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Defining a Long-term Care Workforce Shortage Designation: A Conceptual Approach

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Introduction

The aging of the US population is a well-documented phenomenon. In just 7 years, an estimated 73 million Americans will be aged 65 and over, equal to 21% of the population.[1] Aging is associated with increased consumption of health care, and more specifically, long-term care services and supports (LTSS). The direct care workforce includes many categories of health care workers who provide LTSS (see Table 1 for which professions and occupations were included for this research brief). This workforce is estimated to add more than 1.3 million jobs between 2018-2028.[2] However, it is not clear that this job growth will be sufficient to meet the demand. Moreover, it is likely that growth of the direct care workforce will occur unevenly across geographic areas.

The literature that addresses the issue of long-term care (LTC) workforce shortages is limited, and what exists generally lacks the specificity that could translate into policy actions and funding to address workforce needs.[3] Moreover, direct care workforce analysis tends to focus on the national level, which limits its usability for policy makers at the local level. In this research brief, we describe a conceptual approach to constructing a LTC workforce shortage designation, similar in scope to existing Health Resources and Services Administration (HRSA) health professional shortage area (HPSA) designations (eg, the Primary Care HPSA). We review the data-related challenges and describe methods to address them. We propose a series of quantitative indicators that could be used to identify geographic areas with a potential LTC workforce shortage, and help local stakeholders assess their LTC workforce needs.

Methods: Model Components and Data Sources

There are two principal components to defining a potential LTC workforce shortage: estimating the size of the population that needs (or may need) LTC services and estimating the size of the LTC workforce. Our objective is to describe these components in sufficient detail at the most local level of geography possible. The main challenge is that all available data sources have limitations.

There are several high-quality surveys that collect data that can be used to estimate population demand for different types of LTC services, or characteristics of the population that has used (or will likely need) LTC services. These include the National Health and Aging Trends Study (NHATS),[4] the National Post-acute and Long-term Care Study (NPALS),[5] the Medicare Current Beneficiary Survey (MCBS),[6] the Health and Retirement Study (HRS),[7] the Medical Expenditure Panel Survey (MEPS),[8] and the Behavioral Risk Factor Surveillance System (BRFSS).[9] However, these surveys are designed to produce national-level estimates (or in some cases, state-level estimates). Use of these data would involve estimating parameters at the national (or state level, if possible) and then applying those estimates to a local population. For example, one could estimate the per capita rate of LTC services utilization at the national level, adjusted for population demographics,[10] and then apply this estimate to the characteristics of a local population. One could also estimate the share of persons aged 65 or older with a self-care disability at the national level and then apply this estimate to a local population, based on its demographic composition. This approach would rely on the assumption that rates of LTC utilization, or rates of disabilities that require LTC services and supports, are consistent across geographic areas.

Identifying and estimating the size of the local LTC workforce is also difficult, as there are few data sources that include detailed information about both occupation and employment setting. The Bureau of Labor Statistics (BLS), Occupational Employment and Wage Statistics (OEWS)[11] program is an important source for occupational employment and wage data, but it produces cross-industry occupational estimates only at the national or state levels.[12,13] The BLS Quarterly Census of Employment and Wages (QCEW)[14] is an excellent source for detailed industry employment and wage estimates, but it does not include occupational information. The Current Population Survey (CPS)[15] collects information about a person's occupation and its employment setting, but the CPS is designed to produce national level estimates only.

Given these challenges, we propose using the American Community Survey (ACS),[16] 5-year Public Use Microdata Sample (PUMS)[17] as the source for the different quantitative indicators of a potential LTC workforce shortage.[18] The ACS 5-year PUMS file has several strengths. First, it allows users to produce estimates specific to their local geographic area. The ACS is also a population-wide source of data, and it captures information about potential need for LTC services across the entire adult population, not just those aged 65 and older. There is also an ease-of-use benefit because the ACS is a single data source that contains information needed for both principal components of a LTC workforce shortage designation (the population of consumers of LTC services and persons employed in the LTC workforce). Finally, the ACS includes other data elements that can be used to develop additional indicators of an LTC workforce shortage, which we describe in the next section. A weakness of using the ACS 5-year PUMS file is that it is less current. Estimates derived from the ACS 5-year represent an average over the entire reference period, as compared with an estimate that represents the current year (or most recent year available). However, we propose using the ACS 5-year file, rather than a single year file, to ensure a reasonable sample size for generating estimates at the local geographic level. We think that the ability to produce estimates at more local levels, in this context, outweighs the downside of relying on information derived from multiple years of pooled data.

Defining Need for LTC Services

In our conceptual model of a LTC workforce shortage designation, the principal measure of demand for LTC services is the share of the local population identified as having a self-care disability or being unable to live independently.[19] Self-care refers to one's ability to dress or bathe oneself, while independent living refers to one's ability to perform important acts of daily living such as visiting a doctor's office or running errands alone. The ACS also captures information about other types of disability, and in our model, we propose measuring the share of older adults in the local population who report issues with cognition or ambulation (exclusive of those reporting a self-care disability or the inability to live independently) as indicators of potential need for LTC. Other measures of the potential need for LTC services that could be used as part of a shortage designation include the share of older adults in the local population who live alone, or who live in poverty, as these conditions may be predictors of the eventual need for LTC services.[20]

Defining the LTC Workforce

Our proposed approach is to define the local LTC workforce broadly and include all types of occupations that could reasonably be presumed to provide caregiving services within an employment setting typically recognized as LTC-related. These settings are *home health care*, *skilled nursing facilities*, *residential care communities*, *individual and family services*, and *private households*. Because we are proposing to focus, to the extent possible, on local conditions, it is not feasible to analyze employment levels for individual occupations within the LTC workforce; the sample sizes would be too small to generate useful estimates. The lack of specificity is a significant limitation, but having at least a broad indicator would be helpful for local stakeholders, who could follow up with more targeted efforts to understand which occupations are considered by local employers to be difficult to recruit, or difficult to retain.

Although we propose defining the LTC workforce broadly, it is important to acknowledge that in the ACS PUMS data, the employment settings we associate with LTC include services that are not LTC-related. For example, *individual and family services* encompasses several different employment settings, including *services for the elderly and persons with disabilities*. It also includes *child and youth services*, and other activities focused on social assistance that are outside the scope of LTC. Similarly, the *residential care communities* category covers multiple employment settings that include *continuing care retirement communities*, *assisted living facilities for the elderly*, and *residential developmental disability facilities*. It also includes settings associated with substance abuse and mental health facilities. However, we believe that a deliberate selection of occupations, based on the employment setting, can limit the inclusion of persons who are not providing LTC services.

Table 1 details the LTC employment settings and the occupations within each setting that we consider to be part of the LTC workforce. To help determine whether an occupation could reasonably be presumed to provide caregiver services within each setting, we referred to the Industry-Specific Occupational Employment and Wage Estimates data produced by the Bureau of Labor Statistics.[12] These BLS data provide estimates of occupational employment within specific industry settings.

Table 1. Proposed LTC Workforce by Employment Setting and Occupation

	Employment Setting				
Occupation	Home health care	Skilled nursing facilities	Residential care communities	Individual & family services	Private households
Home health aide	x	x	x	x	x
Personal care aide	x	x	x	x	x
Certified nursing asst	x	x	x	x	x
Occupational therapy asst/aide	x	x	x	x	x
Physical therapy asst/aide	x	x	x	x	x
Medical assistants	x	x	x	x	x
Occupational therapists	x	x	x	x	x
Physical therapists	x	x	x	x	x
Recreational therapists	x	x	x	x	
Respiratory therapists	x	x	x	x	x
Speech language pathologists	x	x	x		
Registered nurse	x	x	x	x	x
Nurse practitioner	x	x	x	x	x
Physician	x	x	x	x	
Licensed practical nurse	x	x	x	x	x
Rehabilitation counselors	x	x	x	x	x
Health care social workers	x	x	x	x	x

Defining Geographic Area

The smallest unit of geography available in the ACS PUMS data is the Public Use Microdata Area (PUMA), which is specifically designed for the dissemination of PUMS data.[18] According to Census Bureau standards, PUMAs must contain a population of at least 100,000 people.[21] In counties that contain a large metropolitan core, there may be several unique PUMAs defined within that county. However, in counties with less population density, a single PUMA may encompass multiple counties to meet the Census Bureau's population threshold standard.

In addition to the PUMA, which identifies a person's place of residence, the ACS PUMS data include an analog designation called the place-of-work PUMA, which identifies a person's geographic place of work. However, the place-of-work PUMA is available only for persons who reported current employment, and that they were at work during the survey reference period. This means that geographic place of work information is missing for employed persons who were temporarily absent from their job or who are not in the workforce during the survey reference period.

For this reason, we propose using the place-of-residence PUMA as the geographic unit of analysis for defining a LTC workforce shortage designation.[21] There is some potential loss of information by not using the place-of-work PUMA, given the possibility that individuals may commute to a place of employment outside of the borders of the PUMA in which they live. However, we theorize that the effect of such cases is likely to be small, given that PUMAs and place-of-work are highly correlated.[22] In

cases where the geographic boundaries of a place-of-residence PUMA includes an entire county, or more than one county (as is common in rural areas), they are identical to the corresponding place-of-work PUMA; otherwise a place-of-residence PUMA forms a subdivision of the corresponding place-of-work PUMA, which itself is contiguous with the boundaries of a specific county.

Additional Data Considerations

A needs assessment of local conditions would also benefit from information about the presence of LTC-providing entities, including how many there are locally and the category of care they provide (eg, skilled nursing, home health, residential care, community-based adult day care programs (with or without health care provision). These types of entities are generally licensed and regulated by one or more state agencies, which should have up-to-date records that are publicly accessible.

Assessing and Evaluating a LTC Workforce Shortage Designation

We recommend the following data indicators be used as the basis for a LTC workforce shortage designation. These data would be evaluated and scored by a funding agency (eg, HRSA) as a first step toward investing resources to support local efforts to recruit and retain needed professionals within the LTC workforce. As noted, the recommended measures are only broadly indicative that the local LTC workforce is not sufficient to meet demand. Scoring by a funding agency could trigger an initial allocation of resources to support a LTC workforce local needs assessment, undertaken by local stakeholders. The results of the needs assessment could lead to additional resources to support specific LTC workforce development objectives.

To summarize, here are the proposed measures that can be calculated using the ACS 5-year PUMS data:

- LTC workforce per population ratio – LTC workforce defined as described above.
- Self-care disability + independent living disability per population ratio – disability population defined as described above.
- Share of adults aged 65 or older in population that report a cognitive disability or an ambulatory disability – this measure would be exclusive of persons already identified by the measure of self-care and independent living disability.
- Share of adults aged 65 or older in population living at or below 200% of the Federal Poverty Level (FPL).
- Share of adults aged 65 or older who live alone.

Additional measures not available in the ACS 5-year PUMS data (generally available from state agencies):

- Number of LTC-providing business entities, by type of care provided.

Conclusion

The United States faces a considerable shortage of workers in the long-term care sector at a time when the general population is rapidly aging. While there are current models that are used to identify and address health professional workforce shortages, none of them are designed to evaluate the LTC workforce. We present a conceptual model that could be tested for utility in identifying LTC workforce shortages at local or regional levels. This model could be used to help allocate resources to address immediate workforce shortages, as well as longer-term workforce planning.

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