

## Fact Sheet 2013



# SAFE-STAFFING RATIOS: BENEFITING NURSES AND PATIENTS

Nurses have an integral role in the health care system. State-mandated safe-staffing ratios are needed to ensure the safety of both patients and nurses. Adequate nurse staffing is key to patient care and nurse retention, while inadequate staffing endangers patients and drives nurses from their profession. Staffing problems will only intensify as baby boomers age and the need for health care grows, making safe-staffing ratios an ever-pressing concern.

This fact sheet outlines: the workplace and patient treatment improvements associated with safe-staffing ratios, the dangers of understaffing for nurses and patients, the high costs of frequent nurse turnover in hospitals, the potential benefits of safe staffing for addressing the nursing shortage, the savings associated with safe-staffing ratios, and the growing popularity of safe-staffing legislation.

### **Safe-Staffing Ratios Improve the Workplace and Patient Care**

In 2004, California became the first state to implement minimum nurse-to-patient staffing ratios, designed to improve patient care and nurse retention. Subsequent studies show that California's program measurably improved patient care and nurse retention.

- According to a 2010 study by researchers at the University of Pennsylvania, only 29 percent of nurses in California experienced high burnout, compared with 34 percent of nurses in New Jersey and 36 percent of nurses in Pennsylvania, states without minimum staffing ratios during the period of research. The study also found that only 20 percent of nurses in California reported dissatisfaction with their jobs, compared with 26 percent and 29 percent in New Jersey and Pennsylvania.<sup>1</sup>
- California nurse staffing ratios accompanied a lower likelihood of in-patient death within 30 days of hospital admission than in New Jersey or Pennsylvania. In California, there was also a lower likelihood of death from failing to properly respond to symptoms.
- California reported 13.9 percent fewer surgical deaths than New Jersey and 10 percent fewer surgical deaths than Pennsylvania.<sup>2</sup>
- According to a 2007 study on safe staffing in *Medical Care*, an increase of one registered nurse (RN) per patient was associated with a 24 percent reduction in time spent in the intensive care unit and a 31 percent reduction in time spent in surgical units.<sup>3</sup>
- In long-term care facilities, patients with more direct RN time (30 to 40 minutes daily per patient) reported fewer pressure ulcers, acute care hospitalizations, urinary tract infections, urinary catheters, and less deterioration in their ability to perform daily living activities.<sup>4</sup>
- Minimum staffing legislation has a direct impact on poor and uninsured patients. A *Journal of Hospital Medicine* study found that hospitals with a high proportion of Medicaid and uninsured patients were significantly more likely to be above minimum nurse-

to-patient ratios than hospitals with low proportions of Medicaid patients.<sup>5</sup> As discussed below, understaffed facilities pose a much greater risk to patients' health.

### **Understaffing Endangers Nurses and Patients**

According to the American Nurses Association (ANA), "Massive reductions in nursing budgets, combined with the challenges presented by a growing nursing shortage have resulted in fewer nurses working longer hours and caring for sicker patients. This situation compromises care and contributes to the nursing shorting by creating an environment that drives nurses from the bedside."<sup>6</sup>

- Working long hours and with inadequate staffing affects nurses' health, increasing their risk of musculoskeletal disorders (MSDs—back, neck, and shoulder injuries), hypertension, cardiovascular disease, and depression. In 2011, 15 percent of all occupational injuries and illnesses in the U.S. occurred in health care and social assistance. In that year there were approximately 171,530 incidents in health care and social assistance requiring days away from work.<sup>7</sup>
- Nurses' cardiovascular health suffers as a result of working long shifts and overtime. In a 2010 study, researchers showed a clear trend between frequent overtime work and incidents of heart disease, with workers reporting three to four hours of overtime per day being 1.6 times more likely to have cardiovascular health disorders.<sup>8</sup>
- Many RNs also complain that current workloads are causing burnout. Burnout can be described by a number of symptoms, including chronic fatigue, irritability, insomnia, headaches, back pain, weight gain, depression, and high blood pressure.<sup>9</sup> According to a study in the *Journal of the American Medical Association*, each additional patient over four per nurse carries a 23 percent risk of increased burnout and a 15 percent decrease in job satisfaction.<sup>10</sup>
- In August 2012, approximately one-third of nurses reported an emotional exhaustion score of 27 or greater, considered by medical standards to be "high burnout."<sup>11</sup>

Besides the occupational hazards caused by understaffing, numerous studies show a correlation between inadequate nurse staffing and poor patient outcomes. High nurse-to-patient ratios are associated with an increase in medical errors, as well as patient infections, bedsores, pneumonia, MRSA, cardiac arrest, and accidental death.<sup>12</sup>

- Every one additional patient added to a hospital staff nurse's workload is associated with a seven percent increase in hospital mortality.<sup>13</sup>
- A 2008 study by the Centers for Medicare and Medicaid Services found that facilities with staffing levels in the bottom 30 percent were more likely to be among the worst 10 percent of facilities for heart failure, electrolyte imbalances, sepsis, respiratory infection, and urinary tract infections.<sup>14</sup>
- Long-term patients in understaffed facilities, measured by staffing below 2.78 hours of daily aide time and 0.75 hours of daily RN time per patient, had a greater probability of poor outcomes such as pressure ulcers, skin trauma, and weight loss.<sup>15</sup>
- Large patient loads and high levels of exhaustion among nurses were associated with greater rates of urinary-tract and surgical-site infections among patients in a study published in the August 2012 issue of the *American Journal for Infection Control*.<sup>16</sup>

- Another recent study, this one published in *The New England Journal of Medicine*, examined the relationship between mortality and day-to-day, shift-to-shift variations in unit level staffing. The study found that the risk of death increased two percent each time a patient was exposed to shifts with below target RN staffing. The average patient in the study was exposed to three nursing shifts with below target staffing resulting in a six percent higher risk of mortality than patients; the risk of mortality was four percent higher when a patient was exposed to a high turnover shift.<sup>17</sup>
- Researchers at the Center for Health Outcomes and Policy Research at the University of Pennsylvania’s School of Nursing have concluded that lowering the patient-to-nurse ratios “markedly” improves patient outcomes in hospitals with otherwise good work environments.<sup>18</sup>

### **Understaffing Leads to Expensive Human Resources Problems**

The demands of the nursing profession are forcing many nurses to consider part-time nursing, or alternative careers. In a 2011 survey, close to 45 percent of the surveyed nurses said they planned to make career changes in the next one to three years, with over one-third of those surveyed considering careers outside of nursing altogether.<sup>19</sup>

- According to the American Association of Colleges of Nursing, the average RN cost-per-hire is around \$2,820.<sup>20</sup> Other studies estimate the overall turnover cost per RN at \$65,000.<sup>21</sup> Another study showed that the average hospital is estimated to lose about \$300,000 per year for each percentage point increase in annual nurse turnover.<sup>22</sup>

In addition to enforcing mandatory overtime, employers often use supplemental nurses to temporarily fill gaps in nurse staffing. These temporary nurses are more likely to be concentrated in hospitals with poor staffing rates and inadequate resources. Temporary nurses make up between five and 15 percent of hospital nursing staffs in 55 percent of hospitals.<sup>23</sup>

- Supplemental nursing staffs are expensive, especially when they are brought in from outside agencies. Hospitals generally pay between \$250,000 and \$400,000 for staffing agency services for every one million dollars spent on temporary-nurse staffing.<sup>24</sup>
- Temporary nurses are often compensated at rates 25 percent to 40 percent above the average RN’s wages, further adding to cost and contributing to resentment among permanent nurses.<sup>25</sup>
- As the percentage of temporary nurses employed goes up, the quality of patient care tends to go down. Hospitals with temporary nurse staffing under five percent reported fewer hospital-acquired infections and fewer patient falls than hospitals with temporary nurse staffing at five to 15 percent. The percentage of nurse work-related injuries was also significantly higher in hospitals where temporary nurses made up more than 15 percent of the total nursing staff.<sup>26</sup>

### **Safe-Staffing Ratios May Help Combat the Nursing Shortage**

A long-standing nursing shortage poses a challenge to the health care industry. According to the Bureau of Labor Statistics’ Employment Projections 2010-2020 released in February 2012, the Registered Nursing workforce is the top occupation in terms of job growth through 2020. It is expected that the number of employed nurses will grow from 2.74 million in 2010 to 3.45 million in 2020, an increase of 712,000 or 26 percent. The projections further explain the need

for 495,500 replacements in the nursing workforce bringing the total number of job opening for nurses due to growth and replacements to 1.2 million by 2020.<sup>27</sup> Safe-staffing ratios may be an effective way to help combat the shortage and fill vacancies by attracting students to the profession and encouraging experienced nurses to return to the profession.

- Many researchers have found that factors such as mandatory overtime are inversely associated with nurses' intention to stay in their jobs.<sup>28</sup> Recent reports also indicate that many new nurses leave their hospital positions within one year of starting work.<sup>29</sup>
- Soon after nurse-to-patient ratio regulations went into effect in January 2004, the California Board of Nursing reported being inundated with RN applicants from other states. That year, applications for nursing licenses increased by more than 60 percent. By 2008, vacancies for registered nurses at California hospitals plummeted by 69 percent.<sup>30</sup>
- In Aiken's 2010 study, both nurses and nurse managers agreed that the ratio legislation achieved its goals of improving recruitment and retention of nurses, reducing nurse workloads, and improving the quality of care.<sup>31</sup>

### **Safe-Staffing Ratios Do Not Financially Burden Hospitals**

While some critics of safe staffing claim that mandatory nurse-to-patient ratios burden hospitals with high operational costs, the majority of research shows that safe-staffing ratios are cost-effective. High turnover rates and high levels of temporary nurse staffing increase the average costs per discharge (cost of inpatient care, including administration) and overall operating costs. Safe staffing improves nurse performance and patient-mortality rates, reduces turnover rates, staffing costs, and liability.

- One study in the *Journal of Health Care Finance* reported that increased nurse staffing did, indeed, increase operational costs for hospitals; however, it did not decrease the hospitals' overall profitability.<sup>32</sup>
- A 2009 study found that adding an additional 133,000 RNs to the hospital workforce across the U.S. would produce medical savings estimated at \$6.1 billion in reduced patient care costs. This does not include the additional value of increased productivity when nurses help patients recover more quickly, an estimated \$231 million savings per year.<sup>33</sup>
- Safe-staffing ratios also reduce the additional costs of supplemental nurses and staffing agencies, as nurse retention tends to go up with safe-staffing.<sup>34</sup>
- If hospitals could reduce their proportion of burned-out nurses to 10 percent from the 30 percent that is typical, according to the 2010 University of Pennsylvania study, hospitals could prevent 4,160 cases a year of the two most common hospital-acquired infections and save over \$41 million. "It is costing hospitals more money not to spend money on nursing," said Linda Aiken, author of the study and director of the Penn nursing school's Center for Health Outcomes and Policy Research.<sup>35</sup>

### **A Growing Trend: More States are Pursuing Safe-Staffing Legislation**

Since 2004, several other states have pursued legislation addressing safe-staffing concerns in nursing.

- In 2006, Florida passed a law mandating safe-staffing ratios similar to California's. The law addresses minimum staffing requirements for nursing homes and requires a RN in the operating room during all surgical procedures.<sup>36</sup>
- As of March 2011, 15 states (CA, CT, IL, ME, MN, NV, NJ, NY, NC, OH, OR, RI, TX, VT, WA) and the District of Columbia have enacted legislation or adopted regulations addressing nurse staffing. Seven states (CT, IL, NV, OH, OR, TX, WA) require hospitals to have committees responsible for staffing policy. Five states (IL, NJ, NY, RI, VT) require disclosure or public reporting of staffing.
- More legislation was introduced in 2011, including proposals by three states (FL, IL, IA) to create staffing committees, proposals by three states (HI, IL, MA) to require public disclosure laws, proposals by seven states (IN, KY, MD, NJ, NY, VT, WV) to set staffing ratios, and four states (CA, MA, MO, PA) with alternative nurse staffing bills.<sup>37</sup>
- Eleven states introduced staffing legislation in the first 2 months of 2012.<sup>38</sup> By the end of the year, sixteen states (AK, CA, CT, IL, MD, MN, MO, NJ, NH, NY, OR, PA, RI, TX, WA, WV) enacted laws or regulations on mandatory overtime for nurses, most prohibiting hospitals from requiring overtime except in the event of a public health emergency.<sup>39</sup>

On the national level, legislative action was also taken to give nurses more influence in shaping staffing levels. Unfortunately, passing safe staffing legislation under the 112<sup>th</sup> Congress proved difficult in 2011.

- The ANA-supported safe staffing legislation introduced in the House and Senate in early 2011, the Registered Nurse Safe Staffing Act (H.R. 876/S.58), died in committee in March. The Act would have held hospitals accountable for the development of valid, reliable unit-by-unit nurse staffing plans. These plans would be developed in coordination with nurses and based on each unit's needs.<sup>40</sup>
- In May 2011, Senator Barbara Boxer (D-CA) introduced the National Nursing Shortage Reform and Patient Advocacy Act (S. 992). The bill, which died in committee, would have amended the Public Health Service Act to establish direct care registered nurse-to-patient staffing ratio requirements in hospitals, and for other purposes.<sup>41</sup>
- In June 2011, Representative Jan Schakowsky (D-IL) reintroduced the Nurse Staffing Standards for Patient Safety and Quality Care Act (H.R. 2187), which would have established federal nurse-to-patient staffing ratios in all hospitals. Additionally, it would have restricted mandatory RN overtime to times of emergency. The legislation, which died in committee, was endorsed by the AFL-CIO, the American Federation of Government Employees, the American Federation of Teachers, and the United Steelworkers.<sup>42</sup>

As of February 2013, the demand for legally mandated staffing remains strong at the local level.

- In early February, over two hundred nurses from National Nurses United who work in Washington D.C. hospitals gathered to back the Patient Protection Act proposed by D.C. Council Chairman Phil Mendelson. The proposal is based on the 2005 California nurse-to-patient ratio law.<sup>43</sup>

<sup>1</sup> Linda Aiken, et. al. "Implications of the California Nurse Staffing Mandate for Other States," *Health Services Research*, 45.4 (August 2010).

<sup>2</sup> *Ibid.*

- <sup>3</sup> Robert L. Kane, et al., "The Association of Registered Nurse Staffing Levels and Patient Outcomes: Systematic Review and Meta-Analysis," *Medical Care*, 45.12 (December 2007), 1195-1204.
- <sup>4</sup> Ronda G. Hughes, "Patient Safety and Quality: An Evidence-Based Handbook for Nurses," Robert Wood Johnson Foundation, AHRQ, 08-0043, (Rockville, MD: Agency for Healthcare Research and Quality, March 2008).
- <sup>5</sup> P.H. Conway, et al., "Nurse staffing ratios: trends and policy implications for hospitalists and the safety net," *Journal of Hospital Medicine*, 3.3 (June 2008).
- <sup>6</sup> American Nurses Association, "Safe Staffing: The Registered Nurse Safe Staffing Act," 2012. <http://www.nursingworld.org/SafeStaffingFactsheet.aspx>.
- <sup>7</sup> U.S. Department of Labor, Bureau of Labor Statistics, "Nonfatal Occupational Injuries and Illnesses Requiring Days Away From Work, 2011," 2012. <http://www.bls.gov/news.release/osh2.nr0.htm>.
- <sup>8</sup> Marianna Virtanen, et al., "Overtime work and incident coronary heart disease: the Whitehall II prospective cohort study," *European Heart Journal*, 31.4 (March 2010). <http://eurheartj.oxfordjournals.org/content/31/4/1737.short>.
- <sup>9</sup> Megan Malugani, "Battling Burnout in Nursing," *Nursing Link*, 2009. <http://nursinglink.monster.com/benefits/articles/6239-battling-burnout-in-nursing>.
- <sup>10</sup> Linda Aiken, et al., "Hospital Nurse Staffing and Patient Mortality, Nurse Burnout, and Job Satisfaction," *The Journal of the American Medical Association*, 288.16 (2002).
- <sup>11</sup> Jeannie P. Cimiotti, et al. "Nurse staffing, burnout, and health care-associated infection," *American Journal of Infection Control*, 40.6 (August 2012).
- <sup>12</sup> See, for example: Heather K. Laschinger, et al., "The Impact of Nursing Work Environments on Patient Safety Outcomes," *The Journal of Nursing Administration*, 36.5, (May 2006); Maureen Kennedy, "In the News: Low Nurse Staffing Linked to Neonatal Infections," *American Journal of Nursing*, 106.12 (December 2006); BBC News, "MRSA 'linked to nurse shortages'," May 6, 2005. <http://news.bbc.co.uk/1/hi/health/4522141.stm>; Institute of Medicine, National Academy of Sciences, "Keeping Patients Safe: Transforming the Work Environment of Nurses," 2003; Joint Commission on Accreditation of Healthcare Organizations, *Health Care at the Crossroads: Strategies for Addressing the Evolving Nursing Crisis*, August 2002; Jack Needleman, et al., "Nurse-Staffing Levels and Quality of Care in Hospitals," *The New England Journal of Medicine*, May 30, 2002.
- <sup>13</sup> Linda Aiken, et al., "Supplemental Nurse Staffing in Hospitals and Quality of Care," *JONA*, July/August 2007. [http://www.amnhealthcare.com/PDF/Use\\_of\\_Supplemental\\_Nurses\\_AMN\\_Webcast.pdf](http://www.amnhealthcare.com/PDF/Use_of_Supplemental_Nurses_AMN_Webcast.pdf).
- <sup>14</sup> Ronda G. Hughes, *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, (Rockville, MD: Agency for Healthcare Research and Quality, 2008).
- <sup>15</sup> *Ibid.*
- <sup>16</sup> Jeannie P. Cimiotti, et al. "Nurse staffing, burnout and health care-associated infection," *American Journal of Infection Control*, 40.6 (August 2012).
- <sup>17</sup> Needleman, J., et al. "Nurse Staffing and Inpatient Hospital Mortality," *New England Journal of Medicine*, 362.11 (2011).
- <sup>18</sup> Linda Aiken, et al. "Effects of nurse staffing and nurse education on patient deaths in hospitals with different nurse work environments," *Med Care*, 49.12 (December 2011), 1047-53.
- <sup>19</sup> "2011 Survey of Registered Nurses: Job Satisfaction and Career Plans," AMN Healthcare, 2011. <http://www.amnhealthcare.com/industry-research/industry-research.aspx>.
- <sup>20</sup> Robert Rosseter, "Nursing Shortage," American Association of Colleges of Nursing, July 15, 2011. <http://www.aacn.nche.edu/media-relations/fact-sheets/nursing-shortage>.
- <sup>21</sup> "Survey of Leading Healthcare Executives Identifies Top Factors Impacting Nurse Turnover," *Allbusiness.com*, November 22, 2005. <http://www.allbusiness.com/health-care/health-care-professionals-nurses-nursing/5155333-1.html>.
- <sup>22</sup> Steven T. Hunt, "Nursing turnover: Costs, Causes, and Solutions," Success factors for Healthcare, Inc., 2009. <http://www.uexcel.com/resources/articles/NursingTurnover.pdf>.
- <sup>23</sup> Linda Aiken, et al., "Supplemental Nurse Staffing in Hospitals and Quality of Care," *JONA*, July/August 2007.
- <sup>24</sup> Amy Every, "Best Practices for Controlling Labor Costs," *Healthcare Financial Management Association*, June 2008. <http://www.hfma.org/?ItemID>.
- <sup>25</sup> *Ibid.*
- <sup>26</sup> C.J. Jones, "The Costs of Nurse Turnover, pt 2: Application of the Nursing Turnover Costs Calculation Methodology," *Journal of Nursing Administration*, 35.1 (2005), 41-9.
- <sup>27</sup> U.S. Department of Labor, Bureau of Labor Statistics, "Industry Output and Employment Projections to 2020: Table 1.2. Employment by detailed occupation, 2010 and projected 2020," *Monthly Labor Review*, January 2012. [http://www.bls.gov/emp/ep\\_table\\_102.htm](http://www.bls.gov/emp/ep_table_102.htm).
- <sup>28</sup> Sung-Heui Bae, et al., "State mandatory overtime regulations and newly licensed nurses' mandatory and voluntary overtime and total work hours," *Nursing Outlook* 60.2, March 2012, 60-71.
- <sup>29</sup> CT Covner, M. Djukic, "The nursing career process from application through the first 2 years of employment," *Journal of Professional Nursing* (25), 2009, 197-203; A. Squires, "New graduate orientation in the rural community hospital," *Journal of Continuing Education Nursing* (33), 2002, 203-9.
- <sup>30</sup> "Nurses (still) wanted," *Sacramento Business Journal*, January 13, 2008. <http://www.bizjournals.com/sacramento/stories/2008/01/14/focus1.html>; Kathy Robertson, *Sacramento Business Journal*, January 19, 2004.

- <sup>31</sup> Linda Aiken, et. al. "Implications of the California Nurse Staffing Mandate for Other States," *Health Services Research*, Volume 45 (4), August, 2010.
- <sup>32</sup> M. McCue, et al., "Nurse staffing, quality, and financial performance," *Journal of Health Care Finance*, 29.4, 2003, 54-76.
- <sup>33</sup> Minnesota Nursing Association, "Fact Sheet: RN-to-Patient Staffing Ratios," 2010.  
<http://mnnurses.files.wordpress.com/2010/03/staffing-ratios-fact-sheet.pdf>.
- <sup>34</sup> National Nurses United, "The Evidence is In: RN-to-Patient Ratios Save Lives," 2011.  
<http://www.nationalnursesunited.org/issues/entry/ratios>.
- <sup>35</sup> Linda Aiken, et. al. "Implications of the California Nurse Staffing Mandate for Other States," *Health Services Research*, Volume 45 (4), August, 2010.
- <sup>36</sup> *Ibid.*
- <sup>37</sup> American Nursing Association, "Nurse Staffing Plans and Ratios," December, 2011. (accessed January 15, 2013).
- <sup>38</sup> Pam Chwedyk, "The Politics of Staffing," *Advance for Nurses*, March 2012.  
<http://nursing.advanceweb.com/Features/Articles/The-Politics-of-Staffing.aspx>
- <sup>39</sup> American Nurses Association, "Mandatory Overtime," 2011.  
<http://nursingworld.org/MainMenuCategories/ANAPoliticalPower/State/StateLegislativeAgenda/MandatoryOvertime.aspx>.
- <sup>40</sup> American Nurses Association, "Safe Staffing: The Registered Nurse Safe Staffing Act," 2012.  
<http://www.nursingworld.org/SafeStaffingFactsheet.aspx>.
- <sup>41</sup> U.S. Senate. 111th Congress. "S. 992, National Nursing Shortage Reform and Patient Advocacy Act," GovTrack.us.  
<http://www.govtrack.us/congress/bill.xpd?bill=s112-992>.
- <sup>42</sup> Adjoa Adofo, "Rep. Schakowsky Introduces Bill to Improve Patient Care & Curtail Nurse Shortage," *House.gov*, June 15, 2011. [http://schakowsky.house.gov/index.php?option=com\\_content&view=article&id=2944:rep-schakowsky-introduces-bill-to-improve-patient-care-a-curtail-nurse-shortage&catid=22:2011-press-releases](http://schakowsky.house.gov/index.php?option=com_content&view=article&id=2944:rep-schakowsky-introduces-bill-to-improve-patient-care-a-curtail-nurse-shortage&catid=22:2011-press-releases).
- <sup>43</sup> Mike Hall, "NNU Nurses Call for Safe Staffing Ratio for D.C. Hospitals," *AFL-CIO*, February 2013.  
<http://www.aflcio.org/Blog/Political-Action-Legislation/NNU-Nurses-Call-for-Safe-Staffing-Ratio-for-D.C.-Hospitals>.

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*The Department for Professional Employees, AFL-CIO (DPE) comprises 21 AFL-CIO unions representing over four million people working in professional and technical occupations. DPE-affiliated unions represent: teachers, college professors, and school administrators; library workers; nurses, doctors, and other health care professionals; engineers, scientists, and IT workers; journalists and writers, broadcast technicians and communications specialists; performing and visual artists; professional athletes; professional firefighters; psychologists, social workers, and many others. DPE was chartered by the AFL-CIO in 1977 in recognition of the rapidly growing professional and technical occupations.*

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