Therapy staff turnover in Skilled Nursing Facilities: Facility Characteristics and Associations with Resident Outcomes

Rachel Prusynski, DPT, PhD

Assistant Professor, UW Department of Rehab Medicine, UW Center for Health Workforce Studies

Tracy M Mroz, PhD, OTR/L

Bianca Frogner, PhD

UW Medicine
DEPARTMENT OF REHABILITATION MEDICINE

Funding and Disclosures

Authors have no conflicts of interest to report

This publication was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling $500,000 with zero percentage financed with non-governmental sources. The funder had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript

The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government. For more information, please visit HRSA.gov. https://www.hrsa.gov/grants/manage/acknowledge-hrsa-funding

Skilled Nursing Facility (SNF) Workforce

- 14,691 unique SNFs
- Short-stay post-acute patients in same building as long-stay Nursing Home residents
- >1.8 Million post-acute SNF stays annually just for Medicare fee-for-service
- ~800k-1 million long-stay residents
- Coverage for therapy varies: Part A/Medicare for post-acute stays, Medicare part B for long-term care residents

- >1.3 million total employees
- **Nursing** (registered nurses, licensed practical nurses, nursing assistants): ~750,000 employees

- **Therapy**: ~45,000 employees
  - Physical Therapists (PTs): 12,520
  - Physical Therapist Assistants (PTAs): 9,190
  - Occupational Therapists (OTs): 9,950
  - Occupational Therapy Assistants (OTAs): 6,900
  - Speech Language Pathologists (SLPs): 5,770

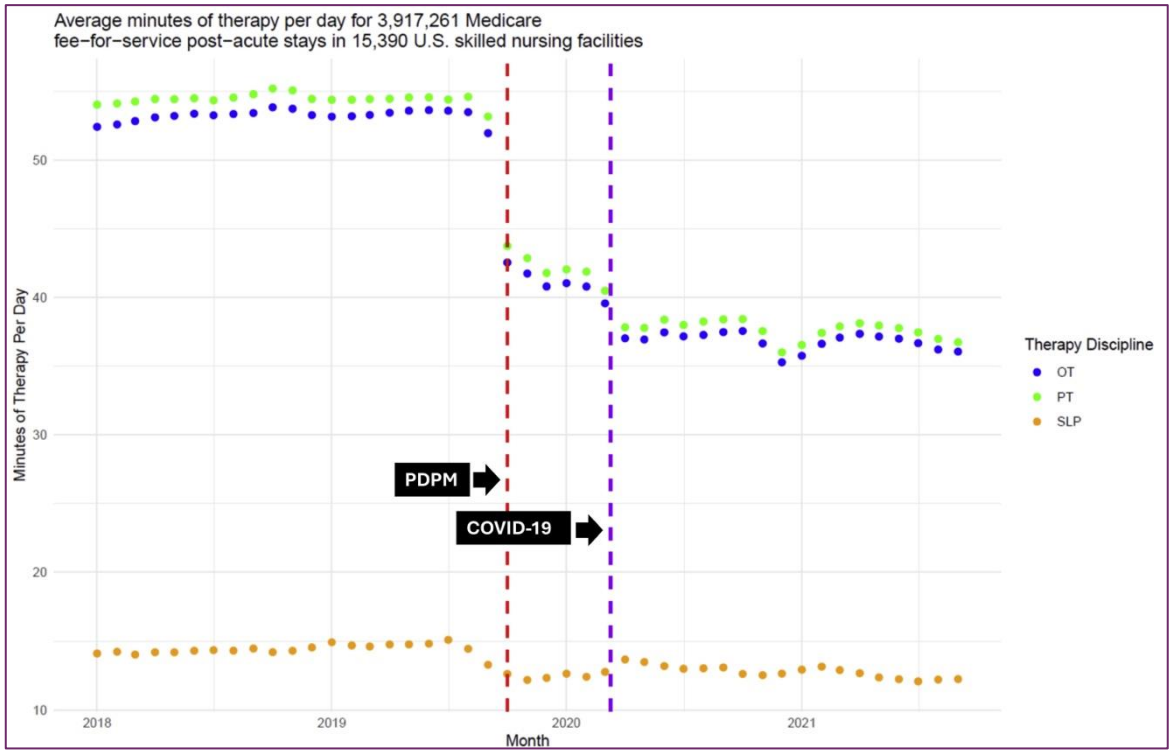
MedPAC 2024, Bureau of Labor Statistics

Turnover in SNFs - Nursing

- **Nursing turnover in SNFs receives substantial attention in the literature and policy**
- High turnover > low continuity of care > poor outcomes especially for complex patient population in SNFs who benefit/require familiarity with caregivers
- SNF nurse turnover estimates range widely (from 30% to 140%) due to different specifications and time frames
- High turnover of nursing occupations in SNFs has been associated with negative patient outcomes across a number of studies
- Nurse turnover measures are included in the CMS SNF Value-Based Purchasing program and the Nursing Home 5-Star Quality Rating System

Importance of Therapy Turnover

- Nursing Home 5-Star Quality Rating System includes multiple quality measures related to patient and resident safety, mobility, and functional independence – aspects of care that are addressed by rehabilitation therapy staff
- Overall therapy staffing levels – and therefore volumes of therapy – have declined substantially in SNFs since before recent Medicare policy changes and the COVID-19 pandemic



Prusynski et. al, 2025

Study Objectives

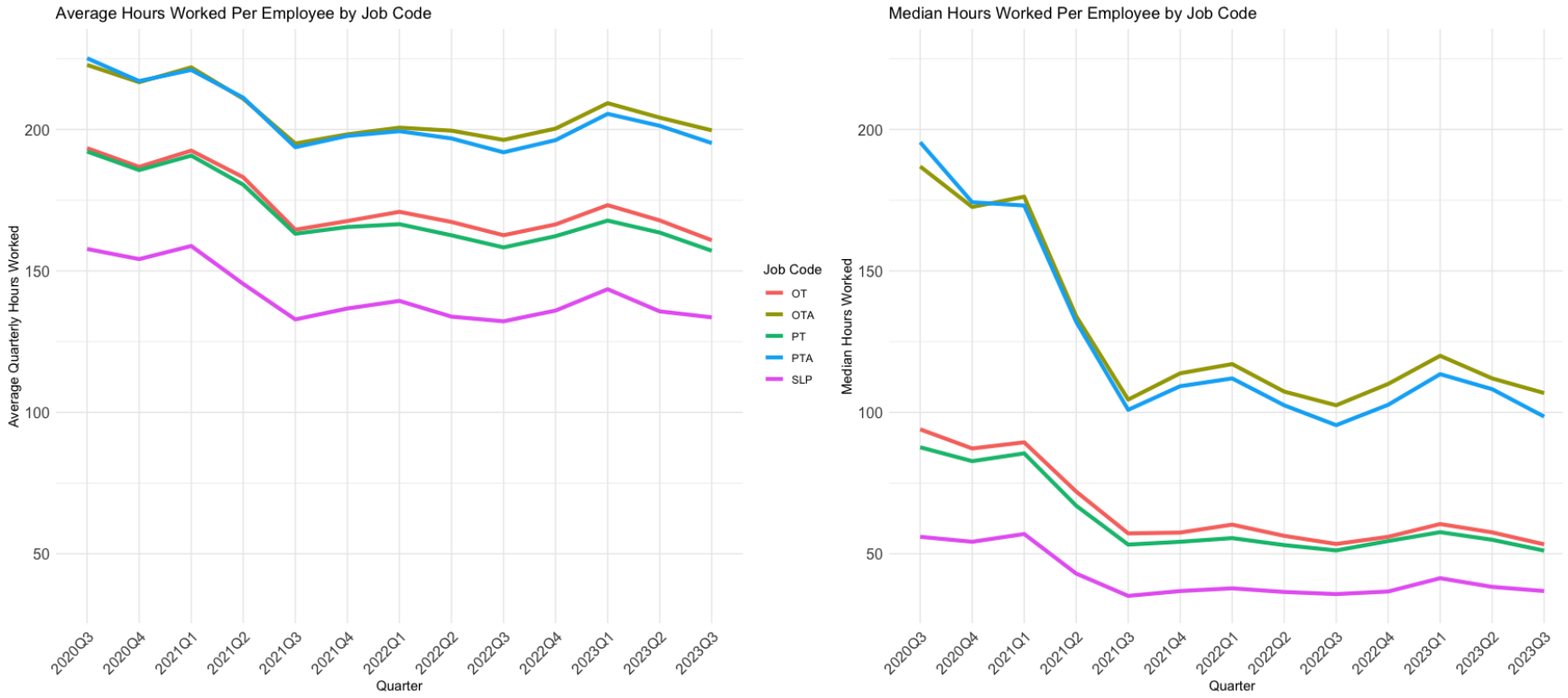
1. Describe therapy staff turnover trends in SNFs
2. Identify SNF characteristics associated with high therapy staff turnover
3. Estimate the associations, if any, between therapy staff turnover and rehabilitation-relevant outcomes for short-stay patients and long-term care (LTC) residents in SNFs

Describing Therapy Turnover

Characterizing Therapy Turnover

- Data: Payroll Based Journal (PBJ) Detailed Daily Staff Data July 2020 – September 2023
- Quarterly turnover measures for each individual SNF
- Typical Turnover Calculation: # of staff who left the facility / Number of total staff
  - ”Left the Facility” = had 60-day consecutive gap in employment
  - Number of total staff = total staff per job category that worked 30+ hours in prior quarter
    - For nursing turnover measures, CMS uses number of total staff who worked at least 120 hours in prior quarter (~10 hours/week)
    - Our prior work found that SNFs employ a lot of contract therapy staff who work less than 120 hours per quarter

Total Staff Denominator



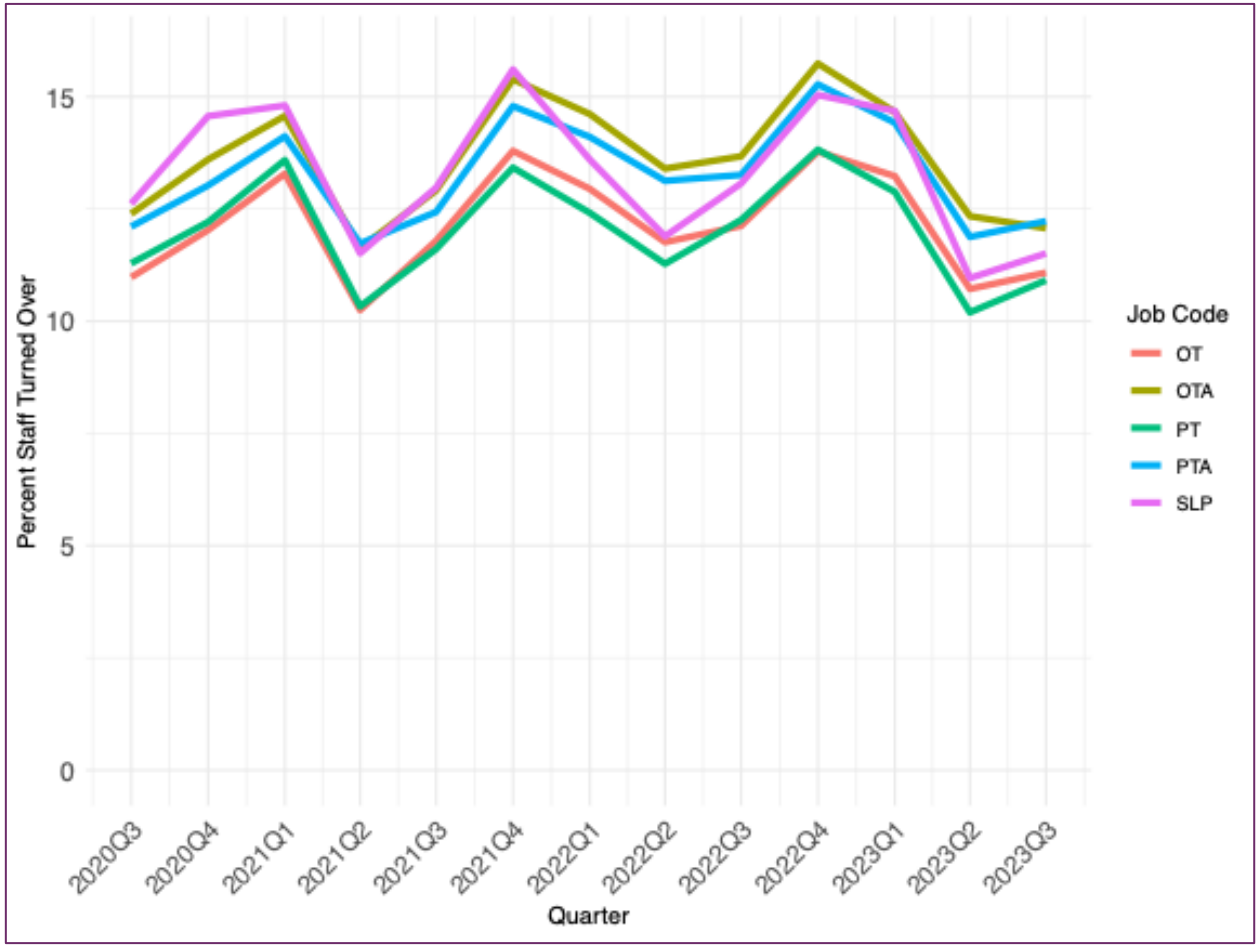
- Using a larger denominator of therapy staff who worked 30+ hours per quarter created a more conservative measure of turnover

Turnover Measures

- All therapy staff combined: PTs, PTAs, OTs, OTAs, and SLPs
- Physical Therapy (PTs and PTAs)
- Occupational Therapy (OTs and OTAs)
- Speech Therapy (SLPs)
- Assistants (PTAs and OTAs)
- Therapists (PTs and OTs)

QUARTERLY TURNOVER

- Average quarterly turnover rate for all therapy staff combined was 13.0%
- Slightly higher for SLPs and Assistants
- Turnover rates for all disciplines were lowest in Q2 and highest in Q4 of each calendar year

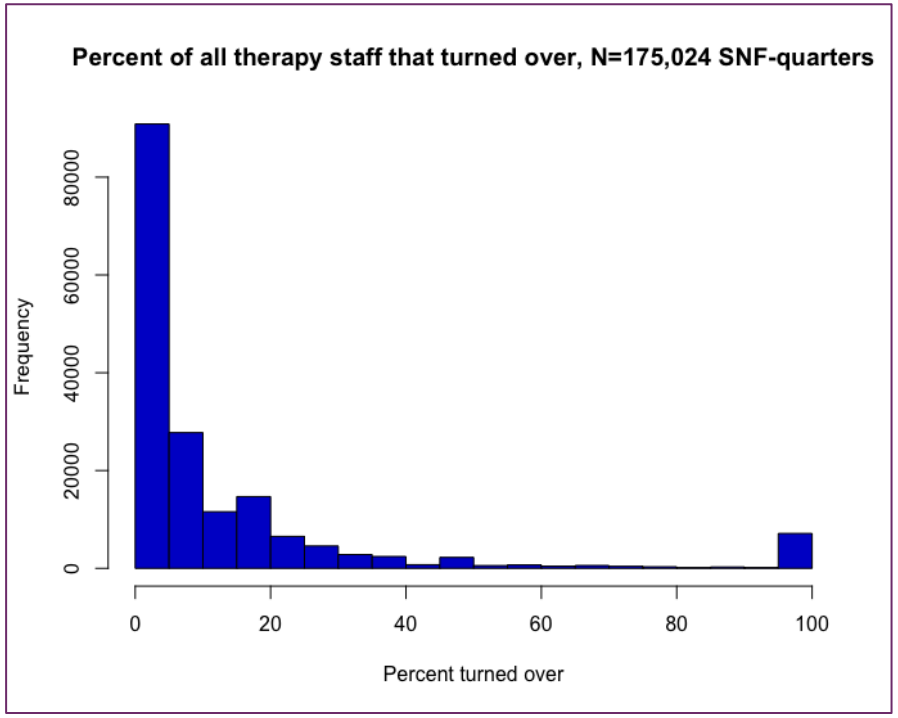


Average turnover rates by job code reflecting 175,024 facility-quarters in 14,844 unique SNFs across the U.S.

Turnover association with facility characteristics

High Turnover Indicator

- Outcome: dichotomous indicator for 'high' turnover based on whether the SNF was in the top quartile for turnover amongst all SNFs in any given quarter



- Independent Variables: facility characteristics from public CMS files (e.g., patient census, staffing levels, ownership, size, chain status, location, COVID case rates, recent ownership change) matched to unique quarter-year combination
- Unit of analysis: facility-quarter
- Model: logistic mixed effects model with fixed effects for each unique year/quarter combo and random intercepts to account for repeated measures by SNF

Average marginal effect estimates for associations between SNF characteristics and the probability of having high turnover for all therapy staff in any given quarter from July 2020-September 2023 (N=175,024 SNF-Quarters)			
	High Combined Therapy Turnover		
Facility Characteristic	% difference in probability	95% CI	p-value
Patient Census (10-patient increase)	1.0	0.8, 1.2	<0.001
Nurse Staffing Hours (10-hr increase)	-0.1	-0.1, -0.1	<0.001
Therapy Staffing Hours (1-hr increase)	-0.6	-0.6, -0.5	<0.001
Percent Contractors among Therapy Staff (10% increase)	-0.3	-0.4, -0.3	<0.001
Ownership			
For-profit	Ref.	-	-
Not-for-profit	-3.3	-4.0, -2.6	<0.001
Government	-4.8	-6.0, -3.7	<0.001
Change in Ownership in the Last Year	5.6	4.3, 7.0	<0.001
Chain (versus Non-chain)	1.2	0.7, 1.8	<0.001
Urban (versus Rural) Location	2.8	2.1, 3.5	<0.001
Certified Bed Count (10-bed increase)	0.3	0.2, 0.4	<0.001
COVID-19 Staff Cases per 100 Beds (1-case increase)	-0.4	-0.6, -0.2	0.001
COVID-19 Resident Cases per 100 Beds (1-case increase)	0.3	0.2, 0.5	<0.001

Therapy Turnover and Patient Outcomes

Therapy-Relevant Outcomes

- Chose individual measures rather than overall 5-star ratings because:
  - We could isolate therapy-relevant outcomes
  - Individual measures are reported quarterly so can be matched to the same quarter turnover was measured
  - Measures are already risk-adjusted for patient case mix at the facility level

1. **The percent of LTC residents whose needs for help with activities of daily living (ADLs) increased**
2. **The percent of LTC residents with one or more falls with major injury**
3. **The percent of LTC residents whose ability to move independently worsened**
4. **The percent of short-stay patients who improved in function**

Turnover and Outcomes Analysis

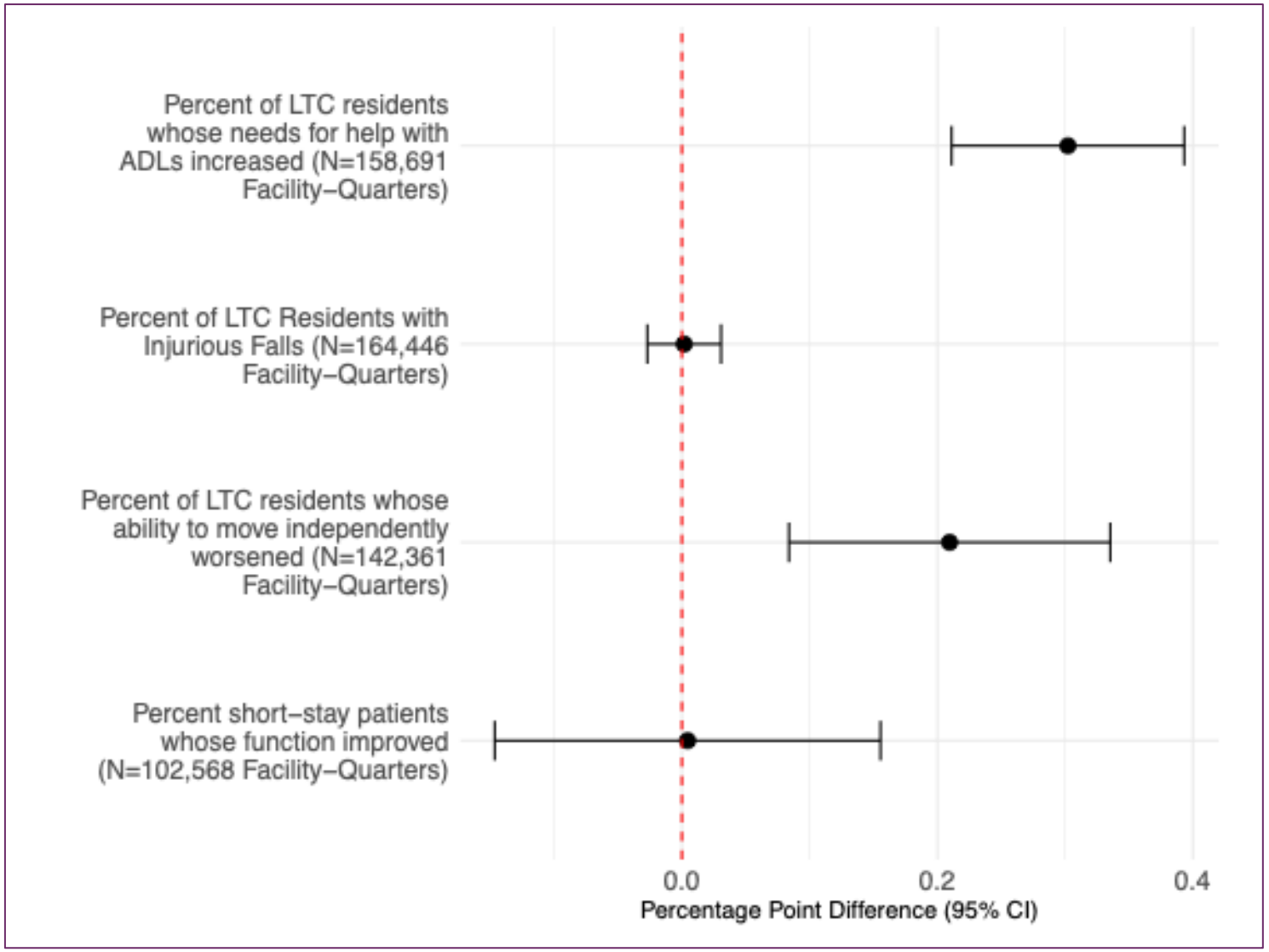
- Separate models for each outcome
- Independent variable: dichotomous indicator of ‘high’ turnover for all therapy staff
- Unit of analysis: facility-quarter
- Models: Multivariable linear regression with fixed effects for SNF and unique year-quarter combination and time-varying covariates (e.g., staffing, census, COVID-19 cases)
- Estimates reflect differences in outcomes comparing periods of high therapy turnover versus low to moderate therapy turnover within each individual SNF
- Sensitivity Analyses: 1) independent turnover variable for individual therapy disciplines, assistants, and therapists. 2) Removed early pandemic. 3) SNFs employing in-house therapy staff only.

Descriptives for Outcomes

	All Facility-Quarters N=175,024	High Turnover Facility-Quarters N=45,218	Low to Moderate Turnover Facility-Quarters N=129,806
Outcomes	Mean (SD)	Mean (SD)	Mean (SD)
Percent of LTC residents whose need for help with ADLs increased	14.9 (9.0)	15.3 (9.3)	14.8 (8.9)
Percent of LTC residents with injurious falls	3.4 (2.9)	3.3 (2.9)	3.4 (2.9)
Percent of LTC residents whose ability to move independently worsened	17.9 (11.8)	18.1 (11.9)	17.8 (11.7)
Percent of short-stay residents whose function improved	75.3 (13.3)	75.4 (13.3)	75.4 (13.3)

Model Estimates

Differences in probability of each patient outcome associated with “high turnover” quarters in a given SNF.



Discussion – Therapy Turnover Rates

- Turnover rates for therapy staff had a consistent seasonal pattern of peaking annually in Q4, which may reflect increasing competition from other higher-paying health settings such as hospitals that may have higher seasonal staffing needs during winter months.
- The maximum quarterly turnover rate (~17%) for therapy staff appears to be lower than published turnover rates for nursing disciplines, which range widely from about 30% to over 140%, depending on how nursing turnover is operationalized.
- Lower turnover for therapy may be related to higher pay/education requirements (associate's or bachelors for assistants, masters or doctorate degrees for therapists) especially compared to CNAs who make up majority of SNF nursing workforce, or fewer jobs available outside of SNFs for therapy staff

Discussion- Facility Characteristics

- Higher therapy turnover in SNFs with lower overall nursing and therapy staffing levels is consistent with literature suggesting that lower staffing leads to increased employee frustration and work burden, which may cause higher turnover.
- Higher therapy staff turnover in SNFs with recent ownership changes is a novel finding which may be related to changes in census or other operational strategies after a SNF is sold that impact therapy staff members' decision to leave.
- Higher therapy turnover in for-profit SNFs and SNFs in urban areas is consistent with literature on nursing staff turnover in multiple other studies.

Discussion – Turnover and Outcomes

- Lack of statistically significant associations between LTC resident falls and short-stay patient functional improvement may be due to the low LTC fall rates across all SNFs and the smaller variation in the short-stay function outcome between SNFs relative to the variation in LTC outcomes.
- Short-stay patients may also experience less of an impact on continuity of care over shorter timeframes.
- Associations between high turnover and worse outcomes for LTC residents whose need for ADL help increased and LTC residents whose ability to move independently worsened were consistent across our primary analyses and sensitivity analyses.
- However, effect sizes were small, with relative differences of less than 2% compared to averages across all available facility-quarters of data.

Limitations

- Public data = higher missingness of staffing and outcomes data especially amongst smaller (and rural) SNFs, which limits generalizability.
- We chose public data sources with high levels of completeness for facility characteristics. However, this decision did not allow us to examine other market and SNF-level characteristics, such as payor mix and case mix, that may also be important predictors of therapy staff turnover.
- While we used data on turnover, facility characteristics, and outcomes matched by time, these are still associations and not causal relationships.

Conclusions

- Consistent with the nursing turnover literature, therapy staff turnover in SNFs between July 2020 and September 2023 was higher in urban, for-profit, and large SNFs with recent ownership changes.
- Within individual SNFs, periods of high turnover of combined therapy staff were associated with small increases in negative functional outcomes for LTC residents.
- Targeting specific SNFs in efforts to reduce therapy staff turnover may be an efficient strategy, with the potential for modest improvements in patient outcomes.

QUESTIONS?

References 1

- Acumen LLC. (2023). *Discharge Function Score for Skilled Nursing Facilities (SNFs) Technical Report*. www.cms.gov/files/document/snf-discharge-function-score-technical-report-february-2023.pdf
- Brazier, J. F., Geng, F., Meehan, A., White, E. M., McGarry, B. E., Shield, R. R., Grabowski, D. C., Rahman, M., Santostefano, C., & Gadbois, E. A. (2023). Examination of Staffing Shortages at US Nursing Homes During the COVID-19 Pandemic. *JAMA Network Open*, *6*(7), e2325993. https://doi.org/10.1001/jamanetworkopen.2023.25993
- Brunt, C. S., & Bowblis, J. R. (2023). Beyond Nursing Staff Levels: The Association of Nursing Home Quality and the Five-Star Quality Rating System's New Staffing Measures. *Medical Care Research and Review*, 10775587231187782. https://doi.org/10.1177/10775587231187782
- Castle, N. G., & Engberg, J. (2008). Further Examination of the Influence of Caregiver Staffing Levels on Nursing Home Quality. *The Gerontologist*, *48*(4), 464–476. https://doi.org/10.1093/geront/48.4.464
- Centers for Medicare & Medicaid Services (CMS). (2020). *Nursing Home Compare Provider Information*. https://data.cms.gov/provider-data/dataset/4pq5-n9py
- Centers for Medicare & Medicaid Services (CMS). (2022, June). *Electronic Staffing Data Submission Payroll-Based Journal Long-Term Care Facility Policy Manual*. https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/nursinghomequalityinits/downloads/pbj-policy-manual-final-v25-11-19-2018.pdf
- Centers for Medicare & Medicaid Services (CMS). (2023, September). *Design for Care Compare Nursing Home Five-Star Quality Rating System: Technical Users' Guide*. https://www.cms.gov/medicare/health-safety-standards/certification-compliance/five-star-quality-rating-system
- Centers for Medicare and Medicaid Services (CMS). (2019). *Chapter 8- Coverage of Extended Care (SNF) Services Under Hospital Insurance*. Medicare Benefit Policy Manual.
- Centers for Medicare and Medicaid Services (CMS). (2020a). *Design for Nursing Home Compare Five-Star Quality Rating System: Technical Users' Guide*. https://www.cms.gov/medicare/health-safety-standards/certification-compliance/five-star-quality-rating-system
- Centers for Medicare and Medicaid Services (CMS). (2020b). *Nursing Home COVID-19 Public File Data Dictionary*. https://data.cms.gov/stories/s/COVID-19-Nursing-Home-Data-Data-Dictionary/8rzn-j9yt/
- Centers for Medicare and Medicaid Services (CMS). (2020c). *Provider of Services Current Files*. https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/Provider-of-Services

References 2

- Cohen-Mansfield, J. (1995). Stress in Nursing Home Staff: A Review and a Theoretical Model. *Journal of Applied Gerontology*, *14*(4), 444–466. https://doi.org/10.1177/073346489501400406
- Department of Health and Human Services. (2023). *Medicare Program; Prospective Payment System and Consolidated Billing for Skilled Nursing Facilities; Updates to the Quality Reporting Program and Value-Based Purchasing Program for Federal Fiscal Year 2024* [Proposed Rule].
- Department of Health and Human Services. (2024). *Medicare and Medicaid Programs; Minimum Staffing Standards for Long-Term Care Facilities and Medicaid Institutional Payment Transparency Reporting*. https://www.govinfo.gov/content/pkg/FR-2024-05-10/pdf/2024-08273.pdf
- Donoghue, C., & Castle, N. G. (2009). Leadership Styles of Nursing Home Administrators and Their Association With Staff Turnover. *The Gerontologist*, *49*(2), 166–174. https://doi.org/10.1093/geront/gnp021
- Frogner, B. K., & Dill, J. S. (2022). Tracking Turnover Among Health Care Workers During the COVID-19 Pandemic. *JAMA Health Forum*, *3*(4), e220371. https://doi.org/10.1001/jamahealthforum.2022.0371
- Gandhi, A., Yu, H., & Grabowski, D. C. (2021). High Nursing Staff Turnover In Nursing Homes Offers Important Quality Information. *Health Affairs (Project Hope)*, *40*(3), 384–391. https://doi.org/10.1377/hlthaff.2020.00957
- Jewell, V., Pickens, N. D., & Burns, S. (2019). Occupational Therapy Interventions in Skilled Nursing Facilities: A Scoping Review. *Annals of International Occupational Therapy*, *2*(2), 79–90. https://doi.org/10.3928/24761222-20190218-03
- Kash, B. A., Castle, N. G., Naufal, G. S., & Hawes, C. (2006). Effect of Staff Turnover on Staffing: A Closer Look at Registered Nurses, Licensed Vocational Nurses, and Certified Nursing Assistants. *The Gerontologist*, *46*(5), 609–619. https://doi.org/10.1093/geront/46.5.609
- Kennedy, K. A., Applebaum, R., & Bowblis, J. R. (2020). Facility-Level Factors Associated With CNA Turnover and Retention: Lessons for the Long-Term Services Industry. *The Gerontologist*, *60*(8), 1436–1444. https://doi.org/10.1093/geront/gnaa098
- Medicare Payment Policy Commission (MedPAC). (2024). *Report to the Congress: Medicare Payment Policy*. https://www.medpac.gov/wp-content/uploads/2024/03/Mar24_MedPAC_Report_To_Congress_SEC.pdf
- Mukamel, D. B., Saliba, D., Ladd, H., & Konetzka, R. T. (2022). Daily Variation in Nursing Home Staffing and Its Association With Quality Measures. *JAMA Network Open*, *5*(3), e222051. https://doi.org/10.1001/jamanetworkopen.2022.2051

References 3

- Mukamel, D. B., Saliba, D., Ladd, H., & Konetzka, R. T. (2024). Incorporating staffing instability in the nursing home Five-Star Staffing Composite. *Health Affairs Scholar*, *2*(12), qxae159. https://doi.org/10.1093/haschl/qxae159
- Pradhan, R., Davlyatov, G., Chisholm, L., Williams, C., Sen, K., Manning, A., & Weech-Maldonado, R. (2025). *Agency Nursing Staff Utilization and Turnover in Nursing Homes: A Longitudinal Analysis*.
- Pradhan, R., Ghiasi, A., Orewa, G., Gupta, S., Davlyatov, G., Beauvais, B., & Weech-Maldonado, R. (2024). Ownership Matters: Not-for-Profit Chain Nursing Homes Have Higher Utilization of Agency Nursing Staff. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, *61*, 00469580241292170. https://doi.org/10.1177/00469580241292170
- Prusynski, R. A., Amaravadi, H., Brown, C., Leland, N. E., Saliba, D., Frogner, B. K., Freburger, J., & Mroz, T. M. (2025). Reductions in therapy provision in skilled nursing facilities after Medicare payment reform and during the COVID-19 pandemic: An interrupted time series analysis. *Archives of Physical Medicine and Rehabilitation*, S0003999325007476. https://doi.org/10.1016/j.apmr.2025.05.020
- Prusynski, R. A., Amaravadi, H., Frogner, B. K., & Mroz, T. M. (2025). Impacts of Skilled Nursing Facility Change of Ownership on Staffing: A Staggered Difference-in-Difference Analysis. *Journal of the American Medical Directors Association*. https://doi.org/10.1016/j.jamda.2025.105530
- Prusynski, R. A., Frogner, B. K., & Mroz, T. M. (2023). *Staffing trends for non-nursing occupations in skilled nursing facilities in the United States between 2018-2022*. Center for Health Workforce Studies, University of Washington. https://familymedicine.uw.edu/chws/publications/staffing-trends-for-non-nursing-occupations-in-skilled-nursing-facilities-in-the-united-states-between-2018-2022/
- Prusynski, R. A., Gustavson, A. M., Shrivastav, S. R., & Mroz, T. M. (2021). Rehabilitation intensity and patient outcomes in Skilled Nursing Facilities in the United States: A systematic review. *Physical Therapy*, *101*(3), pzaa230. https://doi.org/10.1093/ptj/pzaa230
- Prusynski, R. A., Humbert, A., Amaravadi, H., Middleton, A., Leland, N. E., Saliba, D., Brown, C., Freburger, J., & Mroz, T. M. (2025). Patient functional outcomes in skilled nursing facilities: The mediating role of declining therapy. *Archives of Physical Medicine and Rehabilitation*, S0003999325009359. https://doi.org/10.1016/j.apmr.2025.09.018
- Prusynski, R. A., Humbert, A., Leland, N. E., Frogner, B. K., Saliba, D., & Mroz, T. M. (2022). Dual impacts of Medicare payment reform and the COVID-19 pandemic on therapy staffing in skilled nursing facilities. *Journal of the American Geriatrics Society*, *71*(2). https://doi.org/10.1111/jgs.18208

References 4

- Sharma, H., & Xu, L. (2022). Association Between Wages and Nursing Staff Turnover in Iowa Nursing Homes. *Innovation in Aging*, *6*(4), igac004. https://doi.org/10.1093/geroni/igac004
- Shen, K., McGarry, B. E., & Gandhi, A. D. (2023). Health Care Staff Turnover and Quality of Care at Nursing Homes. *JAMA Internal Medicine*. https://doi.org/10.1001/jamainternmed.2023.5225
- Sinha, S., Mukamel, D. B., Saliba, D., Ladd, H., & Konetzka, R. T. (2023). New Dimensions of Staffing Patterns in Nursing Homes and Nursing Home Quality: Comparing Staffing Instability to Staffing Turnover. *Journal of the American Medical Directors Association*, *24*(8), 1099-1105.e7. https://doi.org/10.1016/j.jamda.2023.04.009
- Thomas, K. S., Mor, V., Tyler, D. A., & Hyer, K. (2013). The Relationships Among Licensed Nurse Turnover, Retention, and Rehospitalization of Nursing Home Residents. *The Gerontologist*, *53*(2), 211–221. https://doi.org/10.1093/geront/gns082
- Trinkoff, A. M., Han, K., Storr, C. L., Lerner, N., Johantgen, M., & Gartrell, K. (2013). Turnover, Staffing, Skill Mix, and Resident Outcomes in a National Sample of US Nursing Homes. *JONA: The Journal of Nursing Administration*, *43*(12), 630–636. https://doi.org/10.1097/NNA.0000000000000004
- US Department of Labor Bureau of Labor Statistics. (2024). *Occupational Employment Statistics: Entries for Physical Therapists, Occupational Therapists, Physical Therapist Assistants, Occupational Therapy Assistants.* https://www.bls.gov/oes/home.htm
- Zheng, Q., Williams, C. S., Shulman, E. T., & White, A. J. (2022). Association between staff turnover and nursing home quality – evidence from payroll-based journal data. *Journal of the American Geriatrics Society*, *70*(9), 2508–2516. https://doi.org/10.1111/jgs.17843