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Abstract: Across Australia innovations in simulation to enhance learning in nursing have been occurring for three decades and nursing is, and needs to be, a leading player in simulation knowledge diffusion. However, expertise is unevenly distributed across health services and higher education. Rather than build on the achievements of others, there is a tendency for resource duplication, trial and error problem solving, and failure to communicate achievements for the benefits of the professional collective. For nursing to become a leader in the use of simulation and drive ongoing development, as well as conducting high quality research and evaluation, academics need to collaborate, aggregate best practice in simulation learning, and disseminate that knowledge to educators working in health services and higher education sectors across the whole of Australia and New Zealand. To achieve this strategic intent, with capacity development principles and committed action are necessary.
In mid 2010 the opportunity to bring together nurse educators with simulation learning expertise within Australia and New Zealand became a reality. The Council of Deans of Nursing and Midwifery (CDNM) Australia and New Zealand along with Laerdal Australia supported the establishment of an expert group to reflect on the state of Australian nursing simulation, to pool expertise and to plan ways to share best practice knowledge on simulation more widely.
This paper reflects on the achievements of the first 18 months of the group's establishment and considers future directions for the enhancement of simulation learning practice, research and development in Australian nursing.

Figure
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Scenario Overview

Estimated Scenario time: 20 minutes
Estimated Debriefing time: 20 minutes

Target Groups: Nurses
Core Scenario

Brief Summary:
This scenario presents a postoperative patient. The student will be expected to perform a respiratory assessment, assess pain level, identify the need for incentive spirometry, and provide patient education on preventing respiratory complications.

Learning Objectives

General:

- ☐ Collects and interprets patient assessment data including vital signs
- ☐ Identifies the primary nursing diagnosis
- ☐ Undertakes risk assessment
- ☐ Implements patient safety measures
- ☐ Implements therapeutic communication
- ☐ Implements direct communication with multidisciplinary team members
- ☐ Demonstrates effective teamwork
- ☐ Prioritises and implements nursing actions and medical orders appropriately

Scenario Specific:

- ☐ Implements a focused respiratory assessment
- ☐ Recalls postoperative respiratory complications associated with immobility
- ☐ Demonstrates correct use of incentive spirometer

Laerdal
helping save lives

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Hand over to Students

Time: 0700 hours
Mr. Watkins is a 69-year-old male who had an emergency hemicolectomy for a perforated colon 3 days ago. He has a midline abdominal incision. He has a right forearm peripheral IV with Normal Saline infusing at 80 mL/hour. IV of Cefotaxime 500 mg was started at 0645 hours and he has received his Irbesartin 150mg. His nasogastric tube and urinary catheter were removed last evening. He is tolerating full liquids and voiding without difficulty. He has knee high TED's in-situ. He was medicated with 2 Paracetamol tablets for pain at 0600 hours. The pain was rated as a "6" on a pain scale.

Clinical signs immediately visible:
- Alert and responsive
- Expressing pain
- Appears uncomfortable

Additional Information, Medical History

Patient data:	Male – Age 69 years old. Weight 80 kg. Height 1.82 metres.
DOB:	09/04/XX
Medical record number:	153624
Allergies:	Penicillin (hives)
Past medical history:	Mr. Watkins is a retired postal service worker. He has a history of cataracts, controlled hypertension. He smokes 20 filtered cigarettes a day, walks three kilometres a day and enjoys gardening.
Recent medical history:	Presented to Emergency Department 3 days ago with complaints of nausea, vomiting, and severe abdominal pain. He was admitted for emergency bowel perforation.

Documentation

Prepare relevant documentation to support scenario:

For example:
- Admission patient notes
- Observation charts
- Medication chart
- Medical orders

Medical orders relevant to this scenario
- Diet: Full liquid progress to soft as tolerated
- Activity: Assisted out of bed 4 times a day
- Vital signs every 4 hours
- Fluid Balance recorded and assessed 8 hourly
- Incentive spirometer 10 times every 2 hours while awake
- Oxygen at 2 L/minute via nasal cannula to maintain SpO_2 greater than 92%
- Intravenous of Normal Saline at 80 mls per hour
- Compression stockings (TED's)

Medication:
- Paracetamol (as per protocols)
- Cefotazime (as per protocols)
- Irbesartin (as per protocols)
- Transfer to surgical ward

Figure
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Debriefing

Refer to debriefing guideline in section 2.

Utilise an appropriate debriefing model to examine the extent to which students' achieved the learning objectives.

Facilitate students' reflection on their actions in light of the best available evidence, challenging them to provide a rationale for their actions

Postoperative patients are at risk for complications such as atelectasis, pneumonia, deep vein thrombosis, pulmonary embolism, constipation, paralytic ileus, and wound infection.

Respiratory depressive effects of opioid medications, decreased lung expansion secondary to pain, and decreased mobility combined with this patient's history of smoking put the patient at risk for respiratory complications, particularly atelectasis. Signs and symptoms include decreased breath sounds, crackles, and cough. A low grade temperature one to three days post surgery generally indicates respiratory complications.

Preventative measures and timely recognition of signs and symptoms help avert pulmonary complications. Strategies to prevent respiratory complications include use of an incentive spirometer and deep breathing and coughing exercises.

After major abdominal surgery, distention may be avoided by having the patient turn frequently, exercise, and ambulate as early as possible. The nurse can determine when peristaltic bowel sounds return by listening to the abdomen with a stethoscope. Bowel sounds are documented so that diet progression can occur.

Title of the paper;

Clinical Simulation in Australia and New Zealand: through the lens of an advisory group.

Abstract

Across Australia innovations in simulation to enhance learning in nursing have been occurring for three decades and nursing is, and needs to be, a leading player in simulation knowledge diffusion. However, expertise is unevenly distributed across health services and higher education. Rather than build on the achievements of others, there is a tendency for resource duplication, trial and error problem solving, and failure to communicate achievements for the benefits of the professional collective. For nursing to become a leader in the use of simulation and drive ongoing development, as well as conducting high quality research and evaluation, academics need to collaborate, aggregate best practice in simulation learning, and disseminate that knowledge to educators working in health services and higher education sectors across the whole of Australia and New Zealand. To achieve this strategic intent, with capacity development principles and committed action are necessary.

In mid 2010 the opportunity to bring together nurse educators with simulation learning expertise within Australia and New Zealand became a reality. The Council of Deans of Nursing and Midwifery (CDNM) Australia and New Zealand along with Laerdal Australia supported the establishment of an expert group to reflect on the state of Australian nursing simulation, to pool expertise and to plan ways to share best practice knowledge on simulation more widely.

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Key words; Capacity Development; Nursing; Simulation; Simulation Learning Environment; Pedagogy;

Introduction

Simulations are designed to amplify (Gaba 2004), mimic or replace real-life situations, giving students opportunity to reason through a clinical problem and make decisions without the potential for harming actual patients (Bond & Spillane, 2002). Simulations are not new. They have been used in military and aeronautical training since Post War very successfully, producing low failure rates (Gaba, 2004) and increasingly used as a teaching tool in education of health professionals, particularly medical and nursing students, over the past three decades. When time is of the essence, and opportunities to experience and practice a range of health skills are constrained, simulation learning offers exciting potential to maintain rigour and quality in clinical learning.

The simulation imperative

Over recent years a number of critical changes have occurred within the health and education environments and their momentum has gradually built, so that now there is widespread acknowledgement that we have a critical situation in nursing education – a confluence of problems. The need to increase the numbers of health professionals along with the challenge of identifying sufficient numbers of clinical placement opportunities has left health professional education and training with a currently unbalanced equation.

There has been rapid growth in technologies in both health and education. Length of stay in most specialties in Health services is much shorter (de Maria, 2011), as people are being encouraged to self-manage their health care needs (Davidson, 2005), and when they are admitted to hospital their conditions are more acute and their needs much more intense. At the same time, there has been a prolonged and unabating shortage of health professionals in every field (Del Mar & Dwyer, 2007). There have also been shocking reports of poor risk management and threats to patient safety in most countries in the developed world (World Health Organisation, 2005). Consumers have been becoming more informed, active and expectant of care that is of high quality and that practitioners delivering that care are accountable (WHO 2005). Thus, health professionals are in the situation where clinical services are under a great deal of pressure to maintain standards, and thus the time available to support students is constrained.

Yet, for the very same reasons that health systems are under pressure, the education sector is also finding it difficult to meet its quality agenda (Potempa, Redman & Landstrom, 2009). Higher numbers of students are needed to fill the growing workforce shortages; for students to reach competence in the complex health fields they need more intensive, effective learning experiences; and yet the clinical placements required for comprehensive learning are harder to secure (HWA 2010). In the current health landscape, it is no longer guaranteed that students will be able to access the clinical environments necessary to master the skills they will need as graduates {Baxter et al 2009]. Simulation learning is therefore

no longer simply a creative adjunct for student learning, it is an imperative.

Strengths and challenges of simulation learning

In order to focus innovations and research in simulation learning in nursing in Australia it is important to first consider the strengths and challenges that simulation learning offers, to appreciate international research activities in the area and for Australian Nursing to strategically and effectively contribute to that.

{Insert Table 1 here please] Advantages and Disadvantages of simulation learning.

Modified from Nehring and Lashley 2010

Simulation learning environments provide the potential to amplify key learnings necessary for competent practice in health care contexts. This is particularly important for those areas in which sufficient numbers of placements are difficult to secure. Examples include acute mental health, intensive care or community agencies.

Simulation learning, particularly simulation involving Second Life (Au 2008, Rosedall 1999) and Agent Based Gaming (Bilge and Saka 2006) are exciting frontiers that bring together health, technology and learning. For a generation of students this is particularly important. These students want learning experiences that are

engaging and technology-rich (Childs, Blenkinsopp, Hall and Walton 2005).

At present gaming technology is being used in health assessment, communication and team work skills (Bandali et al., 2008). Some Australian nursing students have the opportunity to make their own avatar, explore a health encounter by meeting virtual clients on line, practicing their interview skills and responding to the health needs of the virtual clients within the online environment (Muir-Cochrane et al., 2010). A challenge is to correct the growing inequity – where some students have access to this exciting learning experience, and others do not.

Another possible benefit, yet to be firmly established with evidence is that in some cases, simulation learning may actually be superior to learning that occurs in the clinical setting. Advocates argue that poorly supervised clinical learning can be uncontrolled and subject to the vagaries and complexities of busy health environments (Baxter et al 09, Papp et al 03 & Levett-Jones 03). In this situation, some students get an intense, comprehensive experience. Others may not. Simulation may therefore offer a more controlled learning environment, where every student can be guaranteed to engage in the learning and be expected to demonstrate competence. An ongoing study in the United States of America led by Professor Pamela Jeffries who is currently the Project Director for the national simulation study funded by the National League for Nursing and the Laerdal Corporation. This study is being conducted across eight geographic sites over a three year period and is considering the impact of replacing clinical practice learning with simulated learning.

A challenge for simulation learning is the high financial costs of establishment. The costs relate to staff development, capital investment of the spaces and resources for delivery, as well as curriculum design, or re-design (Lapkin & Levett-Jones, 2011). Reported initial investment costs on simulation equipment (Adamson 2010) in the US suggests between US$51,000 to US$300,000; individual purchases ranged between US$30,000 to US$150,000 for a High Fidelity manikin (Gant 2007) with maintenance and training around US$2,000 to US$5,000 per annum (Adamson 2010). This is not money well spent if users of the technology are not well trained in their use, hold ambivalent opinions about the benefit, or perceive role overload or role strain associated with the expectation to incorporate simulation expertise into their skill set.

There remain many unknowns regarding the value of simulation in nursing and much work is needed to promote widespread best practice, and to continue to evaluate and innovate.

Students report their experiences of simulation learning as generally positive (Levett-Jones et al, 2011) however its effectiveness remains uncertain. There are also many different kinds of simulation and it is not clear how they compare in terms of student satisfaction and efficacy. Nonetheless, Cook et al's (2011) recent systematic review concluded that

> "..in comparison with no intervention, technology-enhanced simulation training in health professions education is consistently associated with large effects for outcomes of

> knowledge, skills, and behaviours and moderate effects for patient-related outcomes.” (p.978)

This is an important beginning and rationale for concerted continuing improvement, systematic evaluation and creative innovation in simulation learning in nursing.

Simulation Learning Pedagogy

One key difference between learning that occurs in the clinical setting and learning within a simulation learning environment is that in the latter there are educators and other students usually more readily available who can act as peer teachers to support the learner. Another difference is that errors are not only safe to occur in this setting, they need to be built into the pedagogy as this is vital for reaching competence. In both settings, learning can occur through peripheral participation (Lave & Wenger, 1991), such as by observing the practice of others, but in a clinical setting it is unlikely that the learner (or educator) can easily interrupt practice for explanation or revision. In the simulation setting, it is appropriate to create space and time for reflection on practice. This is something that may not occur in the clinical setting and so opportunities to internalise learning and thus for it to be retained, may be lost.

A learning theory that illustrates the benefits of simulation learning is Kolb’s (1984) experiential learning cycle (See Figure 1). In this theory, learning is deepened and linked to future action

when the four elements of the framework are included. The concrete experience would be the simulated nurse-client interaction. The reflective observation and abstract conceptualisation phases occur when the student is prompted to maximise the learning by thinking deeply and abstractly about it. Finally, opportunity to practice occurs in the active experimentation phase. In this theory, the role of the educator is to design simulation learning experiences so that all aspects are emphasized and the learner's experience is fore grounded. In this way, educators are assisted to resist inadvertently slipping into a transmission orientation (Pratt, 2001).

Insert figure 1 here please (Kolb learning cycle)

This overview has considered the advantages and disadvantages of simulation learning. Nursing is a large user of simulation, and therefore potentially a large contributor to innovation and research. To move forward it is important that leaders in this area come together to develop a shared vision and united voice.

Taking the simulation agenda forward in Australia

In Australia the Council of Australian Governments (COAG) invested a significant sum into the development of simulation-related resources nationwide. A total budget in excess of AUD$95 million was identified. This funding opportunity, led the Council of Deans of Nursing & Midwifery for Australia and New Zealand (CDNM ANZ) to create a Simulation Learning Environment (SLE) Advisory Group to

consider the issues outlined in the previous section of this paper and to make recommendations to Council on ways forward so that energy, and more importantly financial resources, could be appropriately targeted to meet the needs of integrating simulation learning in structured and meaningful ways. It will also provide an opportunity to consider areas for research and evaluation which may contribute strategically to future planning and development both nationally and internationally.

Establishing the group.

Initially the chair of the CDNM ANZ, through Council, identified key players from universities who had 'runs on the board' using simulation within their programs. These individuals were from different states and territories and brought a depth and breadth of knowledge to the table about simulated learning. Expertise ranged from using high fidelity manikin based scenarios, through to those utilizing pedagogies that incorporated actors and forms of role play. It was also imperative that an area of development could be undertaken with Laerdal in Australia to australianise a series of case studies from the National League for Nursing (NLN) in the United States of America.

The range of expertise, complimented by Laerdal, offered the opportunity for sharing and learning about best practice in simulation based on the experiences of the SLE group members. This created an enriching opportunity for group members to learn about each other’s successful approaches to using simulation learning. As

a consequence the group began to consider broader conceptual issues that underpinned all modalities under the simulation umbrella. Obvious examples being an overarching pedagogy or curriculum model and approaches 'debriefing'; exploration of strategies and models for these important aspects of simulation pedagogy proved to be a useful starting place.

Key plans and strategic intentions of the SLE Group.

The initial exploration was ‘what is each group members’ university doing in simulation at the moment?’ and although this was not to be viewed as an accurate, nor complete, view of simulation in Australia and New Zealand, it served the purpose of beginning an individual and group agenda setting about where the assembled expertise was at that point in time, using the groups individual expertise collectively.

The first area to stimulate discussion was the relatively sharp polarisation between the valuing of high technical fidelity simulation and simulation that uses low technology approaches such as actors or role play. In the latter the learning may well be just as deep (Marton and Säljö 1976) and enable critical thinking, problem solving and reasoning to be further developed but the level of technology used (if any) would be low. The following table illustrates Deckers 2008 simulation typology. Two relatively weak areas are virtual reality and haptic systems; these are still relatively early in their development and rigorous evaluation has yet to be undertaken.

Insert Table 2 here please (Simulation typology)

Decker 2008:75

Terms used in the simulation learning world

Terms used also create challenges as a common understanding cannot be reached unless there is clarity of what terms mean. The literature often differentiates high from low fidelity in a 'technical' way, referring to the equipment and a broad view on the nature of the learning, as can be seen in this definition:

> "Low-fidelity patient simulation refers to individual manikin parts that are used simply as task trainers to teach students specific psychomotor skills. Medium (or intermediate)-fidelity patient simulation uses manikins that can be somewhat computerized; these offer opportunities to practice specific psychomotor skills but lack the complexity and realism of patient scenarios." Weaver (2011:38)

However, Weaver's (2010) definition is not universally accepted. Other writers use the perspective of the simulator, as with Jeffries (2007):

> "The level of simulator can be defined as low fidelity, medium fidelity, and high fidelity regarding the accuracy or exactness of the interaction. Low-fidelity simulators are used to learn, practice, and achieve a designated skill; high-fidelity simulators are used to develop critical thinking skills" Jeffries (2007:37).

Alternatively, some authors suggest that fidelity refers to how authentic or life-like the manikin and/or the simulation experience is (Lapkin & Levett-Jones, 2011). Such definitional diversity is an important point to acknowledge. Nursing education needs to clarify what students need to learn during simulation (e.g. clinical psychomotor skills, critical thinking/clinical reasoning skills, communication and teamwork skills) and in what ways we want the students to learn (the pedagogy). Nursing then needs to clarify how it intends to define and utilise low and high fidelity learning experiences.

This is influenced by nursing Faculties ability to facilitate learning using simulation learning environment methods and techniques. As with the feedback from the group members, it was clear that there were a range of differing approaches to delivering simulation and in the levels of expertise of faculty across Australia and New Zealand. Hence the two initial foci of the group; working with Laerdal and clinicians to australianise the NLN pack and devise and deliver workshops to prepare faculty to deliver simulation education.

Working with Laerdal and clinicians to australianise the NLN pack

In 2007 the NLN in the United States of America and Laerdal (in New York) developed a package for use by nursing educators using the Laerdal SimMan™. This 20-scenario package (see table 3) contained patient cases that addressed learning objectives applicable to

undergraduate nursing programs. The learning objectives provided a framework that would address major areas related to NCLEX-RN test plan categories and included patient assessment and management of nursing care as well as other areas (see table 3). It was acknowledged that in order for an effective and structured integration of simulation into education programmes that faculty would require assistance in a variety of forms. This high fidelity package from NLN/Laerdal contained 20 cases; 10 were medical and 10 were surgical. The first 10 cases (5 medical and 5 surgical) reflected core or “basic” assessment, safety and infection control, prevention of complications and communication and the second 10 were expansions on these, exploring more complex practice. The expanded cases built on the information from the 10 core cases so that students and faculty would be aware of the patient(s) history(ies). However the challenge for students relates to the recognition of complications and their management and requires students to extend their ability to collaborate; work in a team; communicate and coordinate complex care.

[Insert Table 3 please] (NLN/Laerdal Scenarios)

This then formed the basis for the australianisation of the cases so that they could be appropriately located within the Australian and New Zealand healthcare contexts. The NLN/Laerdal pack content was reviewed and revised with teams of clinicians and academics in order to modify language, medication names, include Australian and New Zealand best practice, and to incorporate relevant cultural competence and cultural safety elements.

This process, although time consuming, was invaluable as it gave the SLE Advisory group the opportunity to test the case scenarios with clinicians and other academics for validity and clinical currency. Part of that exploration led to the identification of key elements that became part of the development workshop, which would form another area of focus for the group.

The NLN/Laerdal Simulation in Nursing Education case scenarios contains instructor resources which are structured using Learning Objectives that assist faculty to identify and locate the most appropriate simulation experience to meet identified student outcomes. The overarching structure can be seen in table 4. The layout of each scenario provides information to both the facilitator and to the student so it is clear how the simulation will “flow”. There is a “handover report to students” including relevant additional information. This material is often difficult to create but in this format provides a comprehensive pack. It is complemented by an equipment checklist; preparation of the SimMan™ manikin; the number of participants and their roles, as a well as a detailed timed flow chart of the SimMan™ Settings, Actions, Events and Cues to assist the user in managing the simulation.

[Insert TABLE 4 here please] Promoting Learner evelopment

The structure and processes used in the workshops reflects the NLN/CDNM scenario structures and so brings the expertise of the academics and clinicians who have delivered simulated learning to the forefront. It is designed to assist less experienced staff to use this material as a model of best practice. Lastly, with regard to the NLN/CDNM case scenarios, an example of one of the re-developed scenario materials can be seen in Figures 1, 2 & 3.

[Insert Figs 2, 3 & 4 here please]

Figure 2 shows the Scenario Overview and the Learning Outcomes that are specific to the scenario and then a series of generic outcomes are also identified; Figure 3 illustrates the “Hand over to the students”, “Additional Information” and “Documentation”. These are common to the structure of all scenarios in the pack. Finally, Figure 4 provides a focussed debriefing that is linked to the content of the scenario. There is no specific debriefing approach highlighted within the package, however it is suggested that a recognised approach is used consistently. This forms one of the aspects covered within the “SLE Development Workshops” which will be explored in the next section of this paper.

Structure and purpose of the SLE Development Workshops

The second phase of work from the CDNM SLE Group was to devise a Simulation Learning Environment (SLE) Development Workshop to assist in the delivery of the NLN/CDNM case scenarios. It also provides an

opportunity to enhance curriculum design and best practice for simulation teaching for representatives of Council member organisations. The work commenced by considering the literature and by discussing the existing work undertaken by members of the group. This led to the identification of a number of key areas that might usefully be included in the SLE Development Workshop. See Table 5

[Insert TABLE 5 here please] structure of the NLN/Laerdal scenarios

The SLE Development Workshop comprised two days; Day 1 presents and explores “the context of simulation”, “what makes a good simulation?” and “pedagogies of simulation” so that participants are able to view simulation in the context of an entire nursing curriculum and within the Australian and New Zealand context. Current research in the field is also briefly highlighted in overview. Day 2 focuses on undertaking a simulation with the participants experiencing this as learners within the activity. This approach provides an opportunity to undertake a simulation with the support of clinicians (the participants) and experts in the field (SLE Advisory group members). Structured debriefing assisted participants to optimise their learning and identify take-home messages from the activities. This includes what they now know and what they need to find out more about. The workshops were intended as primers; they to be seen as providing a structured framework with hands on opportunities. Evaluations from the developmental workshops indicated that participants have identified elements from which they

have gained insight, knowledge and information and how they will share those ideas with colleagues.

> "Excellent 2 day course, will take knowledge and skills to simulation more effective at my college. Excellent net working opportunities"

Evaluation of the two day workshop has demonstrated high participant satisfaction and produced helpful feedback which is being integrated into subsequent workshops to promote continuous quality improvement. Respondents identified; good to excellent in terms of application in their teaching practice after the workshops (all respondent scores were good to excellent). A longitudinal study will provide evidence of the utilisation of the learning and hence the effectiveness of the workshops.

Current simulation research activities

The intent of the CDNM SLE Development Workshops was to introduce aspects of curriculum design and best practice to academics and clinicians. A particular goal was to assist with simulation-based learning to early and beginning users of simulation. The conceptualisation of the Development Workshops was informed and supported by the emergent themes of current international research; faculty confidence in using simulation and simulators and faculty capacity in the development and validation of evidence-based simulations. This is a major area of weakness currently. Significant investment is required to increase the numbers of faculty with the requisite knowledge and skills to meet the demand (Adamson 2010 and Arthur et al 2010).

Current research indicates that simulation-based learning in healthcare education is a valid approach to learning and teaching. Cant and Cooper (2010), in their systematic review of quantitative research involving the use of Human Patient Simulators (HPS) in undergraduate nursing education, concluded that there is sufficient demonstrable evidence that simulation is a valid approach to nursing education. Added to this when best-practice guidelines are adhered to, simulation may have some advantages in perceived clinical competence and satisfaction with learning such as learning methods including clinical practicum. Evidence to support the development of critical thinking and knowledge acquisition (when it does occur) tends to be short lived. Research in this area tends to be localised and is rarely sufficiently rigorous (Lapkin et al 2010).

An important question to explore is: “how prevalent is the (evolving) use of simulation in nursing education in Australia and what does the profile of this use of simulation look like?” Investigation of the use of human patient simulator manikins (HPSMs) and information technology use was undertaken as a part of an Australian Learning and Teaching Council study in 2010. The survey undertaken by Arthur, Kable, Levett-Jones (2010) reported that 45% of universities were using high fidelity manikins at the time of the survey to deliver a component of their simulation-based learning program. The survey results also captured how universities were utilising role-play as a form of simulation. The survey indicated that 74% of Universities were using role-play, 61% of these student

role-play, 57% used staff as actors and 17% used actors as standardised or simulated patients. As well as questions about underpinning pedagogy, the survey reported on staffing and the responsibilities of those who provide simulation experiences. The ALTC project provides a useful contemporary snapshot of the baseline use of simulation amongst Australian Nursing Schools in 2010.

Until recently, the profession has not examined some of the known barriers to the use of SLE, or consequently developed solutions in response (see Table 1). There is a need for research to understand educator knowledge baselines, and the impact of workshops such as that previously described on willingness to use SLE. It could be useful to understand when in the curriculum, SLE has the most impact; what kind of SLE is most effective; whether it is more effective for technical skill development, or if it can be used for affective, psychosocial skill development. It may be that some nursing practices and illness experiences are simply not able to be simulated. At present these issues are simply not known.

Comparing situated learning experiences via simulation with in-vivo clinical exposure should contribute to the current international debate of “which is most effective?” in assisting the new RN to be better prepared for the world of work.

Despite the perceived and demonstrated advantages and disadvantages of simulation-based learning (see Table 1), there remain many obstacles to nursing education providers developing and implementing

validated simulation-based learning opportunities for students. In 2008, King et al explored factors that contribute to the underutilisation of human patient simulator manikins (HPSMs) in a nursing education program in the south-eastern United States. Through this study they identified an overall lack of exposure or formal faculty training in the use of HPSMs to an ensuing lack of positive attitudes towards faculty's own level of comfort and competence when using manikins with students. Despite this, faculty still perceived simulation to be an effective teaching strategy. Workload impacts were also considered by faculty as they responded negatively to the amount of time taken to develop scenarios and the ease, or indeed difficulty, of using scenario-based simulations. Importantly, the authors of this research found that feelings of competence and confidence in the use of manikins improved greatly when targeted and structured education programs demonstrating the use of manikins were made available to faculty.

Looking towards the future, one of the most significant projects in relation to simulation-based learning and health education in Australia has been the recently completed Health Workforce Australia (HWA) (2010) Simulated Learning Environments Summary Curricular Project. This extensive exploration into the current and potential use of simulation as an approach to learning and teaching provides a unique insight across 12 entry level health-related programs, including nursing (Rudd, Freeman, Swift & Smith, 2010). The objectives of the HWA SLE Curricula Project were identified as increasing the use of simulation as pedagogy; optimising simulation-

based learning experiences; increasing equity and access for entry level health professionals to simulation-based learning experiences and importantly, improving the quality and consistency of the development of clinical skills. Recommendations from the ensuing HWA report (2010) include collaboration between simulation users in the development of simulation scenarios and the establishment of a 'case bank', and a repository of validated approaches to simulation promoting the best practice model for delivery across all health professions.

Conclusion

Establishing a Simulation Learning Environment group with a key industry partner, such as Laerdal, has facilitated a number of opportunities to develop resources and to explore opportunities for evaluation and research amongst nurse educators in Australia and New Zealand. The development workshop devised for the CDNM ANZ is another strategy to increase the quality and quantum of the integration of simulation-based provision into nursing curricula. Through these workshops it is anticipated that early users of simulation will be motivated to increase the use of simulation as a learning and teaching strategy in their programs, as well as to persuade others to consider doing so. Through partnerships such as the CDNM SLE group and Laerdal; and ongoing opportunities with NLN, users of simulation have increased awareness and access to ready-made, validated and contemporary simulation resources that are flexible enough to match any entry level nursing curricula. Furthermore, by hosting introductory workshops, the CDMN and Laerdal

have provided a forum to make local and national connections between users and the SLE Advisory group and facilitate the conversation of sharing resources in what is currently a somewhat isolated and fragmented community.

Lastly the national and international collaborations that are being strengthened through the SLE group’s work will increase the opportunities for research and evaluation of the use of simulation, of student learning and of faculty preparation.

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