

## Nurses – essential for improving the health of New Zealanders

# Nurses in acute care settings

Nurses<sup>1</sup> provide a continuous 24 hour seven-day-a-week patient care and surveillance system in acute care settings and are in the best position to initiate actions that minimise adverse events and outcomes for patients.<sup>1</sup> Outcomes that are potentially sensitive to nursing care (OPSN) are listed in box 1.<sup>2</sup> With the correct number and mix of nurses to assess patients and intervene when required, all these outcomes are preventable.

For example, a higher proportion of hours of care per day and absolute hours of care per day provided by registered nurses are associated with:

- > shorter length of stay;
- > fewer urinary tract infections;
- > less gastrointestinal bleeding;
- > lower rates of pneumonia, shock or cardiac arrest and;
- > lower rates of failure to rescue in medical patients.<sup>2</sup>

Research also demonstrates that each additional patient added to a nurse's workload is associated with a seven percent increase in the likelihood of dying within 30 days of admission.<sup>3</sup>

Davis and colleagues<sup>4</sup> estimate that adverse events in New Zealand hospitals (which occur in over 11 percent of admissions) add an average of nine days to the expected hospital stay. Financially, this has been calculated at at least NZ\$38 million, plus the Accident Compensation Corporation costs associated with injury and rehabilitation due to medical misadventure.<sup>5</sup> This did not include the costs to patients of lost income or quality of life, or to the Treasury in lost tax. Burns and colleagues<sup>6</sup> estimate the cost of additional days of hospital stay due to hospital-acquired infections alone is between NZ\$50-\$85 annually.

Internationally, evidence shows reducing the number of adverse outcomes by increasing nurse-to-patient ratios produces significant costs savings and,

### Box 1: Outcomes that are potentially sensitive to nursing care<sup>2</sup>

- > urinary tract infections
- > skin pressure ulcers
- > hospital acquired pneumonia
- > deep vein thrombosis
- > pulmonary embolism
- > upper gastrointestinal bleeding
- > central nervous system complications
- > sepsis
- > shock
- > cardiac arrest
- > surgical wound infections
- > pulmonary failure (surgical patients only)
- > metabolic derangement (surgical patients only)
- > patient length of stay
- > failure to rescue

<sup>1</sup> Nurse includes registered and enrolled nurses and nurse practitioners unless otherwise indicated.

increasing nurse staffing levels and the proportion of registered nurses (RNs) in a given setting, improves quality of care and saves money (see box 2).

#### Box 2: cost savings associated with increased registered nurse staffing levels

- > Estimated savings in adverse patient outcomes in a typical 200-bed hospital that moved from a 1-to-5 registered nurse to patient ratio over a 10-year period to a 1-to-4 ratio saved US\$7.5million in the first year and more than US\$11million per year by year 10.<sup>7</sup>
- > Increasing nurse staffing levels and the proportion of RNs reduces costs, reduces length of stay, reduces adverse outcomes and reduces patient death. Reduced length of stay contributes 90 percent of the cost savings associated with increased nurse staffing.<sup>8</sup>

While hospital productivity has arguably increased between 2007 and 2009, this is in large measure due to an increased focus by district health boards (DHBs) on short-term stays and outpatient care, rather than improved nursing care or by any other factor.<sup>9</sup>

#### Summary

In summary, refocusing health care spending on improving and evaluating nursing skill mix and numbers in acute care settings is likely to result in significant cost savings and improved health outcomes. This should become a policy priority.

---

## References

- <sup>1</sup> Twigg, D., Duffield, C., Thompson, P., & Rapley, P. (2010). The impact of nurses on patient morbidity and mortality – the need for a policy change in response to the nursing shortage. *Australian Health Review*, 34, 312-316.
- <sup>2</sup> Needleman, J., Buerhaus, P., Mattke, S., Stewart, M., & Zelevinsky, K. (2002). Nurse-staffing levels and the quality of care in hospitals. *New England Journal of Medicine*, 346(22), 1715-22.
- <sup>3</sup> Aiken, L., Clarke, S., Sloane, D., Sochalski, J., & Silber, J. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction, *JAMA*, 288(16), 1987-93.
- <sup>4</sup> Davis, P., Roy, L-L., Briant, R., Ali, W., Scott, A., & Schug, S. (2002). Adverse events in New Zealand public hospitals I: occurrence and impact. *J NZMA*, 115(1167).
- <sup>5</sup> Bryant, L. (2004). Representative case series from public hospital admissions 1998 I: drug and related therapeutic adverse events. *NZMJ*, 117(1188).

---

<sup>6</sup> Burns, A., Bowers, L., Pak, N., Wignall, J., & Roberts, S. (2010). The excess cost associated with healthcare-associated bloodstream infections at Auckland City Hospital. *NZMJ*, 123(1324).

<sup>7</sup> Michigan Nurses Association. (2004). *The model case for reducing patient-to-nurse ratios in Michigan hospitals: two scenarios*. Lansing MI: Public Policy Associates, Incorporated.

<sup>8</sup> Needleman, J., Buerhaus, P., Stewart, M., Zelevinsky, K., & Mattke, S. (2006). Nurse staffing in hospitals: is there a business case for quality? *Health Affairs*, 25(1), 204-11.

<sup>9</sup> Health Services Research Centre. (2011). *NZ hospital performance 2001-2009: outputs, inputs and productivity*. Wellington: Victoria University.

**Date adopted:** April 2013

**Reviewed:** Month Year, Month Year

**Review date:** April 2013

**Correspondence to:** nurses@nzno.org.nz

Principal authors: Jill Clendon and Leonie Walker

**Mission statement**

NZNO is committed to the representation of members and the promotion of nursing and midwifery. NZNO embraces Te Tiriti o Waitangi and works to improve the health status of all peoples of Aotearoa/ New Zealand through participation in health and social policy development.

© 2013 This material is copyright to the New Zealand Nurses Organisation.

Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the Copyright Act, no part of this publication may be reproduced by any process, stored in a retrieval system or transmitted in any form without the written permission of the Chief Executive of the New Zealand Nurses Organisation (NZNO), PO Box 2128, Wellington 6140.