Overcoming Challenges in Simulation in Healthcare

Nursing Simulation Forum
Auckland New Zealand
22nd October 2008

Acknowledgements:
Invitation
Support
BHI
Learning is a behavioural / cognitive event!
And there may be positive and negative outcomes!

Sometimes people do not think before they act and that has its drawbacks!
Some learning methodologies just don’t seem to alter behaviour!

Sometimes tradition learning just does not work, and the problem persists!
Sometimes the message keeps changing!

And due to resource changes the message sometimes does not remain consistent or of a standard. New educators bring their own perspectives.
What is Patient Simulation (PS)?

- Purpose-built, computer-driven manikins
- Simulate a variety of patient presentations
- Allow for standardising of interactive learning and assessment

Simulator + Simulation Education Programs offer new dimension in learning / teaching

“simulation is a technique – not a technology – to replace or amplify real Patient experiences with guided experiences, artificially contrived, that evoke or replicate substantial aspects of the real world in a fully interactive manner”

Gaba, DM: The future vision of simulation in healthcare, Quality in Safety and Health Care, 2004; 13: i2 - i10

Why use simulation in education?

- Simulation education offers a realistic alternative to more traditional learning methodologies.
- Levels of realism can be created in an environment that can be likened to the clinical situation.
- Allows quick “buy in” to experience and engage in three dimensional, interactive learning events.
- Allows flexibility and repetitivity of uncommon / complex scenarios
- Presentations provide a balanced approach and level of preparedness to patient care
- Never any danger to patients
- Critical events can be ‘paused’ to allow discussion on actions
- Video recall and critique / debriefing supports reflection
Patient Simulation - Background

Simulation has been evolving over the last 40 years
Computer driven patient simulation since 1980’s
Considerable number of journal publications
Increasing number of text books
Increasing use with a diverse array of subject matter
Increasing application across a range of disciplines
Value, validity and fidelity in clinical teaching and assessment increasing
Improving in capacity and efficacy as a teaching process

Agenda – future potential of patient simulation education

By using scenarios that are clinical-focused, patient simulation provides clinicians and educators alike with a new tool to more effectively facilitate knowledge and clinical practice attainment and review. Scenarios can be developed and run at a number of different interactive levels allowing for varied group sizes, depending on the scenario design and the level of interaction required of the participants. This in turn allows for the involvement of participants in the design, development, implementation and review of each scenario pertinent to their practice (Flanagan, Nestel & Joseph, 2004).

Patient simulation provides opportunities to reduce anxiety and uncertainty in both learning and behaviour in clinical practice. Participants can enter into and partake of a dynamic safe learning, yet sometimes confronting, atmosphere that, while pushing them out of their ‘comfort zone’, offers assurance in the sense that the patient ultimately is not real. Indeed, from an educational perspective, proactive, reactive, positive and negative behaviour can be demonstrated, observed, debriefed, encouraged or corrected in a timeframe that correlates with the workplace while in a setting that is removed from it (Beaubien & Baker, 2004; Morgan et al., 2006).

A further benefit is that the clinically focused scenarios can be designed, run and mediated so as to encourage development of a team culture and an approach to crisis situations. Medical and nursing staff can carry out their respective roles and reflect on the outcomes of the exercise in a non-threatening environment that is physically separated from the dynamics of the workplace (Flanagan et al., 2004).

From a wider organizational perspective, large, specific and strategic numbers of staff can be offered this opportunity, if programs are designed well and take into consideration workforce factors. In that sense patient simulation does allow for cost-benefit, access and equity components in providing clinically focused education to be more effectively addressed.

Issues such as time management, clinical practice issues, safety in practice, adverse event prevention and management, communication, leadership, team behaviour, resource utilization, environmental factors, interpersonal skills issues, all can be critically reviewed in a confidential setting. So too can a clinician’s knowledge base be tested along with associated clinical practices be observed and reported on for competency evaluation (Flanagan et al., 2004).
The use of a safe, organised environment and immersive, interactive, experiential and reflective learning to encourage long lasting knowledge, skills and attributes to deal with the normal and the abnormal under pressure.

However using simulation allows the repetitive delivery of standardised and validated programs that offer consistency, while focusing on predetermined outcomes.
However ..... Locally..... Internationally …
Current and Ongoing Simulation Challenges

- Few sites with capability and capacity (supply)
- Few champions and supporters (motivation / commitment)
- Variable demand (perceived value / workload)
- Variable standards (curriculum/training/measuring)
- ? overall strategy (local / regional / state)
- ? level of by-in by decision makers (CEO/Directors)
- Plastic orphans (manikins purchased / stalled activities)
- Where and how to start (need for strategy / model)
- Financials (input / outcome)
- Time
- Simulation = improved patient outcomes (evidence)

These are all variables and not all issues for all people, but they do tend to be closely linked; thus making it difficult for individuals who are keen to use simulation to make any leeway.
And…..Parallel Clinical Workforce Issues

Current and future:

• Industry needs for work safe personnel
• Industry needs for work ready personnel
• The ongoing theory – practice dichotomy
• Clinical placement relevance and capacity
• Patient demographics
• Health care services
• Clinical support resources
• Clinical teaching resources
• Costings
• Commitment
• Patient Safety and Risk Management
• Organisational Systems

These factors certainly impact on the implementation and use of simulation. In some circumstances these are seen as the drivers for change using amongst other strategies, simulation education. But being a costly exercise up front what other factors can help one be successful in getting simulation a guernsey?

Shifting the focus to an outcome (where simulation is increasingly helping) that is hard to argue against in the light of overwhelming evidence is important.
Issues into Opportunities?

- Industry demand for work savvy and work safe personnel
- Projected demand for nurses in acute and sub acute areas
- Reduction in clinical placement opportunities
- Patient safety and clinical risk management

Thus simulation education could provide health care professionals opportunities to increase and diversify their knowledge, skills, competitiveness and employability. The development and delivery of a range of programs incorporating simulation will provide opportunities for participants to strive to be more motivated, confident and competent.

Participants will be then better positioned to demonstrate through clinical practice and periodic assessments, knowledge recall and skill retention rates. Importantly participants will be more alert to, and operationally effective in, those crucial non-clinical factors that are essential to managing risk in the high stakes health care environment - such as communication and interpersonal skills, team work and being able to systematically minimize or manage crises that impact on patient safety.

This is particularly pertinent to nursing as nurses have been identified as key stakeholders in reducing clinical risk and ultimately improving patient safety. However the nursing profession is faced with several challenges that directly shape and influence nurses’ ability to achieve these goals.
Clinical Placement Supply and Demand

- Increased demand for more skilled workers has led to increased demand for more clinical places
- Increased pressure in healthcare facilities to supply appropriate placements
- Results in deficits in theory to practice transfer, skills acquisition and interdisciplinary team interactions

From an educational perspective, the increased demand for more health care professionals has in turn led to increased pressure for clinical learning placements. This has now become an issue in its own right that is problematic. These supply demands are already overstretching clinical services already under inordinate pressure from the other factors reported on, which in turn is impacting on the ability to support the more traditional learning model in the clinical setting with real patients and the subsequent knowledge and skills transit.
Stop Press!!

• Commonwealth Government releases 1094 new higher education student nurse places nationally
  (280 allocated to Victoria with 50% to be allocated to upskill Division 2 Nurses)
  (Nursing Review October 2008)

• This will exacerbate the clinical placement issue

Challenge and Recommendation:

• Use of Simulation Education, Research and Program Development to support / enhance / replace pivotal clinical placement hours and experiences
Rationale – Workforce Issues

- World wide shortage of nurses who are getting older
- Recruitment and retention (experienced nurses) problematic
- Trend towards casualisation of workforce
- Levels of competency and skills ability difficult to achieve with casual workforce
- Clinical support very resource intensive
- Changing healthcare workforce roles and skill mix

The biggest single international issue for nursing is the worldwide shortage of nurses, which is not likely to be resolved in the short term. As a consequence, the ability to recruit and retain suitably qualified and experienced nurses is problematic. There is also a trend towards casualisation of the workforce. These phenomena produce several challenges for ensuring patient safety. For example, the ability to ensure a minimum level of competency amongst nursing staff is resource intensive and at times difficult to achieve particularly amongst members of the casual nursing workforce who work on an irregular basis.
There are a number of other mitigating factors too, impacting on the clinical performance of nurses. These include increases in patient acuity; rapid changes in the treatment regimes of patients; reduced lengths of stay (LOS) hence increased patient throughput; a lack of experienced and knowledgeable mentors; a lack of health assessment skills; a culture of prescriptive behaviour; a seemingly reduced capacity to carry out clinical reasoning; an often uncoordinated and poorly resources approach to clinical risk management; leadership issues; a focus on a culture of tasks and not clinical outcomes, all which contribute to a significant ongoing challenge. Other challenges include achieving a skill mix and supply of staff for any given shift that matches patient acuity and complexity. In addition, the nursing workforce is getting older.
<table>
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<th>Rationale - Clinical Service Issues</th>
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<td>• Lack of experienced and knowledgeable mentors</td>
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<td>• Lack of health assessment skills (preparation / service pressures)</td>
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<td>• Reduced capacity to carry out clinical reasoning</td>
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<td>• A culture of tasks not clinical outcomes</td>
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<td>• A culture of prescriptive behaviour (preparation / service pressures)</td>
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<td>• Poorly resourced approach to Clinical Risk Management</td>
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All of these factors in part contribute to potential or real adverse or sentinel events

= less than optimal patient outcomes
Overcoming Challenges in Simulation in Healthcare?

Appropriate and Valid Driver?

Patient Safety and Risk Management Platform
Numbers of Encounters For Each Fatality

Source unknown

You are a lot more safer in an aeroplane than a hospital!
These papers all demonstrate the facts that we have adverse and sentinel events still occurring. Simulation is increasingly being seen as part of the solution. We have the potential to provide substantial opportunities in education and research to mitigate against these errors.


### Adverse Events

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<th>USA: Each year:</th>
<th>Australia:</th>
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<td></td>
<td>12,000 potentially preventable deaths</td>
<td>16.6% of admissions were preventable adverse events</td>
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<tr>
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<td>50,000 preventable permanent disabilities</td>
<td>18.5% led to permanent disability or death</td>
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<td>= 11% of admissions a preventable adverse event</td>
<td>In 57% - a significant element of cognitive failure in recognizing potential or real episode</td>
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Clinical incidents cost $511 million annually  
(AG Victoria 2008)
When you begin to consider where patient safety sits there are many variables to be considered. We see simulation sits nicely with the education and research elements. Patient Safety is the core driver…
“today, healthcare professionals in nearly all disciplines are using simulation techniques including simulated and virtual patients, manikin simulators, task-trainers and computers to improve education and impact patient safety”

Show us the proof!
“No industry in which human lives depend on skilled performance has waited for unequivocal proof of the benefits of simulation before embracing it”


The QANTAS pilot did not know exactly what the problem was (an exploding oxygen cylinder) but he certainly knew through his simulation experience how to deal with the crisis.

His wife agreed!

Primary response: CRM principles (these can be repeatedly simulated)

- Know your environment
- Anticipate & plan
- Take a leadership role
- Communicate effectively
- Call for help early enough
- Allocate attention wisely & use all available information
- Distribute the workload & use all available resources
The Challenge

Editorial - Simulation in Healthcare, Spring, 2007

Editors charge all members of the simulation community to rise to the occasion and:

‘should – in fact, must – take a leading role in helping to find meaningful structure to achieve the community’s long-term goal of using simulation to achieve safer patient care’

Emerging Evidence

- Increasing world-wide use of PS
- Recognition of evidence-based role for simulation
- Health care professionals responding positively to their experiences
- The literature is informing us that the use of PS results in:
  - increased knowledge and skill retention rates
  - more motivated, confident, competent participants
    (compared to traditional education strategies)

And

- is addressing more effectively those non-clinical factors that impact on patient safety (Flanagan, Nestel and Joseph: 2004)

Increasing world-wide use of PS by health care professionals, academics and government agencies as they recognize evidence-based role in health care education and patient safety

Undergraduate to experienced health care professionals are being exposed to PS and are responding positively to their experiences where they may learn or consolidate skills in a safe environment

Evidence – Undergraduate Level

- Jeffries, P.R. (2007)
- Jeffries, P.R., Rizzolo, M.A. (2006)

http://scholar.google.com.au

Full Reference


.................................................................


Evidence – Advanced Practice

- Vandrey, C., Whitman K., (2001)


Vandrey, C., Whitman K., (2001) Simulation training for novice critical care nurses: preparing...

**Conclusion:** Training with a simulation-training scenario improved resident performance in the management of shoulder dystocia: Level of Evidence: I


**Conclusion:** The introduction of obstetric emergencies training courses was associated with a significant reduction in low 5-minute Apgar scores and HIE. This improvement has been sustained as the training has continued. This is the first time an educational intervention has been shown to be associated with a clinically important, and sustained, improvement in perinatal outcome
Great Britain

British Nursing and Midwifery Council

Simulation and Practice Learning Project: Final report 2007

Pilot study to test the principles for auditing simulated practice learning environments and supporting direct care through simulated practice learning in the pre-registration nursing program

Outcome: Up to 300 hours of the clinical curriculum can be simulation

Most states are using between 15% - 25% simulation in the clinical component of their curriculum. Some are beginning to test / use simulation as part of their clinical placements.

At a conference in Florida and a visit to a Simulation Centre in Oakland (January 2008) I asked the question:

How much simulation is used and how?

The answer:
There are now emerging an array of frameworks to help guide the use of simulation education – for most disciplines.

Also for nursing there is an increasing number of Universities locally and overseas reporting they are beginning to embed simulation into their curriculum – not as an add on, but linking the simulation intervention to specific learning requirements and desired clinical practice outcomes.

The cross linking of simulation activities to the learning outcomes within the curriculum and with national standards of practice is a further activity (at BHI).

Interestingly in Victoria we now have the state insurer becoming a serious player in seeing simulation as a methodology in reducing clinical risk.
Victoria: DHS Simulation Strategies

Reports:
1. PGMCV Review / Report and DHS funding strategy 2006
2. DHS Clinical Placement Innovation Report 2007
3. DHS Clinical Placements in Victoria October 2007

Identified Areas in 3:
1.3 – A vision for clinical placements
3.2 – Capacity building
3.4 – Relationships and governance
3.5 – Promoting innovation

Preceding Reports: Drivers for workforce change and ways, including the use of simulation, to effect change:

Victorian Department of Human Services (2004) *Nurses in Victoria – A supply and demand analysis*

Victorian Department of Humans Services (2007) *Clinical Placements Innovation projects report*

From a VET Perspective:
The Australian Society for Simulation in Healthcare (ASSH) represents stakeholders across a number of sectors within Australia that have an interest in healthcare simulation. During 2008, ASSH is overseeing an educational project on behalf of the Commonwealth Department of Health and Aging, as part of the Australian Government’s Expanded Specialist Training Program. The project broadly aims to increase utilisation of simulation in medical specialist training programs in respect to training non-technical skills (NTS). NTS are core skills, such as communication, teamwork, crisis management and professional demeanour, which underpin competency in a wide range of tasks relevant to medical specialist practice.

Specific examples of the latter include obtaining informed consent; managing end-of-life care; disclosing adverse events and handling complaints; working in multi-disciplinary teams; managing emergencies; managing workplace conflict; leading clinical practice reviews and improvement initiatives; negotiating with hospital administration etc. NTS are prominent in medical specialist training programs, but curricula designed to be delivered in simulated learning environments is not generally well developed. As curricula is...
Opportunities for BHI

• Stakeholder and collaborative player in any statewide:
  o Simulation and Clinical Placement strategies
  o Clinical Education Collaborative

• Development and delivery of in-house interdisciplinary programs
  (with a number of partners and collaboratives)

• Development and delivery of insitu outreach programs
  (with a number of partners and collaboratives)

• Develop e-learning with links to simulation strategies
  (web-based adjunct providing blended learning / flexibility / accessibility)

• Use of Telepresence (via a VET consortium)

• Graduate Certificate in Clinical Teaching (Simulation Education)
  (industry standard to ensure all simulation personnel work from the same template 2009)
Well managed simulation has the capacity to help in the strategy to:

• realign how clinical service is provided and made accountable
• help make healthcare workers ready and work safe
• improve staff morale and efficacy
• improve interdisciplinary activities
• improve patient safety
• change organisational culture
• save healthcare dollars

(especialy if simulation is also embedded in the pre-registration curriculum)
The Future of Simulation?

Can be a healthy one if:

• Everyone believes in its value and place
• Everyone is committed to it
• The strategies used are all agreed to
• We stay focused on developing its potential
• We work together
• Simulation is mixed with imagination and effort
The Future of BHI Simulation?

Expected Handover: 09/09
Expected Opening: 01/10
Taking on the Challenge

Viva la simulation!
Australian Society for Simulation in Healthcare


Any Questions?