

## Rural-urban comparisons of nursing staff turnover among skilled nursing facilities

Michael D. Wirth, PhD; Nick Yell, PhD; Peiyin Hung, PhD; Elizabeth Crouch, PhD

### Key Points:

- Registered Nurse (RN)-specific turnover in SNFs was higher in urban areas (51.5%) compared to rural areas (47%).
- There was no clear pattern of turnover across various regions of the United States.
- Nurse staff hours per resident per day, although statistically significantly different, showed negligible differences between urban and rural facilities.

### INTRODUCTION

Nurses have demonstrated they are a frontline defense for what ails the American public, especially during the COVID-19 pandemic, in a range of facilities including SNFs.<sup>1</sup> In a systematic review, Halter and colleagues concluded that one of the most supported nursing turnover determinants at the individual level included stress or burnout and job dissatisfaction due to patient-to-nurse ratios which was supported by a number of studies.<sup>2-9</sup> It has been estimated that between 35% and 60% of all nurses within their first year of employment leave their initial position of occupation.<sup>10-14</sup> Estimated turnover among all nurses globally ranged from about 10% to 44%.<sup>15</sup> Nurse turnover has costly negative consequences for medical facilities (i.e., between \$4.2 and \$6.0 million lost per year per hospital).<sup>11,16-19</sup> Halter and colleagues indicated that: “...there are large gaps in the literature on determinants of turnover in adult nursing.”<sup>18</sup>

Nursing staff turnover affects the ability of skilled nursing facilities (SNFs) to employ enough persons with essential system and patient knowledge. Higher turnover has been linked to lower overall quality of care,<sup>20,21</sup> more infection control citations,<sup>22</sup> and inappropriate medication use.<sup>22</sup>

Recent studies examined the availability of direct care workforce for long term care but did not consider recruitment and retention.<sup>23</sup> Similarly, a chartbook on rural nursing homes presented information on staffing ratings (hours of care per patient per day) but did not examine turnover within facilities.<sup>24</sup> A recent study of a large rural health system covering North Dakota, South Dakota, and Minnesota found, similar to our results, that 2-year turnover rates were lower in rural areas (18%) than urban areas (19.3%) although that difference was not statistically significant.<sup>10</sup> Authors of that work stated that reasons for turnover in rural areas vs. urban areas is a relatively unexplored topic.<sup>10</sup> While research into SNF staff turnover exists, virtually none of this research has addressed rurality.

SNFs participate in the Value-Based Purchasing system of the Centers for Medicare & Medicaid Services (CMS);<sup>25</sup> Going forward, both total nurse staffing and nursing staff turnover will be included in the factors used to determine SNF payment with payment adjustments to begin in the FY 2027 program year.<sup>26</sup>

Ensuring that rural SNFs understand and can address nursing turnover is important for maintaining optimal reimbursement levels as well as maintaining and improving quality of care. Thus, the aim of this study was to assess facility-level turnover rates for total nursing and registered nurse (RN) personnel across levels of rurality and by region.

### METHODS

Data for this analysis was derived from the CMS Provider Data Catalog that provides access to a range of data from various healthcare provider types including “Nursing Homes Including Rehab Services”. The Provider Data Catalog is derived from four key sources: 1) CMS’s health inspection database which ascertains nursing home

characteristics; 2) Payroll-Based Journal (PBJ) system which provides information on number of hours staff are paid each day and includes nurse staffing information at various levels (e.g., RN, licensed practical nurse [LPN], and nurse aid; 3) The Minimum Data Set (MDS) which is an assessment of nursing homes done on regular intervals focused on the health, physical functioning, mental status, and well-being of the residents; and 4) Medicare claims data which is used to obtain quality measures of the nursing home facilities.<sup>27</sup> We also derived the Urban Influence Codes (UIC) data from the Economic Research Service, United States Department of Agriculture to categorize facility county into rural (UIC 3-12) or urban (UIC 1-2).

Nursing turnover was defined as the percentage of nursing staff that stopped working at a nursing home over a 12-month period from 1/1/2022 – 12/31/2022 which was the most recent data available at the time of this study. Total nursing staff turnover, as well as turnover at the RN level, was obtained and reported. To estimate workload, the total nurse staffing hours per resident per day (referred to as nursing-hours-per-resident ratio) was obtained for all nursing staff combined and by nursing level (i.e., RN, nurse aide, LPN, and licensed). The reporting period for this was 1/1/2023-3/31/2023.<sup>28</sup> Data management and analysis were conducted in SAS Version 9.4 (SAS Institute; Cary, NC). Nursing staff turnover rates across all nursing homes were normally distributed

and therefore average nursing staff turnover could be used accurately at the county level. After calculating the average nursing staff turnover at the county level, ArcGIS Pro v3.1 was used to map the average nursing staff turnover density. T-tests were conducted to determine if there were differences in nursing staff turnover or hours per resident per day between urban and rural nursing homes.

## FINDINGS

A total of 14,986 facilities were included in the August 2023 data released by the CMS. Of those facilities, 72.3% were in urban areas. Across all facilities, the average percentage of total nursing staff turnover during the year 2022 was  $53.5 \pm 15.9\%$ . The average total nursing-hours-per-resident ratio was  $3.8 \pm 1.0$  hours, primarily driven by nurse aids, as opposed to RNs or LPNs (2.2 vs. 0.7 vs. 0.9 hours, respectively) (Table 1).

Rural and urban facilities had statistically significantly different RN turnover ( $p < 0.001$ ; Figure 1). Despite rural-urban differences in nursing-hours-per-resident ratio being statistically significantly different across all nurses, nurse aides, and LPNs, differences were negligible (Table 1).

To demonstrate the difference in total nursing staff turnover, Figure 2 shows the distribution by county across the United States. No clear patterns are discernible. All states have counties with high turnover rates within nursing homes and counties with low turnover rates.

<b>Table 1</b>	Total (n=14,986)	Urban (n=10,834)	Rural (n=4,152)	<sup>1</sup> P-Value
<b>Turnover</b>	n=12,762	n=9,276	n=3,486	
Total Nursing Staff Turnover	53.47% ( $\pm 15.93$ )	53.70% ( $\pm 16.15$ )	52.86% ( $\pm 15.29$ )	0.008
RN Turnover	50.38% ( $\pm 21.73$ )	51.52% ( $\pm 21.21$ )	47.03% ( $\pm 22.87$ )	<0.001
<b>Staff Hours per Resident per Day</b>	n=14,591	n=10,576	n=4,015	
Total Nurse Staff	3.76 hrs ( $\pm 0.96$ )	3.79 hrs ( $\pm 0.99$ )	3.70 hrs ( $\pm 0.90$ )	<0.001
RN Staffing	0.66 hrs ( $\pm 0.49$ )	0.66 hrs ( $\pm 0.50$ )	0.65 hrs ( $\pm 0.45$ )	0.412
Nurse Aide Staffing	2.22 hrs ( $\pm 0.58$ )	2.21 hrs ( $\pm 0.57$ )	2.25 hrs ( $\pm 0.60$ )	<0.001
LPN Staffing	0.89 hrs ( $\pm 0.37$ )	0.92 hrs ( $\pm 0.38$ )	0.80 hrs ( $\pm 0.34$ )	<0.001
<sup>2</sup> Licensed Staffing	1.54 hrs ( $\pm 0.58$ )	1.58 hrs ( $\pm 0.60$ )	1.45 hrs ( $\pm 0.50$ )	<0.001

<sup>1</sup>P-value based on t-tests for differences between rural and urban facilities.

<sup>2</sup>Licensed staffing refers to combined RNs and LPNs.

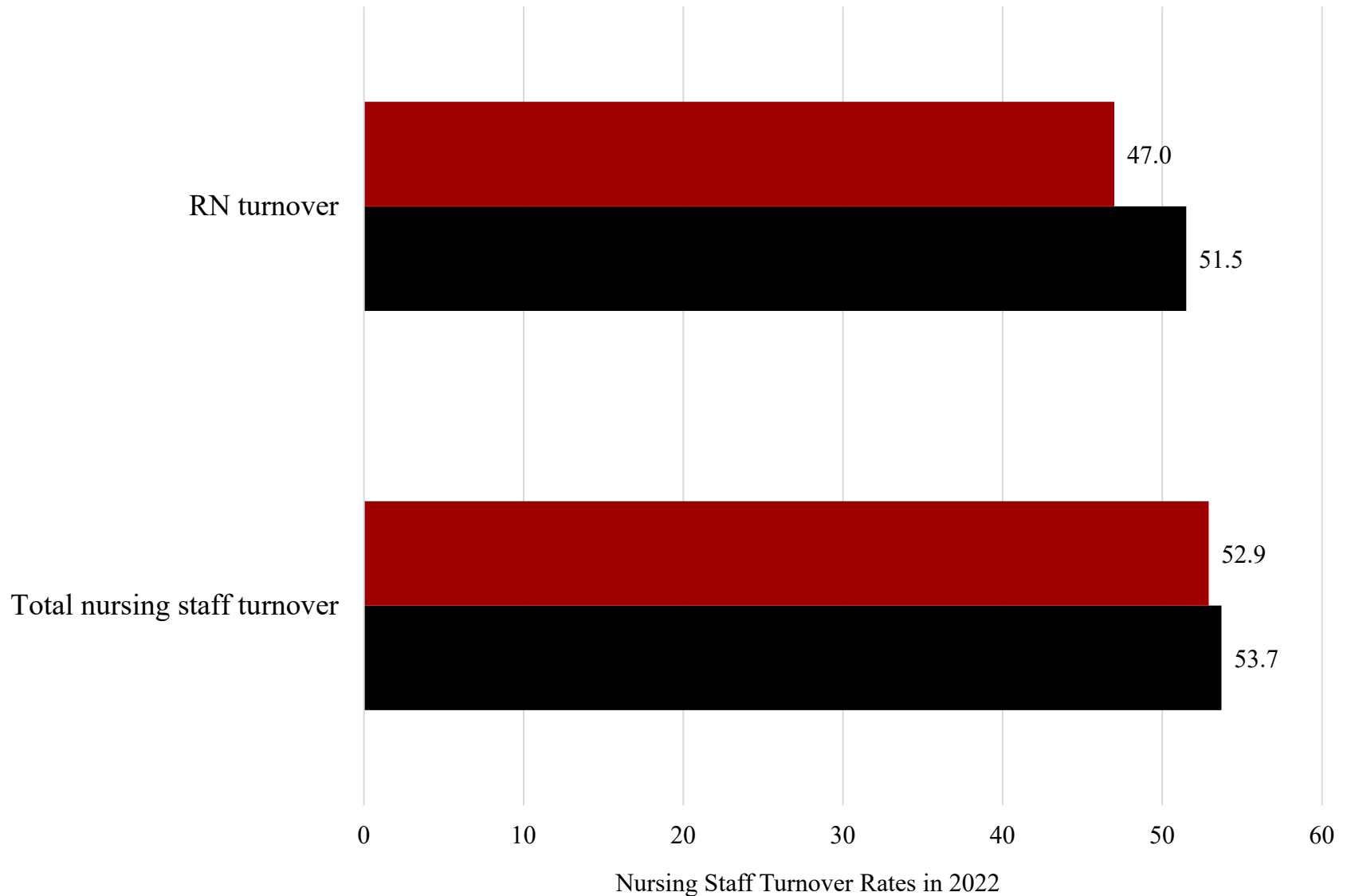
Abbreviations: RN = registered nurse; LPN = licensed practical nurse; QM = quality measures; hrs = hours

Figure 1: All Nursing Staff and RN-Only Turnover Rates by Facility

Rural/Urban Status

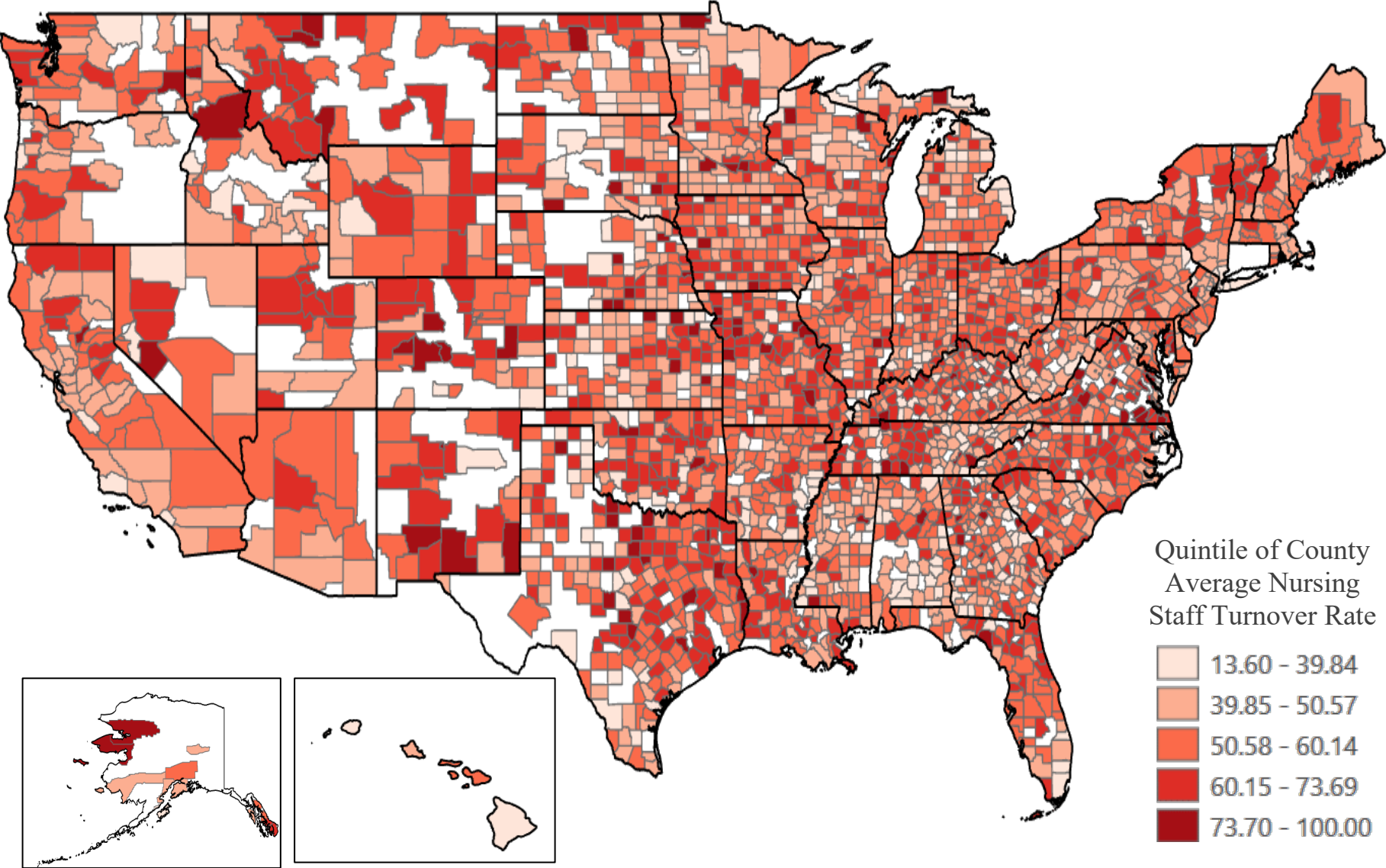
■ Rural

■ Urban



Nursing Staff Turnover Rates in 2022

Figure 2: Map of County-Level Average Nursing Staff Turnover Rate



## CONCLUSION

In the current study, high rates of turnover (50% among RNs, 54% among all nursing staff) within the SNFs were observed. Turnover rates, especially among RNs, were lower in rural areas than in urban areas. It is possible that in urban areas turnover within nursing is higher because there are more opportunities to switch to another facility or unit, whereas, in rural areas, there may be less opportunities within a given location for a change in facility or nursing position. Based on findings from this study, a primary focus for the future could be to increase nursing-hours-per-resident ratio regardless of facility location (e.g., rural vs. urban county).

**R H R C**

**Rural Health Research  
& Policy Centers**

Funded by the Federal Office of Rural Health Policy  
[www.ruralhealthresearch.org](http://www.ruralhealthresearch.org)



**University of South Carolina  
Rural Health Research Center**

**Funding:** This project was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number # U1CRH45498, Rural Health Research Grant Program Cooperative Agreement. This information or content and conclusions are those of the authors and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

For more information about the University of South Carolina Rural Health Research Center, contact Co-Director Dr. Elizabeth Crouch ([crouchel@mailbox.sc.edu](mailto:crouchel@mailbox.sc.edu)) or Co-Director Dr. Peiyin Hung ([hungp@mailbox.sc.edu](mailto:hungp@mailbox.sc.edu)).

Suggested citation: Michael D. Wirth, PhD; Nick Yell, PhD; Peiyin Hung, PhD; Elizabeth Crouch, PhD. Rural-urban comparisons of nursing staff turnover among skilled nursing facilities. University of South Carolina Rural Health Research Center. Policy Brief, September 2025

## REFERENCES

1. Turale S, Meechamnan C, Kunaviktikul W. Challenging times: ethics, nursing and the COVID-19 pandemic. *Int Nurs Rev* 2020;67(2):164-167. DOI: 10.1111/inr.12598.
2. Casey K, Fink R, Krugman M, Propst J. The graduate nurse experience. *J Nurs Adm* 2004;34(6):303-11. (<https://www.ncbi.nlm.nih.gov/pubmed/15190226>).
3. Books C, Coody LC, Kauffman R, Abraham S. Night Shift Work and Its Health Effects on Nurses. *Health Care Manag (Frederick)* 2017;36(4):347-353. DOI: 10.1097/HCM.000000000000177.
4. Guo YF, Luo YH, Lam L, Cross W, Plummer V, Zhang JP. Burnout and its association with resilience in nurses: A cross-sectional study. *J Clin Nurs* 2017. DOI: 10.1111/jocn.13952.
5. Postma J, Tuell E, James L, Graves JM, Butterfield P. Nursing Students' Perceptions of the Transition to Shift Work: A Total Worker Health Perspective. *Workplace Health Saf* 2017;65(11):533-538. DOI: 10.1177/2165079917719713.
6. Power BT, Kiezebrink K, Allan JL, Campbell MK. Understanding perceived determinants of nurses' eating and physical activity behaviour: a theory-informed qualitative interview study. *BMC Obes* 2017;4:18. DOI: 10.1186/s40608-017-0154-4.
7. Chan ZC, Tam WS, Lung MK, Wong WY, Chau CW. A systematic literature review of nurse shortage and the intention to leave. *J Nurs Manag* 2013;21(4):605-13. DOI: 10.1111/j.1365-2834.2012.01437.x.
8. Halter M, Boiko O, Pelone F, et al. The determinants and consequences of adult nursing staff turnover: a systematic review of systematic reviews. *BMC Health Serv Res* 2017;17(1):824. DOI: 10.1186/s12913-017-2707-0.
9. Van der Heijden B, Brown Mahoney C, Xu Y. Impact of Job Demands and Resources on Nurses' Burnout and Occupational Turnover Intention Towards an Age-Moderated Mediation Model for the Nursing Profession. *Int J Environ Res Public Health* 2019;16(11). DOI: 10.3390/ijerph16112011.
10. Andreyeva E, David G, Griese E, Stansbury Ward C, Candon M. Nursing turnover in a large, rural health system. *J Rural Health* 2023;39(1):246-250. DOI: 10.1111/jrh.12694.
11. Pittman P, Herrera C, Bass E, Thompson P. Residency programs for new nurse graduates: how widespread are they and what are the primary obstacles to further adoption? *J Nurs Adm* 2013;43(11):597-602. DOI: 10.1097/01.NNA.0000434507.59126.78.
12. Van Camp J, Chappy S. The Effectiveness of Nurse Residency Programs on Retention: A Systematic Review. *AORN J* 2017;106(2):128-144. DOI: 10.1016/j.aorn.2017.06.003.
13. Halfer D, Graf E. Graduate nurse perceptions of the work experience. *Nurs Econ* 2006;24(3):150-5, 123. (<https://www.ncbi.nlm.nih.gov/pubmed/16786830>).
14. Kurnat-Thoma E, Ganger M, Peterson K, Channell L. Reducing Annual Hospital and Registered Nurse Staff Turnover—A 10-Element Onboarding Program Intervention. *SAGE Open Nursing* 2017;3:2377960817697712. DOI: 10.1177/2377960817697712.
15. Bae SH. Noneconomic and economic impacts of nurse turnover in hospitals: A systematic review. *Int Nurs Rev* 2022;69(3):392-404. DOI: 10.1111/inr.12769.
16. Yarbrough S, Martin P, Alfred D, McNeill C. Professional values, job satisfaction, career development, and intent to stay. *Nurs Ethics* 2017;24(6):675-685. DOI: 10.1177/0969733015623098.
17. Li Y, Jones CB. A literature review of nursing turnover costs. *J Nurs Manag* 2013;21(3):405-18. DOI: 10.1111/j.1365-2834.2012.01411.x.
18. Halfer D. A magnetic strategy for new graduate nurses. *Nurs Econ* 2007;25(1):6-11, 3; quiz 12. (<https://www.ncbi.nlm.nih.gov/pubmed/17402672>).
19. Roche MA, Duffield CM, Homer C, Buchan J, Dimitrelis S. The rate and cost of nurse turnover in Australia. *Collegian* 2015;22(4):353-8. DOI: 10.1016/j.colegn.2014.05.002.
20. Zheng Q, Williams CS, Shulman ET, White AJ. Association between staff turnover and nursing home quality - evidence from payroll-based journal data. *J Am Geriatr Soc* 2022;70(9):2508-2516. DOI: 10.1111/jgs.17843.

21. Mukamel DB, Saliba D, Ladd H, Konetzka RT. Association of Staffing Instability With Quality of Nursing Home Care. *JAMA Netw Open* 2023;6(1):e2250389. DOI: 10.1001/jamanetworkopen.2022.50389.
22. Loomer L, Grabowski DC, Yu H, Gandhi A. Association between nursing home staff turnover and infection control citations. *Health Serv Res* 2022;57(2):322-332. DOI: 10.1111/1475-6773.13877.
23. Dill J, Henning-Smith C, Zhu R, Vomacka E. Who Will Care for Rural Older Adults? Measuring the Direct Care Workforce in Rural Areas. UMN Rural Health Research Center Policy Brief. <https://rhrc.umn.edu/publication/who-will-care-for-rural-older-adults-measuring-the-direct-care-workforce-in-rural-areas/>.
24. Sharma H, Xu L, Ullrich F, Mackinney C, Mueller KJ. *Nursing Homes In Rural America: A Chartbook*: RUPRI Center for Rural Health Policy Analysis, 2022.
25. CMS. Centers for Medicare & Medicaid Services. Fiscal Year (FY) 2024 Skilled Nursing Facility Perspective Payment System Final Rule - CMS-1779-F. (<https://www.cms.gov/newsroom/fact-sheets/fiscal-year-fy-2024-skilled-nursing-facility-perspective-payment-system-final-rule-cms-1779-f>).
26. CMS. Centers for Medicare & Medicaid Services, 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, Federal Register Monday August 7, 2023. 2023;88(150):53200-53347.
27. *Nursing homes including rehab services*. Baltimore, MD: Centers for Medicare & Medicaid Services; 2023.
28. *Design for Care Compare Nursing Home Five-Star Quality Rating System: Technical User's Guide*. Baltimore, MD: Centers for Medicare & Medicaid Services, 2023.