the Centers for Medicare & Medicaid Services provided an opportunity for three states with current end dates of December 31, 2018 to extend the projects until December 31, 2020 (Centers for Medicare & Medicaid Services, 2017) Although these demonstration projects provide an important opportunity to analyze the quality of care for dual eligible beneficiaries, conclusions from these projects may be limited unless standardized measures are used across the care models (Medicare Payment Advisory Commission, 2016).

Strengths and Limitations

The strengths and limitations of this exploratory study emanate from conducting research in the real world setting of care models for dual eligible beneficiaries. The challenges to this research included comparing different care models, standardizing data across care models, and comparing patterns of health care utilization. Further, this study took place during a dynamic time with rapid changes in health care technology. For example, the integrated care model transitioned from paper records to electronic health records during the study period, which increased the amount and improved the quality of the data available for the analyses. Recognizing these challenges, the study team consulted the literature and worked closely with each care model's personnel to collect data that best represented the workforce that cares for the dual eligible beneficiaries. Personnel from both care models were available to answer questions by email or in person on a daily basis during data collection.

Practice Implications

Our findings point to the central role of health aides in providing home- and community – based services in both the coordinated and integrated care models. Health aides comprise a low wage, high school educated workforce (Sengupta, Ejaz, & Harris-Kojetin, 2012), yet perform the most personal tasks that help dual eligible beneficiaries remain in their homes. These tasks include bathing, transferring, shopping, housework, and preparing meals. Moreover, in some instances, the health aides are trained to manage medications. Health aides also handle challenging situations, such as caring for patients with dementia in the home, isolated from other care team members (IOM (Institute of Medicine) and NRC (National Research Council), 2015). Because of the challenging nature of the work, the amount of training that adequately prepares health aides is controversial. Federal regulations require that home health aides who work for Medicare and Medicaid certified providers complete at least 75 hours of supervised practical training, pass a competency test of 12 subject areas on the basic care of patients, and undergo 12 hours of in-service training every 12 months (IOM (Institute of Medicine), 2008; U. S. Department of Health and Human Services, 2010b). Despite these federal regulations, training hours of health aides vary across states. Thirty-three states and the District of Columbia require the federal minimum standards of 75 hours, whereas one state requires 140 hours (Paraprofessional Healthcare Institute, 2017). In the Institute of Medicine report entitled “Retooling for an Aging America: Building the Health Care Workforce,” the authors recommended that minimum training should be increased to at least 120 hours and include demonstration of competence (IOM (Institute of Medicine), 2008).

Research Implications

Although demand for home- and community-based services is rising, the care models that meet the needs and desires of dual eligible beneficiaries is unclear. For example, the dual eligible beneficiaries that most benefit from care delivered in a day center remains understudied and largely unknown. The increasing use of electronic health records and of clinical and administrative data enhances the feasibility of large-scale research in the quality of care provided by differing models of home- and community-based services (Commission on Long-Term Care, 2013; Institute of Medicine (IOM), 2013). However, before large-scale research projects can provide definitive answers, researchers will need to identify key standardized quality measures that accurately track changes in quality and performance over time and that can be implemented across care models (Zainulbhai et al., 2014). Some measures, such as data from the Home Health Care CAHPS survey, already exist (Home Health Care CAHPS Survey, 2016). Yet, it is unclear whether these measures adequately assess the quality of the care provided in home- and community-based services care models that serve dual eligible beneficiaries. A critical component to establishing standardized quality measures will be the engagement of patients, family caregivers, clinicians, researchers, and key policymakers who are experts in the services that are required to meet the needs of the dual eligible beneficiaries.

To identify the services that best meet the needs of the dual eligible beneficiaries, large-scale studies, such as demonstration projects, will likely need to include statistical adjustments for demographic variations across the different care models to generate valid findings. In our study, we controlled for these variations by including the demographic variables in an analytical model. In larger studies, researchers may want to consider using matching methods, such as propensity scoring, to statistically control for demographic variations (Stuart, 2010).

Policy Implications

Federal and state politics and policies will figure prominently in advancing the quality of care for dual eligible beneficiaries. As a result of the 2016 United States election, transitions in government at local, state, and national levels are creating uncertainty about potential changes in health policy (Sullivan-Marx, 2017). These changes may lead to new laws that impact the dual eligible beneficiaries. For example, in May, 2017, the U. S. House of Representatives passed the American Health Care Act (U. S. American Health Care Act of 2017, 2017), which includes changes to Medicaid funding. Under the Patient Protection and Affordable Care Act (U. S. Patient Protection and Affordable Care Act. 2010), the number of persons insured by Medicaid increased through an option for states to expand eligibility for Medicaid to include adults with incomes up to 133% of the poverty level. To cover the cost to states of the Medicaid expansion, the Patient Protection and Affordable Care Act established federal government financing for 100% of the costs of persons who became eligible for Medicaid between 2014 and 2016. After 2016, this federal funding decreases each year to 90% by 2020 (The Henry J. Kaiser Family Foundation, 2017).

In contrast, the American Health Care Act proposes to convert federal Medicaid funding to a per capita allotment, limiting growth beginning in 2020, using 2016 as a base year. In

addition, the American Health Care Act proposes to reduce matching fund rates for Medicaid home- and community-based attendant services and supports (The Henry J. Kaiser Family Foundation, 2017; U. S. American Health Care Act of 2017, 2017). At the time of publication, the Senate was still deliberating its health care reform bill. No matter what changes occur in health care policy, the development of standardized quality measures remains critically important to identify the care models that best match the needs of dual eligible beneficiaries.

Nursing Education Implications

Nursing plays a key role in providing care for dual eligible beneficiaries. This role requires leadership skills in managing personnel, developing customized care plans, coordinating care across providers and settings, and overseeing the adequacy of services in alternative payment plans, such as integrated care models or accountable care organizations (Fraher, Spetz, & Naylor, 2015). To adequately fulfill this role, nurses will need to practice to the full extent of their education and training (Institute of Medicine (IOM), 2011). Further, nursing leaders will need to consider new educational curricula to prepare nurses to lead interprofessional teams and implement quality measures to guide the delivery of high value health care for dual eligible beneficiaries. Nursing professional organizations, such as the National League for Nursing, American Academy of Nursing, and the American Association of Colleges of Nursing, in collaboration with key stakeholders such as AARP, will have a critical role in advancing these changes.

Conclusion

In summary, we provide a narrative of the challenges and lessons learned from research using clinical and administrative data to compare two care models that deliver home- and community-based services to dual eligible beneficiaries. The challenges to this research include (a) comparing different care models, (b) standardizing data across care models, and (c) comparing patterns of health care utilization. The lesson learned from this exploratory study is the need for the implementation of standardized quality measures across home- and community-based services agencies to determine the workforce that best meets the needs of dual eligible beneficiaries. Federal and state politics and policies will figure prominently in advancing the quality of care for dual eligible beneficiaries. However, transitions in government at the local, state, and national levels are creating uncertainty about potential changes in health policy. No matter what changes occur, nursing will play a key role in providing care for dual eligible beneficiaries. To fulfill this role, educational systems and lifelong career development programs are necessary to enhance nurses' skills in leading interprofessional teams and implementing quality measures to ensure the delivery of high value health care for dual eligible beneficiaries.

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Table 1.

Demographic Characteristics of the Coordinated Care and Integrated Care Models *

	Coordinated Care (n=31)	Integrated Care (n=18)
	Mean + SD	Mean + SD
Age (years)	79 ± 7 SD	80 ± 9 SD
Education (years)	9 ± 4 SD	11 ± 3 SD
	N(%)	N (%)
Gender		
Female	22(71)	13(72)
Male	9(29)	5(28)
Race		
White	12 (39)	-
Black	11 (35)	16 (89)
Other	7 (23)	2 (11)
Hispanic		
Yes	18 (58)	-
No	13 (42)	18 (100)
Marital status		
Single (Never Married)	5 (16)	-
Married	5 (16)	2 (11)
Widowed	11 (35)	10 (56)
Divorced	5 (16)	4 (22)
Separated	5 (16)	2 (11)
Total household income from year before enrollment in home- and community-based care models		
0 - \$9,999	13 (42)	6 (33)
\$10,000 - \$19,999	12 (39)	3 (17)
\$20,000 - \$29,999	-	1 (06)
\$30,000 - \$39,999	1 (03)	-
\$40,000 - \$49,999	1 (03)	-
Unknown	4 (13)	8 (44)
	Mean + SD	Mean + SD
Functional performance ¹	4.23 ± 1.0	3.67 ± 3.2
Charlson comorbidity score ²	1.00 ± 1.0	1.33 ± 1.4
Total hours of care per participant per week	21.01 ± 12.6	4.73 ± 6.4

	Coordinated Care (n=31)	Integrated Care (n=18)
	Mean + SD	Mean + SD
Type of care		
Total number of coordinated care visits per participant per week	2.7 ± 3.5	.3 ± .5
Total number of direct care visits per participant per week	5.2 ± 1.7	3.8 ± 2.9
Health care utilization		
Hospitalization	3	1
Respite stay	0	1
Skilled nursing facility	0	1

* Numbers in parentheses are percentages

¹ Higher scores represent increased need for assistance with basic activities of daily living (e.g., toileting, mobility, dressing, transferring, and feeding self).

² Charlson Comorbidity Score, a standard measure of comorbidity, calculated based on selected chronic conditions using integer weights from one to six with a weight of 6 representing the most severe condition (Charlson, Pompei, Ales, & MacKenzie, 1987)

Table 2.

Average Weekly Number of Hours of Care Provided by Type of Provider for Recipients in the Coordinated Care and Integrated Care Models^a

	Coordinated Care Model (N=31) Hours (Percent of total hours of care provided by providers for the coordinated care model)	Integrated Care Model (N=18) Hours (Percent of total hours of care provided by providers for the integrated care model)
Health aide	19.84(94)	4.06(86)
Nurse practitioner	<.01(<1)	.29(6)
Registered nurse	.72(3)	.23(5)
Case manager	.13(1)	.03(1)
Occupational therapist		.03(1)
Physician	.04(<1)	.01(<1)
Licensed practical nurse	.01(<1)	.04(<1)
Social worker	.09(<1)	.01(<1)
Physical therapist	.15(1)	.01(<1)
Recreational therapist	-	.02(<1)
Pharmacist	<.01(<1)	-
Nutrition	<.01(<1)	-
Office personnel	.03(<1)	.01(<1)
Total hours of care/week	21.01	4.73

^aNumbers in parentheses are percentages