

July 8, 2024

The Honorable Elizabeth Warren  
United States Senate  
Washington, DC 20510-2105

Dear Senator Warren,

Thank you for your inquiry about the impact of repealing the Centers for Medicare and Medicaid Services (CMS) minimum staffing rule on patient outcomes, finalized April 22, 2024.

There is strong evidence that higher levels of nursing staffing in nursing homes improves the outcomes of nursing home residents, including reducing pressure sores and urinary tract infections,<sup>1</sup> improving functional status,<sup>2</sup> and reducing deaths.<sup>3,4</sup>

Considering this evidence, recent efforts to prevent the implementation or enforcement of CMS' new rule setting a national floor for minimum staffing requirements in nursing homes have the potential to harm nursing home residents. As requested, we sought to quantify the number of lives that would be saved by enforcing CMS' new nursing home staffing rule.

- Overall, 83% of U.S. nursing homes had overall staffing levels that were lower than the regulated minimum staffing level for at least half of 2023
  - Two-thirds of nursing homes had lower staffing level in all 12 months of 2023.
  - Eleven percent had lower staffing levels for 9 to 11 months of 2023.
  - Five percent had lower staffing levels for 6 to 8 months of 2023.
- To calculate the effect of the mandated staffing increases on mortality, we conducted a review of the literature and used estimates of the relationship between total nurse staffing hours per resident per day (HPRD) and mortality from published research.
- Based on those estimates, we project that enforcing CMS' new rule on minimum staffing levels would save approximately 13,000 lives per year.
- Virtually every state would benefit from enforcing the minimum staffing levels, with many states projected to save hundreds of lives (see details below).

---

<sup>1</sup> Konetzka, R. T., Stearns, S. C., & Park, J. (2008). The staffing-outcomes relationship in nursing homes. *Health services research*, 43(3), 1025–1042. <https://onlinelibrary.wiley.com/doi/10.1111/j.1475-6773.2007.00803.x>

<sup>2</sup> Cohen, J. W., & Spector, W. D. (1996). The effect of Medicaid reimbursement on quality of care in nursing homes. *Journal of health economics*, 15(1), 23–48. <https://www.sciencedirect.com/science/article/abs/pii/0167629695000305>

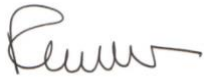
<sup>3</sup> Tong, P. K. (2011). The effects of California minimum nurse staffing laws on nurse labor and patient mortality in skilled nursing facilities. *Health Economics*, 20(7), 802–816. <https://doi.org/10.1002/hec.1638>

<sup>4</sup> Friedrich, B. U., & Hackmann, M. B. (2021). The Returns to Nursing: Evidence from a Parental-Leave Program. *The Review of Economic Studies*, 88(5), 2308–2343. <https://doi.org/10.1093/restud/rdaa082>

Based on these estimates, we believe there is strong evidence that the enforcement of CMS' new rule would save a significant number of lives each year, in addition to reducing a number of adverse outcomes for residents. Further details on these calculations are described below. We would be happy to discuss these findings or provide additional information that might be helpful.

Thank you for the opportunity to use this evidence to inform your work.

Sincerely,



Rachel M. Werner, MD, PhD  
Executive Director, LDI  
Professor, Health Care Management and Economics  
Professor, Medicine  
University of Pennsylvania  
[rwerner@upenn.edu](mailto:rwerner@upenn.edu)



Norma B. Coe, PhD  
Director of Research, LDI  
Professor, Medical Ethics and Health Policy  
University of Pennsylvania  
[nbcoe@penncare.upenn.edu](mailto:nbcoe@penncare.upenn.edu)

## Supplementary information on the calculation of number of lives saved

We sought to estimate the annual number of lives saved by enforcing the nursing home staffing regulations. We calculated the annual number of lives saved with this regulation for three groups of nursing homes: those out of compliance for 6-8 months per year, for 9-11 months, and for 12 months. To do so, we did the following:

- Using the Payroll Based Journal Daily Nurse Staffing data from CMS,<sup>5</sup> we estimated monthly staffing levels in 2023 for registered nurses, certified nursing assistants, and overall staffing.
- Based on these estimates, for each month of 2023, we identified nursing homes that were out of compliance with the overall staffing level of 3.48 hours per resident day and calculated the difference between their observed Hours Per Resident Per Day (HRPD) and the regulated HPRD (*HPRD\_difference*).
  - Nursing homes out of compliance 6-8 months: 0.03 HPRD
  - Nursing homes out of compliance 9-11 months: 0.06 HPRD
  - Nursing home out of compliance 12 months: 0.24 HPRD
- We calculated the number of nursing home residents in non-compliant nursing homes and the annual mortality rate in each nursing home from Medicare's Minimum Data Set for Nursing Homes<sup>6</sup> (*N* and *mortality\_rate*).
  - Nursing homes out of compliance 6-8 months:
    - 747 nursing homes
    - 190,345 nursing home residents
    - 13.6% mortality
  - Nursing homes out of compliance 9-11 months:
    - 1,541 nursing homes
    - 406,808 nursing home residents
    - 12.9% mortality
  - Nursing home out of compliance 12 months:
    - 9,327 nursing homes
    - 2,646,632 nursing home residents
    - 12.2% mortality
- We used estimates of the relationship between total nurse staffing HPRD and mortality published by Patricia Tong,<sup>7</sup> who estimated that an increase in HPRD of 0.29 caused a decline in mortality of 4.6% (*mortality\_effect*) from a regulatory increase in HPRD in California.
- We calculated the estimated # of lives saved as follows:
  - $\#lives\ saved = mortality\_rate * mortality\_effect * N$
- The estimated # of lives saved nationally are:
  - Nursing homes out of compliance 6-8 months: 115 lives per year
  - Nursing homes out of compliance 9-11 months: 474 lives per year
  - Nursing home out of compliance 12 months: 12,355 lives per year
- The sum of these three groups gives the total number of lives saved nationally by enforcing the regulation: 12,945 lives per year

---

<sup>5</sup> <https://data.cms.gov/quality-of-care/payroll-based-journal-daily-nurse-staffing>

<sup>6</sup> <https://www.cms.gov/medicare/quality/nursing-home-improvement/minimum-data-sets-swing-bed-providers>

<sup>7</sup> Tong, P. K. (2011). The effects of California minimum nurse staffing laws on nurse labor and patient mortality in skilled nursing facilities. *Health Economics*, 20(7), 802–816. <https://doi.org/10.1002/hec.1638>

- The estimated number of lives saved varies by state, and is summarized in the table below.

<b>Estimated number of lives saved</b>	<b>States</b>
0-100	AK, DE, HI, ID, KS, ME, MT, ND, NE, NH, NM, NV, OR, RI, SD, UT, VT, WA, WY
101-250	AL, AR, CO, CT, IA, KY, LA, MN, MS, OK, SC, WI, WV
251-500	AZ, GA, IN, MA, MD, MI, MO, NC, NJ, TN, VA
501-750	IL
751-1,000	FL, NY, OH, PA
>1,000	CA, TX