

Research Summary: Staffing Ratios, Safety, Costs, and Nursing Shortages

Short-staffing leads to more patients dying. Safe ratios would save patients' lives.

- **Every additional patient-per-nurse in a Pennsylvania hospital increases that patient's risk of death by 7%.ⁱ** Surgical patients in hospitals with 8:1 ratio have a 31% higher risk of death. In many PA hospitals, nurses now have 2-6 additional patients.
- Introducing safe nurse-patient ratio laws in Pennsylvania is projected to reduce hospital patient deaths by 10.6%.ⁱⁱ
- Research from other states suggests that short-staffing increases patients' risk of death by between 4 and 6%. This risk is higher within the first 5 days of admission.ⁱⁱⁱ
- Lower patient-to-nurse staffing ratios have been significantly associated with lower rates of hospital mortality, failure to rescue, cardiac arrest; hospital-acquired pneumonia, respiratory failure; patient falls (with and without injury); and pressure ulcers.^{iv}
- Higher numbers of patients per nurse was strongly associated with administration of the wrong medication or dose, pressure ulcers, and patient falls with injury.^v

Safe staffing saves money by reducing nurse burnout and reducing lost reimbursements

- Short-staffing leads nurses (both new and experienced) to leave the bedside. This is costly in itself: the cost to replace a single burned out nurse was \$82,000 in 2012.^{vi}
- High levels of nurse burnout and turnover lead to lower quality care and more infections. In Pennsylvania, hospitals in which burnout was reduced by 30% had a total of 6,239 fewer infections, for an annual cost saving of up to \$68 million.^{vii}
- More hospital-acquired infections, more patient falls and pressure ulcers, more early readmissions and longer hospital stays — all of which are caused or exacerbated by short-staffing — are costing Pennsylvania hospitals millions in lost reimbursements.^{viii}
- A national study found the financial costs and benefits of increasing nurse staffing for hospitals more or less evened out (a <1.5% increase), concluding that the decision to increase or reduce staffing turned on the value placed on human life.^{ix}

There is *not* a shortage of registered nurses in PA. But dangerous short-staffing *is* driving nurses to leave bedside care.

- Pennsylvania has (and will have) more than enough licensed registered nurses. The PA Department of Health regularly surveys all RNs and LPNs renewing their licence. The most recent survey showed only 76% of RNs were employed in nursing, with 6% unemployed.^x Pennsylvania is projected to have a *surplus* of 5% (8,200) RNs by 2030.^{xi}
- Pennsylvania is also training and graduating more than enough registered nurses. Enrollment in Pennsylvania RN programs has increased by 49% since 2003 (from 15,651 to 23,278), and by 138% since 2002 (from 2,939 to 7,003).^{xii}
- There *is*, however, a serious problem with nurse retention. Nurse burnout and turnover in Pennsylvania has reached record-high levels in the last 2-3 years. Our survey of 1,000 bedside nurses last year found 79% reported increased turnover since they started.^{xiii}

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- Short-staffing is the single biggest driver of nurse burnout and turnover. In the PA Department of Health's most recent licensure survey, the highest factor of 'job dissatisfaction' was staffing (37% unsatisfied), and for respondents under fifty who were planning to leave nursing the most common reported reason was stress/burnout.^{xiv}
- Improving staffing to safe levels would reduce nurse burnout/turnover, encourage more licensed nurses to return to the bedside, and make the single biggest difference in improving nurse retention, patient safety and saving hospitals the cost of high turnover.
- The introduction of safe ratio laws has been proven to increase the 'supply' of working nurses. After passing a ratios law in 2004, the California Board of Nursing reported a 60% increase in applications for nursing licenses from other states,^{xv} a 4% increase in RNs overall, and an 18% increase in the number of applicants for the certifying exam.^{xvi}

ⁱ Aiken, Clarke, Sloane et al, 'Hospital Nurse Staffing and Patient Mortality, Nurse Burnout, and Job Dissatisfaction', *Journal of the American Medical Association*, 2002, <https://www.ncbi.nlm.nih.gov/pubmed/12387650>.

ⁱⁱ Aiken, Sloane, Cimiotti et al, 'Implications of the California Nurse Staffing Mandate for Other States', *Journal of the American Medical Association*, 2010, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2908200/>.

ⁱⁱⁱ Needleman et al, 'Nurse Staffing and Inpatient Hospital Mortality', *The New England Journal of Medicine*, 2011, <http://www.nejm.org/doi/pdf/10.1056/NEJMsa1001025>, Harless and Mark, 'Nurse staffing and quality of care with direct measurement of inpatient staffing', *Medical Care* 2010, <https://www.ncbi.nlm.nih.gov/pubmed/20548254>.

^{iv} Aiken, Cimiotti, Sloane et al, 'The Effects of Nurse Staffing and Nurse Education on Patient Deaths in Hospitals with Different Work Environments', *Medical Care* 49(12):1047–1053, 2011, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3217062/>; Cho et al, 'Effects of nurse staffing, work environments, and education on patient mortality: an observational study', *Int J Nurs Stud*. 2015 Feb; 52(2): 535–542, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4286441/>; Kane et al, 'Nurse staffing and quality of patient care', *Evid Rep Technol Assess*, 2007 Mar;(151):1-115, <https://www.ncbi.nlm.nih.gov/pubmed/17764206>; Rafferty et al, 'Outcomes of variation in hospital nurse staffing in English hospitals: cross-sectional analysis of survey data and discharge records', *Int J Nurs Stud* 2007 Feb;44(2), <https://www.ncbi.nlm.nih.gov/pubmed/17064706>, Stalpers et al., 2015.

^v Cho E1, Chin DL2, Kim S3, Hong O, 'The Relationships of Nurse Staffing Level and Work Environment With Patient Adverse Events', *Journal of Nursing Scholarship* 2016 Jan;48(1):74-82, <https://www.ncbi.nlm.nih.gov/pubmed/26642177>,

^{vi} Twibell and St Pierre *American Nurse* 2012, <https://www.americannursetoday.com/tripping-over-the-welcome-mat-why-new-nurses-dont-stay-and-what-the-evidence-says-we-can-do-about-it/>.

^{vii} Cimiotti, Aiken, Sloane, 'Nurse staffing, burnout and health care-associated infection' *American Journal of Infection Control* 2012, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3509207/>.

^{viii} Mamula, 'Medicare cutting payments to dozen Western PA hospitals', Dec 26, 2017, <http://www.post-gazette.com/business/healthcare-business/2017/12/26/Medicare-cutting-payments-dozen-Western-Pennsylvania-hospitals-penalty-infections-safety/stories/201712270035>.

^{ix} Needleman, Buerhaus, Stewart, Zelevinsky & Mattke, 'Nurse Staffing in Hospitals: Is There a Business Case for Quality?', *Health Affairs* 2006, <https://www.healthaffairs.org/doi/full/10.1377/hlthaff.25.1.204>.

^x PA Department of Health, *2012/13 Pulse of PA's Registered Nurse Workforce*, 2015, <http://www.health.pa.gov/Your-Department-of-Health/Offices%20and%20Bureaus/Health%20Planning/Documents/WR/2012-2013%20Pulse%20of%20PA%20Registered%20Nurse%20Workforce%20Report%20Final.pdf>.

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^{xi} US DHHS Bureau of Health Workforce, *Supply and Demand Projections for the Nursing Workforce 2014-30*,

https://bhw.hrsa.gov/sites/default/files/bhw/nchwa/projections/NCHWA_HRSA_Nursing_Report.pdf.

^{xii} PA Department of Health, *Nursing Education Programs in Pennsylvania*, 2017,

<http://www.health.pa.gov/Your-Department-of-Health/Offices%20and%20Bureaus/Health%20Planning/Documents/2014%20Nursing%20Education%20Report.pdf>.

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^{xiii} Nurses of Pennsylvania, *Breaking Point: Pennsylvania's Patient Care Crisis*, 2017,

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^{xiv} PA Department of Health, *2012/13 Pulse of PA's Registered Nurse Workforce*, 2015,

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^{xv} Robertson, Kathy, *Sacramento Business Journal*, January 19, 2004.

^{xvi} Kemski, Ann, *Market Forces, Cost Assumptions, and Nurse Supply: Considerations in Determining Appropriate Nurse to Patient Ratios in General Acute Care Hospitals R-37-01*, SEIU Nurse Alliance, December 2002.