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The primacy of vital signs – Acute care nurses' and midwives' use of physical assessment skills: A cross sectional study

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A R T I C L E   I N F O

A B S T R A C T

Background: Registered nurses and midwives play an essential role in detecting patients at risk of deterioration through ongoing assessment and action in response to changing health status. Yet, evidence suggests that clinical deterioration frequently goes unnoticed in hospitalised patients. While much attention has been paid to early warning and rapid response systems, little research has examined factors related to physical assessment skills.

Objectives: To determine a minimum data set of core skills used during nursing assessment of hospitalised patients and identify nurse and workplace predictors of the use of physical assessment to detect patient deterioration.

Design: The study used a single-centre, cross-sectional survey design.

Setting and participants: The study included 434 registered nurses and midwives (Grades 5–7) involved in clinical care of patients on acute care wards, including medicine, surgery, oncology, mental health and maternity service areas, at a 929-bed tertiary referral teaching hospital in Southeast Queensland, Australia.

Methods: We conducted a hospital-wide survey of registered nurses and midwives using the 133-item *Physical Assessment Skills Inventory* and the 58-item *Barriers to Registered Nurses' Use of Physical Assessment Scale*. Median frequency for each physical assessment skill was calculated to determine core skills. To explore predictors of core skill utilisation, backward stepwise general linear modelling was conducted. Means and regression coefficients are reported with 95% confidence intervals. A p value $<.05$ was considered significant for all analyses.

Results: Core skills used by most nurses every time they worked included assessment of temperature, oxygen saturation, blood pressure, breathing effort, skin, wound and mental status. Reliance on others and technology ($F = 35.77$, $p < .001$), lack of confidence ($F = 5.52$, $p = .02$), work area ($F = 3.79$, $p = .002$), and clinical role ($F = 44.24$, $p < .001$) were significant predictors of the extent of physical assessment skill use.

Conclusions: The increasing acuity of the acute care patient plausibly warrants more than vital signs assessment; however, our study confirms nurses' physical assessment core skill set is mainly comprised of vital signs. The focus on these endpoints of deterioration as

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dictated by early warning and rapid response systems may divert attention from and devalue comprehensive nursing assessment that could detect subtle changes in health status earlier in the patient's hospitalisation.

What is already known about the topic?

- Despite the growing body of research on hospital-wide systems designed to improve early recognition and response to patient deterioration, findings are mixed and expected improvements in patient survival has not been consistently realised.
- Ward-level nursing surveillance is essential to detect patients at risk of clinical deterioration, but we know little about the assessment activities of acute care registered nurses and midwives.

What this paper adds

- On average, registered nurses/midwives use a small set of core physical assessment skills augmented by a cluster of additional core skills relevant to their specialty area.
- Controlling for clinical role and clinical work area, perceived lack of confidence and reliance on others and technology are significant predictors of the physical assessment skill use of acute care nurses and midwives.
- The findings of this research indicate that nursing practice is directed towards collecting and reporting minimal data that will detect end stages of clinical deterioration. We argue that this, in part, is a response to the current hospital safety agenda, which is driven by early warning and rapid response systems, and relies on nurses collecting data according to predefined parameters rather than concentrating on assessment of patient health status.

1. Introduction

The changing profile of hospitalised patients means sicker patients with more complex needs are at greater risk of becoming seriously ill during their hospital stay. Rates of unanticipated in-hospital morbidity and mortality have been estimated between 12 and 48% (Buist et al., 2004; Jacques et al., 2006; Kause et al., 2004). A deteriorating patient moves from one clinical state to a worse clinical state, increasing their individual risk of morbidity and death (Jones et al., 2013, p. 1031). Missed signs of deteriorating health status can result in a failure to rescue patients from clinical deterioration and subsequent poorer outcomes (Chan et al., 2010; McGaughey et al., 2009; Silber et al., 1992).

In response to the changing acuity of hospital ward patients there has been a focus on the patient safety and quality agenda and imperatives for efficient and effective health service systems. Government agencies worldwide have promoted and commissioned guidelines for recognition of and response to acute clinical deterioration (ACSQH, 2012; IHI, 2008; NICE, 2007). Globally, these hospital

safety initiatives have resulted in the uptake of early warning systems and rapid response teams to recognise and respond to clinical deterioration. Early warning systems and rapid response teams are predicated on the recognition of predetermined criteria to alert special teams (e.g. rapid response teams (RRT), medical emergency teams (MET), critical care outreach teams (CCOT)) to attend to and intervene in situations where physiological indicators of patients' health status lie within the parameters of predetermined criteria. Despite the prolific and growing body of literature on the institution-wide implementation of a systems approach to clinical deterioration, the state of the science generally remains inconclusive on the effectiveness of these initiatives (Chan et al., 2010; Gao et al., 2007; McGaughey et al., 2009; McNeill and Bryden, 2013; Ranji et al., 2007; Winters et al., 2013). Although beneficial effects of rapid response systems are becoming more apparent in some local contexts, these benefits are not achieved consistently by all programs (Chan et al., 2010; Winters et al., 2013).

It has been known for some time that patients exhibit signs of clinical deterioration prior to cardiac arrest, unplanned intensive care unit admission or death, and these signs are often not recognised or acted upon (Buist et al., 2004; Franklin and Mathew, 1994; Goldhill and McNarry, 2004; Hogan, 2006; Lighthall et al., 2009; Schein et al., 1990). Moreover, several large prospective, observational studies identified changes in vital signs, such as blood pressure, respiratory rate, heart rate, arterial oxygen saturation and level of consciousness, as the most common predictors of clinical deterioration (Buist et al., 2004; Kause et al., 2004; Lighthall et al., 2009). Most early warning systems and rapid response teams are based upon vital signs observations and the recognition of abnormal vital signs to trigger the response.

Clinical frontline nurses play an essential role in detecting changes in patients' health status through ongoing health assessment and timely, appropriate action in response to changes, or deterioration, in health status (Considine and Botti, 2004; Odell et al., 2009; Yeung et al., 2012). Despite the centrality of health assessment in nursing education, previous research suggests that only 11–29% of the physical assessment skills taught in nursing programs are regularly used by RNs in practice (Birks et al., 2012; Giddens, 2007; Secrest et al., 2005). Questions were raised about the need for nursing students to learn such a large range of physical assessment skills to practice nursing – skills which were derived from a medical model and whereby only a small set of these skills were used in practice (Giddens, 2007; Secrest et al., 2005). An alternative explanation has been offered in that, perhaps, nurses were not being used to their full capacity (Giddens, 2007).