Center for Health Outcomes and Policy Research

University of Pennsylvania School of Nursing

**Linda H. Aiken, PhD, RN, FAAN**
***Professor of Nursing and Sociology***
***Founding Director, Center for Health Outcomes and Policy Research***

July 18, 2023

Members of the Massachusetts State Legislature

Re: **Evidence that mandated minimum hospital nurse staffing standards are in the public's best interest**

My name is Professor Linda Aiken from the University of Pennsylvania. I am the Founding Director of the Center for Health Outcomes and Policy Research, the world's leading research center on the nursing workforce and outcomes of hospital nurse staffing. We have been conducting NIH-funded research on the patient, nurse, and financial outcomes of variation in hospital nurse staffing for 35 years in the U.S. and 30 other countries. I am an elected member of the National Academy of Medicine and the American Academy of Arts and Sciences. My research on nurse staffing has won all major interdisciplinary research prizes including the Individual Codman Award from the Joint Commission that accredits hospitals, the Lienhard Award for Improving Healthcare from the National Academy of Medicine, AcademyHealth Distinguished Researcher award in health services research, and Research America Impact Award.

**There is a very large and rigorous research literature consisting of hundreds of studies and multiple systematic reviews published in the most prestigious scientific journals in health care showing that the more patients nurses in hospitals care for each, the worse the outcomes are including preventable deaths, preventable hospital acquired infections, poor patient satisfaction and worse financial outcomes for hospitals resulting from longer patient stays, Medicare penalties for excess readmissions, and high nurse turnover that costs hospitals many millions of dollars every year.** Specifically, every 1 patient increase in hospital nurses' patient workloads are associated with a 7% or greater increase in the odds that patients will die. Research shows there is great variation in patient-to-nurse ratios across hospitals. In New York State, for example, patient-to-nurse ratios vary from 3 patients per nurse to 11 patients per nurse (Lasater et al, 2021). This large variation in nurse staffing that is associated with adverse patient and workforce outcomes is what minimum safe nurse staffing standards legislation is targeted to prevent. The public has no way of knowing that such large variations in nurse staffing exist and that their health and very life is threatened by chronic nurse understaffing in many U.S. hospitals. Chronic nurse understaffing predates the Covid-19 Pandemic and thus a return to pre-Covid hospital nurse staffing will continue to imperil the public's health.

California has had mandated minimum nurse staffing since 2004, almost 20 years. **Today, patients in California hospitals receive on average 3 more hours of nursing care than hospitalized patients in other states** (Dierkes et al., 2022). Our research estimated that Pennsylvania and New Jersey, if staffed at levels mandated in California would reduce surgical mortality by 13% annually (Aiken et al., 2010). **Staffing in Californian safety net hospitals improved dramatically after the implementation of mandated minimum nurse staffing** (McHugh et al.) and there were no unintended negative consequences of the unfunded mandate (McHugh et al.). Opponents of mandated minimum nurse

staffing standards often claim that research on the outcomes of California nurse staffing legislation is "mixed". As a leading scientist, I challenge that statement. Mixed means to the average person that there were some negative as well as positive outcomes. There has never been a study showing that more nurses are bad for people's health. The so-called mixed results are from flawed research that used unmeasurable outcomes or was not designed well enough to detect significant outcomes. Some point to recent labor disputes in California as evidence that the legislation did not work but the Governor waived the ratio requirements in some hospitals during Covid-19.

The gold standard for evaluating whether nurse ratio legislation improves health outcomes is from Queensland, Australia, by the Center for Health Outcomes and Policy Research, and published in the top scientific journal, The Lancet (McHugh et al.). It is the gold standard because the government of Queensland funded a prospective evaluation of the legislation before it was implemented and after two years. California legislation was never evaluated prospectively which has resulted in disputes over its impact. The Lancet paper documents that after implementation of the mandated minimum safe nurse staffing standards that thousands of hospital deaths were prevented annually, and millions of dollars were saved by reductions in average length of stay and averted hospital readmissions within 30 days of discharge.

The Center for Health Outcomes and Policy Research has a Rapid Strike Research Initiative to conduct policy evaluations of pending state nurse staffing legislation to inform policy decisions. We have conducted outcomes evaluations of pending legislation in New York state (Lasater et al., 2021 and 2022), Illinois (2022), and Pennsylvania (2023). In each of these states we have conducted original primary research collecting data from tens of thousands of hospital nurses to create best possible measures of actual patient to nurse staffing in all hospitals in these states. We linked the nurse staffing data with independent, objective patient outcomes either from state hospital discharge records or Medicare. We estimated the effects on patient and cost outcomes if all the hospitals in each state improved their staffing at least to the minimum required safe staffing levels mandated in the legislation. The conclusions reached in each of these 3 states were the same as we found in Queenland:

- Hospital staffing on adult medical and surgical units varied from the best staffing of 3 patients per nurse to the worst staffing of 10 or more patients per nurse.
- Each one patient added to nurses' workloads was associated with a 7% increase in the odds of patient deaths.
- This large variation in nurse staffing was associated with over a thousand preventable deaths annually in each state had the legislation been implemented.
- Variation in staffing was associated with significantly more cases of sepsis, a high mortality infection, and of those suffering from sepsis, significantly more in poorly staffed hospitals died than would have happened if the ratio legislation was passed.
- The cost of adding additional nurses to meet the minimum staffing standards in pending legislation would be largely offset by millions of dollars of annual savings by reductions in average length of stay, reductions in Medicare readmissions penalties, and reductions in very expensive nurse turnover.

**Oregon became the second state after California to pass minimum safe nurse staffing standards for hospitals in June 2023.** The American Nurses Association recently clarified its support for minimum safe nurse staffing ratios legislation (ANA,2023).

Also in June 2023, the Pennsylvania House passed similar legislation by a significant bi-partisan majority. **The CEO of the nationally top ranked Penn Health System broke with hospital leaders to support Pennsylvania's nurse staffing legislation saying the evidence in favor was substantial and hospitals should follow the evidence** (Mahoney and Aiken, 2023). Here is the evidence submitted to the PA General Assembly from Penn research:

In PA, average patient-to-nurse staffing **is 5.6 patients per nurse (adult medical and surgical units outside ICUs). But the variation is from 3 to 11** patients per nurse. No resource in hospitals that is so important for patient survival and health varies so much without any regulation. By the way, those patients that go to the hospitals with nurse workloads of 11 patients have no idea because there is a lack of transparency about nurse staffing.

We conservatively estimate that if PA HB106 is implemented which sets a floor under nurse staffing in hospitals:

- **1,155 hospital deaths annually could be prevented.**
- **771 readmissions a year would be avoided. Medicare penalized 43% of nation's hospitals for excess readmissions, including a sizable proportion of PA hospitals.**
- **LOS would be reduced by 40,000 days annually saving hospitals an estimated $93 million a year from length of stay reductions.**
- **Additional savings to hospitals would accrue from reducing nurse turnover which costs hospitals many millions of dollars a year as well as savings from higher patient satisfaction and avoiding costly complications.**
- **Increased costs of hiring additional nurses would be substantially offset by savings from improved patient quality and safety, shorter LOS, fewer Medicare penalties, lower nurse turnover.**

**There are enough nurses to meet minimum nurse staffing standards if passed.** The country has no nurse shortage. Nursing schools have increased graduations by 250% over the last 20 years. Each year, 185,000 new US educated RNs are entering the workforce. The country is adding a million nurses to its supply every decade. The pipeline into nursing is very strong and there continue to be plenty of applicants to nursing schools even after the pandemic. Massachusetts has one of the highest supplies of nurses in the country in terms of RNs per 1000 residents. Research shows that the single biggest reason that more nurses do not choose to work in hospitals is that hospitals are understaffed. Both doctors and nurses in a just published study of 60 of America's best hospitals including the MGH in Boston ranked the hiring of more nurses as the most important intervention that hospitals could take to reduce the burnout levels of those in hospitals (Aiken et al., 2023). The passage of the California nurse staffing mandates resolved that state's hospital nurse shortage within two years because improved staffing attracted more nurses to hospital practice (Dierkes et al., 2021).

In summary, decades of rigorous research show that implementing safe minimum nurse staffing standards will save lives and money. There is plenty of evidence to act now. There is no credible evidence that any harm will come to the public from mandating minimum nurse staffing standards in hospitals and plenty of actionable evidence that the public will benefit.

Professor Linda H Aiken, PhD, RN, FAAN
laiken@nursing.upenn.edu

Sincerely,

Linda H. Aiken, PhD, RN, FAAN

References cited:

**Penn Medicine CEO Calls for Passage of PA Nurse Staffing Legislation**
*Would Establish Minimum Nurse-to-Patient Ratios for PA Hospitals*
https://ldi.upenn.edu/our-work/research-updates/penn-medicine-ceo-calls-for-passage-of-pa-nurse-staffing-legislation/

Aiken LH. Invited Expert Testimony, Pennsylvania House Health Committee, Public Hearing, Patient Safety Act HB106, May 2, 2023.

Aiken LH, Sloane DM, McHugh MD, Pogue CA, Lasater KB. 2022. A repeated cross-sectional study of nurses immediately before and during the Covid-19 Pandemic: Implications for Action. *Nursing Outlook*. December 10, 2022. https://doi.org/10.1016/j.outlook.2022.11.007

Aiken LH, Lasater KB, Sloane DM, Pogue CA, Rosenbaum K, Muir J, McHugh MD for the US Clinician Wellbeing Study Consortium. 2023. Physician and nurse well-being and preferred interventions to address burnout in hospital practice: Factors associated with turnover, outcomes, and patient safety. *JAMA Health Forum*. 2023;4(7):e231809.doi:10:1001/jamahealthforum2023.1809. July 7, 2023. : Physician and Nurse Well-Being and Preferred Interventions to Address Burnout in Hospital

Practice

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Aiken, LH, Sloane, DM, Cimiotti, J, Clarke, S, Flynn, L., Spetz, J, Seago, JA, Smith, HL. 2010. Implications of California nurse staffing mandate for other states. *Health Services Research*. 45(4): 904-921.

Harris Poll: Ninety percent of the public supports requiring minimum nurse staffing standards in hospitals. https://www.nursing.upenn.edu/live/news/2327-nurseseverywhere-2020-expand-nursing-care-survey-a

McHugh, M.D., Kelly, L., Sloane, D.M., Aiken, L.H. 2011. Contradicting fears, California's nurse-to-patient staffing mandate did not reduce the skill level of the nursing workforce in hospitals. *Health Affairs* 30(7):1299-1306.

McHugh MD, Brooks Carthon M, Wu E, Kelly L, Sloane D, Aiken LH. 2012. Impact of nurse staffing mandates on safety net hospitals: Lessons from California. *The Milbank Quarterly* 90(1):160-186.

McHugh MD, Aiken LH, Sloane DM, Windsor C, Yates P. 2021. Nurse staffing and patient mortality, readmissions, and length of stay: a prospective study of the effects of nurse-to-patient ratio legislation in a panel of hospitals. *The Lancet.* May 11, 2021: https://doi.org/10.1016/S0140-6736(21)00768-6

Dierkes, A., Do, D., Morin, H., Rochman, M., Sloane, D.M., McHugh, M.D. (2021). The impact of California's staffing mandate and the economic recession on registered nurse staffing levels: A longitudinal analysis. Nursing Outlook, 70(2):219-227.

Lasater KB, Sloane DM, McHugh MD, Cimiotti JP, Riman KA, Martin B, Alexander M, Aiken LH. 2021. Evaluation of hospital nurse-to-patient ratios and sepsis bundles on patient outcomes. *American Journal of Infection Control*. 49(7):868-873. https://doi.org/10.1016/ajic.2020.12.002 Open Access

Lasater KB, Aiken LH, Sloane DM, French R, Anusiewicz CV, Martin B, Alexander M, McHugh MD. 2021. Is hospital nurse staffing legislation in the public's interest? An observational study in New York State. *Medical Care* 2021;59:444-450. https://journals.lww.com/lww-medicalcare/Abstract/9000/Is_Hospital_Nurse_Staffing_Legislation_in_the.98191.aspx

Lasater KB, Aiken LH, Sloane D, French R, Martin B, Alexander M, McHugh MD. 2021. Patient outcomes and cost savings associated with hospital safe nurse staffing legislation: an observational study. *BMJ Open.* 2021;11.e052899.doi:10.1136/bmjopen-2021-052899.

Aiken, LH Invited Testimony, New York State Joint Legislative Budget Hearing, February 25, 2021 on Safe Staffing for Quality Care Act (S.1032/A.2954). Written testimony available via the NYSENATE.GOV site: https://www.nysenate.gov/sites/default/files/center_for_health_outcomes_and_policy_research_university_of_pennsylvania.pdf . Video of oral testimony (start at 9hrs:57min:45sec):

https://www.nysenate.gov/calendar/public-hearings/february-25-2021/joint-legislative-public-hearing-2021-executive-budget .