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Best practice in clinical simulation education – are we there yet? A cross-sectional survey of simulation in Australian and New Zealand pre-registration nursing education

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ABSTRACT

Background: Simulation is potentially a means of increasing clinical education capacity. Significant investments have been made in simulation but the extent to which this has improved uptake, quality and diversity of simulation use is unclear.
Aim: To describe the current use of simulation in tertiary nursing education programs leading to nurse registration Australia and New Zealand, and determine whether investments in simulation have improved uptake, quality and diversity of simulation experiences.
Methods: A cross sectional electronic survey distributed to lead nursing academics in programs leading to nurse registration in Australia and New Zealand.
Findings: 51.6% of institutions responded and reported wide variation in allocation of program hours to clinical and simulation learning. Simulation was embedded in curricula and positively valued as an adjunct or substitute for clinical placement. While simulation environments were adequate, staff time, training and resource development were barriers to increasing the quality, amount and range of simulation experiences. Quality assurance and robust evaluation were weak.
Discussion: Simulation program hours are inconsistently reported and underutilized in terms of potential contribution to clinical learning. Benefits of capital investment in simulation physical resources have been realised, but barriers persist for increasing high quality simulation in nursing programs.
Conclusion: Transitioning components of clinical education from the clinical to tertiary sectors has resource implications. Establishment of sustainable, high quality simulation experiences requires staff training, shared resources, best practice and robust evaluation of simulation experiences in nursing curricula.

1. Introduction

Responding to the global health workforce crisis demands growth in nursing student enrolments, but this is constrained by the capacity to provide quality clinical placements. Competition for clinical placements, shortage and reluctance of experienced registered nurses to mentor students, changes in skill mix and increasing patient acuity, all limit the number of students that can be accommodated in clinical contexts, and the quality of educational support provided. Simulation has been proposed as a means of overcoming the impasse between the healthcare workforce shortage and clinical education capacity. Consequently, over the last five years there has been significant investment in simulation training, infrastructure, equipment and capital works programs. However, the extent to which this investment has resulted in improvement in the quality and diversity of simulation sessions is unclear. Acknowledging

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that political will and financial support for simulation and levels of scholarship in simulation pedagogy have increased rapidly over the last decade, this paper examines current use of simulation in nursing education programs in Australia and New Zealand.

2. Background

The 2006 *Working Together for Health* report (World Health Organisation, 2006) identified a global shortage of almost 4.3 million doctors, nurses and midwives, and called for a decade of action on human resources for health. The report triggered numerous policy initiatives both internationally and at national level. Health Workforce Australia (HWA) was a statutory authority established under the *Health Workforce Australia Act 2009* and disestablished under the *Health Workforce Australia (Abolition) Act 2014* as a result of targeted government reforms to 'improve the efficiency, effectiveness and focus of the Commonwealth public service' (Cormann, 2014). During its short lifespan one of HWA's functions, as defined in the 2009 Act, included provision of financial support for delivery of clinical training; including simulation training (Australian Government Department of Health and Health Workforce Australia, 2015). As part of this mandate, HWA allocated AU$94 M to the Simulated Learning Environment (SLE) Program to increase health system capacity for clinical training using simulation. This program included funding to identify existing and potential use of simulation techniques in curricula across 12 individual professions (including nursing and midwifery) as well as designating AU $46 M to support SLE capital and establishment and AU$48 M for recurrent operations. Of this funding, 70% was distributed to successful bids from state based health service sectors and the remainder to universities and private health sectors.

Other relevant outcomes of the HWA SLE program included establishment of the national Australian Simulation Educator and Technician Training (AusSETT) program (2010–2011) to support professional development of simulation educators and technicians using a 'train the trainer' approach. This provided the foundation for the National Health Education and Training in Simulation or NHET-Sim program – funded by HWA (2012–2014) – that aims to support individuals using simulation as an educational method to help improve clinical training capacity. The national NHET-Sim program is ongoing and now funded by the Commonwealth Department of Health (NHET - Sim and Australian Government Department of Health, 2016).

HWA reports from the nursing and midwifery curriculum scoping projects drew upon extant literature and views of key stakeholders; who, at the time, were cautious in their engagement with the HWA SLE research and apprehensive that an outcome would be mandated replacement of a prescribed number of clinical practice hours with simulation (Bogossian et al., 2010; Rudd et al., 2010). The final reports revealed a consensus position that simulation should be an adjunct to clinical placements but not a replacement for clinical experience. This position is reflected in New Zealand, where the regulatory body, the Nursing Council of New Zealand states, that for programs leading to registration as a nurse "Simulation hours cannot be included in clinical experience hours" p.8 (Nursing Council of New Zealand, 2015). Furthermore, the HWA reports highlighted that effective use of simulation in nursing and midwifery education required adequate resourcing (human and physical), establishment and recurrent funding, careful consideration as to the types of clinical learning outcomes most suited to simulation, and a whole of curriculum approach to integrating simulation experiences (Bogossian et al., 2010; Rudd et al., 2010).

However, in the past 5 years there has been increasing acknowledgment that sustainability of current levels of clinical practice hours and costs of providing clinical placements may be a threat to tertiary nursing programs in Australia, although this maybe a lesser issue for New Zealand pre-registration nursing programs. However, despite extensive research into strategies to maximise learning in simulation environments (Harder, 2015) and emerging evidence that simulation can be a substitue for clinical placements (Blackstock et al., 2013; Imms et al., 2017; Nestel & Bearman, 2015), explicit replacement of clinical placement hours with simulation sessions has not yet been approved by nursing accrediting bodies in either country (Nursing Council of New Zealand, 2015).

Australia	New Zealand
A minimum of **800 hours of workplace experience,** not inclusive of simulation activities, and content and sequencing of the program of study prepares students for nursing practice experience and **includes opportunities for simulated learning wherever possible.** (Australian Nursing & Midwifery Accrediation Council, 2012)	Provide a minimum of **1100 clinical experience hours** for all students, with all students being entitled to 1500 clinical experience hours in which to demonstrate competence. **Simulation hours cannot be included in clinical experience hours**. The NCNZ recommend all students should have **access to simulation learning resources in order to prepare them appropriately for clinical experiences** to ensure the safety of health consumers, students and staff. (Nursing Council of New Zealand, 2015)

Fig. 1. Accreditation authority requirements for clinical experiences in nursing programs leading to registration in Australia and New Zealand (Australian Nursing and Midwifery Accrediation Council, 2012).

Despite the Trans-Tasman agreement between Australia and New Zealand allowing for mutual recognition of registered nurses between the two jurisdictions, there are variations between the two countries in standards and procedures for nursing regulation and program accreditation. Notably, this variation extends to requirements for clinical experiences within accredited nursing programs as detailed in Fig. 1 with emphasis added.

In the United States of America (USA) the National Council of the State Boards of Nursing (NCSBN) funded a landmark longitudinal, randomised controlled study (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). Although there are significant differences in nursing education between the USA, New Zealand and Australia (with respect to systems of regulation, undergraduate curriculum length, requirements for licensure, undergraduate and postgraduate pathways to practice, education funding models, levels of philanthropy and variation in levels of education providers), that preclude adoption of the NCSBN study findings in the Australian context, the study results did provide primary evidence for substitution of simulation for clinical placements. The NCSBN study concluded that 'substituting *high-quality* simulation experiences for up to half of traditional clinical hours produces comparable end-of-program educational outcomes and new graduates that are ready for clinical practice' (Hayden et al., 2014, s3, emphasis added). It should be noted that the study included a standardised simulation curriculum and mandatory training in simulation techniques.

At the end of the decade of action on human resources for health, the WHO progressive workforce agenda identifies that persistent health workforce challenges require reappraisal of the effectiveness of past strategies and a paradigm shift in how we educate health workers (World Health Organisation, 2016). Consequently, the aims of this paper are to describe current use of simulation in tertiary nursing education programs leading to registration as a nurse in Australia and New Zealand, and to determine whether the significant investments in simulation over the last five years

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