

VARIATION IN EMPLOYMENT OF THERAPY ASSISTANTS IN SKILLED NURSING FACILITIES BASED ON ORGANIZATIONAL FACTORS

Tracy Mroz, PhD, OTR/L
Arati Dahal, PhD
Susan Skillman, MS
Rachel Prusynski, DPT
Bianca Frogner, PhD

BACKGROUND

- The original skilled nursing facility (SNF) prospective payment system (PPS), which was in effect from July 1998 through September 2019, incentivized therapy provision
- Therapy services are provided by a combination of staff, including physical therapists (PTs), physical therapist assistants (PTAs), occupational therapists (OTs), and occupational therapy assistants (OTAs)
- Employing a mix of therapists and assistants provided SNFs an opportunity to maximize reimbursement while minimizing staffing costs due to lower wages of assistants versus therapists
- Understanding associations between SNF organizational characteristics and therapy staffing mix may provide insights into how SNFs will react to the new payment system, the Patient Driven Payment Model (PDPM), which removes strong incentives for therapy provision

OBJECTIVES

- Describe the state of the SNF therapy workforce, including staffing mix, under the original PPS
- Examine employment of therapy assistants relative to organizational characteristics of SNFs

METHODS

Design and Data Sources: Secondary analysis of publicly available Medicare data and data from the Bureau of Labor Statistics for 2016 including:

- SNF Public Use File (SNF-PUF)
- Provider of Services File (POS)
- Nursing Home Compare (NHC)
- Occupational Employment Statistics (OES)

Population Studied: Medicare-certified SNFs that were operating in 2016 and employed therapy providers

Key Variables:

- Dependent variable:** Therapy assistant staffing as measured by therapy assistants as a percent of total therapy workforce (separately for PTA and OTA staffing)
- Independent variables:**
 - SNF organizational characteristics, including profit status, 5-star quality rating, use of contractors, number of beds, volume of Part A short stays, aggregate therapy provision, rural versus urban location, free-standing versus in-hospital facility, located in state with moratorium or certificate of need law
 - State-level wage differentials between therapists and therapy assistants
 - Control variables for county-level proxies of healthcare demand (Medicare fee-for-service population, use of inpatient hospital care, use of SNF care) and SNF-level resident characteristics (average age and acuity)

Analytic Approach:

- Descriptive statistics of therapy workforce
- Tobit regression models to examine associates between employment of therapy assistants and organizational characteristics of SNFs

FINDINGS

Sample

- Approximately 15,000 Medicare-certified SNFs were operating in 2016
- A total of 13,505 SNFs had data available in the POS, NHC, and SNF-PUF files and were eligible for analysis
- Nearly 99% of SNFs eligible for analysis reported employing therapy providers
 - 13,127 SNFs employed occupational therapy practitioners
 - 13,147 SNFs employed physical therapy practitioners

SNF Characteristics

- The SNF market is dominated by for-profit, free-standing facilities, located primarily in urban areas

| N=13,147* | Mean (SD) or n (%) |
|---|--------------------|
| Ownership status, n (%) | |
| For-profit | 9,479 (72.10) |
| Nonprofit | 2,960 (22.51) |
| Governmental | 708 (5.39) |
| Use of contractors, n(%) | |
| All in-house staff | 7,372 (56.16) |
| All contractors | 1,114 (8.49) |
| Combination | |
| 5-star quality rating, n (%) | |
| 1-star | 995 (7.59) |
| 2-star | 1,939 (14.79) |
| 3-star | 2,433 (18.56) |
| 4-star | 2,807 (21.42) |
| 5-star | 4,932 (37.63) |
| Located in hospital, n (%) | |
| No (free-standing) | 12,669 (96.36) |
| Yes | 478 (3.64) |
| Urban-rural location, n (%) | |
| Urban | 9,838 (74.83) |
| Rural | 3,309 (25.17) |
| Number of beds, mean (SD) | 113.16 (59.82) |
| Number of total Medicare stays, mean (SD) | 180.77 (153.71) |
| Located in a state with a Certificate of Need law, n (%) | |
| No | 4,045 (30.77) |
| Yes | 9,102 (69.23) |
| Located in a state with a moratorium, n (%) | |
| No | 10,345 (78.69) |
| Yes | 2,802 (21.31) |
| Percent of days in ultra-high rehabilitation Resource Utilization Group, mean (SD) | 60.93 (30.36) |
| Percent of days in very-high rehabilitation Resource Utilization Group, mean (SD) | 30.58 (25.21) |

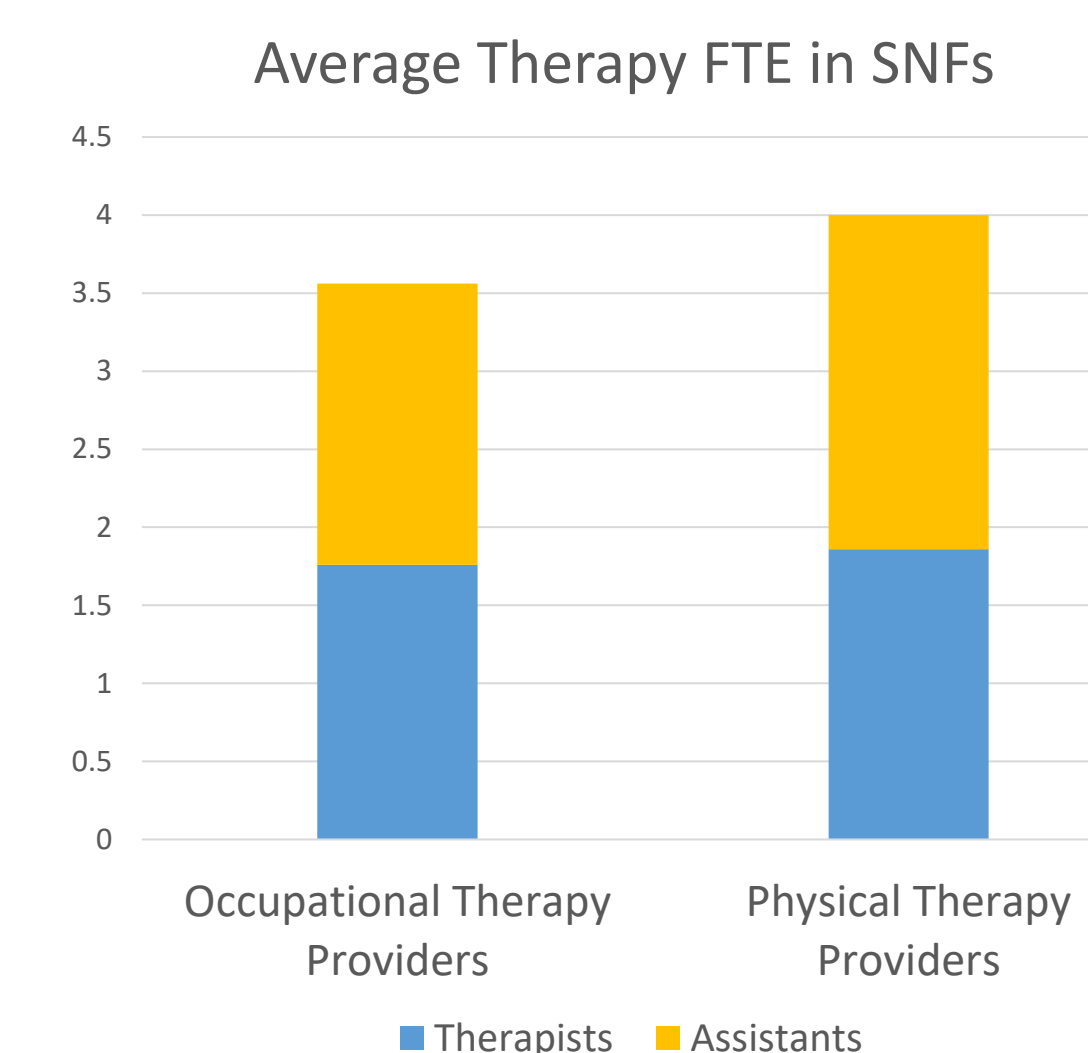
*Includes SNFs that employed physical therapy providers; results are similar for SNFs that employed occupational therapy providers

Therapy Workforce Overview

| Provider Type | Education | Scope of Practice | Mean Wage Ratio (SD) |
|--------------------------------------|-------------------------------|----------------------------|----------------------|
| Physical Therapist (PT) | Clinical doctorate | Evaluations and treatments | PT/PTA = 1.44 (.17) |
| Physical Therapist Assistant (PTA) | Associates | Treatments | |
| Occupational Therapist (OT) | Clinical doctorate or masters | Evaluations and treatments | OT/OTA = 1.40 (.10) |
| Occupational Therapy Assistant (OTA) | Associates | Treatments | |

Percent of SNFs with assistants:

- 88% of SNFs that employ occupational therapy providers, employ OTAs
- 91% of SNFs that employ physical therapy providers employ PTAs



Assistants as a percent of workforce:

- OTAs represent 49% of the occupational therapy workforce on average
- PTAs represent 53% of the physical therapy workforce on average

Relationships between Employment of Therapy Assistants and SNF Characteristics

| | Percent therapy assistant FTE | | | | | |
|--|--------------------------------|-----|-------|----------------------------|-----|-------|
| | Occupational therapy providers | | | Physical therapy providers | | |
| | Coef. | SE | p | Coef. | SE | p |
| Percent of days in ultra-high rehabilitation RUG | .14 | .02 | <.001 | .11 | .01 | <.001 |
| Percent of day in very-high rehabilitation RUG | .10 | .02 | <.001 | .08 | .02 | <.001 |
| Use of contractors | | | | | | |
| All in-house staff | Ref | -- | | Ref | -- | |
| All contractors | .04 | .01 | <.001 | .04 | .01 | <.001 |
| Mix of in-house staff and contractors | .03 | .01 | | .03 | .01 | |
| Ownership status | | | | | | |
| For-profit | Ref | -- | | Ref | -- | |
| Nonprofit | -.01 | .01 | .120 | -.03 | .01 | .001 |
| Governmental | .01 | .01 | | -.02 | .01 | |
| 5-star quality of care rating | | | | | | |
| 1-star | Ref | -- | | Ref | -- | |
| 2-star | .01 | .01 | | .01 | .01 | |
| 3-star | .01 | .01 | .102 | -.004 | .01 | .277 |
| 4-star | -.002 | .01 | | .01 | .01 | |
| 5-star | .01 | .01 | | .001 | .01 | |
| Located in hospital vs. free-standing | -.09 | .02 | <.001 | -.03 | .01 | .033 |
| Located in rural vs. urban area | .05 | .01 | <.001 | .05 | .01 | <.001 |
| Number of beds | | | | | | |
| Lowest quintile | Ref | -- | | Ref | -- | |
| Second quintile | .01 | .01 | | .02 | .01 | |
| Middle quintile | .02 | .01 | .084 | .01 | .01 | .138 |
| Fourth quintile | .01 | .01 | | .02 | .01 | |
| Highest quintile | .01 | .01 | | .02 | .01 | |
| Number of total Medicare stays | | | | | | |
| Lowest quintile | Ref | -- | | Ref | -- | |
| Second quintile | .02 | .01 | | .03 | .01 | |
| Middle quintile | .03 | .01 | <.001 | .04 | .01 | <.001 |
| Fourth quintile | .05 | .01 | | .04 | .01 | |
| Highest quintile | .06 | .01 | | .05 | .01 | |
| Located in a state with Certificate of Need law | .21 | .06 | .001 | .20 | .06 | <.001 |
| Located in a state with moratorium | .11 | .04 | .007 | .06 | .02 | .013 |
| Wage ratio of therapist to assistant | .63 | .20 | .001 | .03 | .11 | .762 |

*Adjusted for all other variables in table as well as facility-level average age of beneficiaries and average Hierarchical Condition Category scores, state dummies, and county-level population of Medicare fee-for-service beneficiaries, percent using inpatient hospital care, and percent using SNF care

DISCUSSION

- Therapy assistants are a substantial part of the therapy workforce in SNFs, but employment varies by SNF organizational characteristics
- Staffing mix in SNFs may be driven in part by profit-maximization
 - Greater use of assistants is associated with higher shares of ultra-high and very-high rehabilitation RUGs, high volume, free-standing versus in-hospital, and use of contractors
- Staffing mix in SNFs may also be related to supply side factors
 - Greater use of assistants in rural areas may be due to available supply of assistants relative to therapists
- Results provide a baseline for future analyses of payment system changes by describing relationships between employment of therapy assistants and organizational characteristics of SNFs

Limitations

- This study presents associations between SNF organizational characteristics and therapy workforce but does not establish causal relationships or directionality of relationships
- Use of publicly available data that is aggregated at the SNF-level precludes examination of care provided by assistants versus therapists and quality outcomes at the resident-level
- State-level wage differentials do not take into account local market variation in wages
- Findings should be replicated using Payroll-Based Journal files due to concerns about self-reported staffing data from SNFs in the POS file

Implications for Policy

- The implementation of the Patient Driven Payment Model (PDPM) in October 2019 may lead to reductions in therapy workforce overall if the PDPM is effective in reducing current high levels of therapy provision
- PDPM may also lead to greater employment of therapy assistants to reduce staffing costs while maintaining high level of therapy provision for certain patient populations
- Shifts in overall therapy staffing and employment of therapy assistants will likely vary by SNF organizational characteristics
- Future research will also need to consider planned differential reimbursement for treatments provided by assistants versus therapists for SNF residents receiving care under Part B

Funding and Acknowledgements

This study was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) through grant U81HP2784. The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement by HRA, HHS, or the U.S. Government.

For more information

Tracy M. Mroz, PhD, OTR/L
Associate Professor, Department of Rehabilitation Medicine
Investigator, Center for Health Workforce Studies
University of Washington
tmroz@uw.edu
<http://depts.washington.edu/uwchws/>