Using Simulation to Build Better Trauma Teams

Petra Strube

MN (Adv Prac), Grad Cert Training & Dev, BN, RN

Nurse Educator
Intensive Care Unit
Princess Alexandra Hospital

Metro South Health

Queensland Government

Trauma injury

Statistics

➢ 1 in 20 hospitalisations in Australia

➢ Principle cause of mortality, morbidity and permanent disability for people ≤45 years

➢ Thus a major source of health care costs

(Australian Institute of Health & Welfare (AIHW), 2010)

Time Critical

➢ Requires the input of multiple professional disciplines across the health care team

➢ Thus creating the "perfect storm"

Trauma Patient / Team Journey

Modern Health Care System

➢ Long tradition of siloed education.

➢ Professional hierarchies (Intra/Inter disciplinary)

➢ Team Culture

Creating

    ➢Dysfunctional communication patterns

    ➢Loss of critical information

    ➢Professions working against team collaboration

    ➢Possible conflict

Errors in Health Care

Preventable Deaths

➢ Estimated 44 000 to 88 000 in America

➢ 2.5 % of trauma deaths (2594 trauma deaths over 9 years

Errors Linked to :-

➢ Breakdowns in team communication

➢ In-appropriate co-ordination of care

➢ Delays in procedures, diagnosis

➢ Inadequate or missed cares

(Kohn, Corrigan, Donaldson, 2000;Gruen, Jurkovich, McIntyre, Foy, & Maier, 2006)

Princess Alexandra Hospital

Preventing Errors

Interprofessional Education

Shown significant improvement across many health care settings

Demonstrated Improvements in:-
➢ Observable teamwork behaviours
➢ Collaboration
➢ Understanding of roles
➢ Shared positive learning experience

(Capella, et al., 2010; Masters, O'Toole & Jodon, 2012)

Interprofessional Education

➤ Origin - aviation industry

World Health Organisation (WHO)

"Inter-professional teams are collaborative, and their education occurs with two or more professions at a time, to learn from and about each other to enable collaboration to improve patient care and outcomes"

(WHO, 2010)

Australian Learning and Teaching Council

'Interprofessional Health Education in Australia: The Way Forward'

Simulation and Trauma Training

➢ Assist with integration of skills and knowledge, team communication

➢ Improved confidence, critical thinking and judgement

➢ Opportunity to gain competency in their own role

➢ Shared learning experience to develop mutual respect and shared goals

➢ Opportunity to plan established roles and responsibilities

➢ Safe environment to
  – Develop communication skills
  – Practice leadership skills required to monitor and prevent errors

(Simmons,& Sherwood, 2010; Decker, Sportsman, Puetz, & Billings, 2008; Fountain, & Alfred, 2009; Hunt, Shilkofski, Stavroudis & Nelson, 2007).

Our Project

Setting

➢ Metropolitan Tertiary Referral Hospital

➢ 2011 –

- 521 Trauma Patients
- 246 Multi-Trauma (Apache III Data)

➢ Patient coded according to admitting doctor under hospital trauma service code.

"Trauma Surgeon" – no licenced speciality in Australia - Royal College of Surgeons

Establish Interest Group

"Trauma Interest Group"

➢ Initially Nursing Focused

➢ Covering all acute clinical care areas (e.g. ED, OT, ICU, Trauma HDU, Orthopaedics etc.)

➢ Other clinical support services (VTE CNC, Blood Bank, Acute Pain etc.)

➢ Other Medical and Allied Health invited

➢ Medical Director endorsement given

Trauma Interest Group

➢ SWOT analysis – Acute Phase of Patient Journey

➢ Key areas of opportunity identified

➢ Terms of reference formulated

Define Purpose:-

"To provide a forum for health professionals involved in the management of trauma to address issues relating to trauma management, trauma research and education across the continuum of care".

Education Opportunity

Strength

➢ Current clinical knowledge amongst both nursing and medical staff.
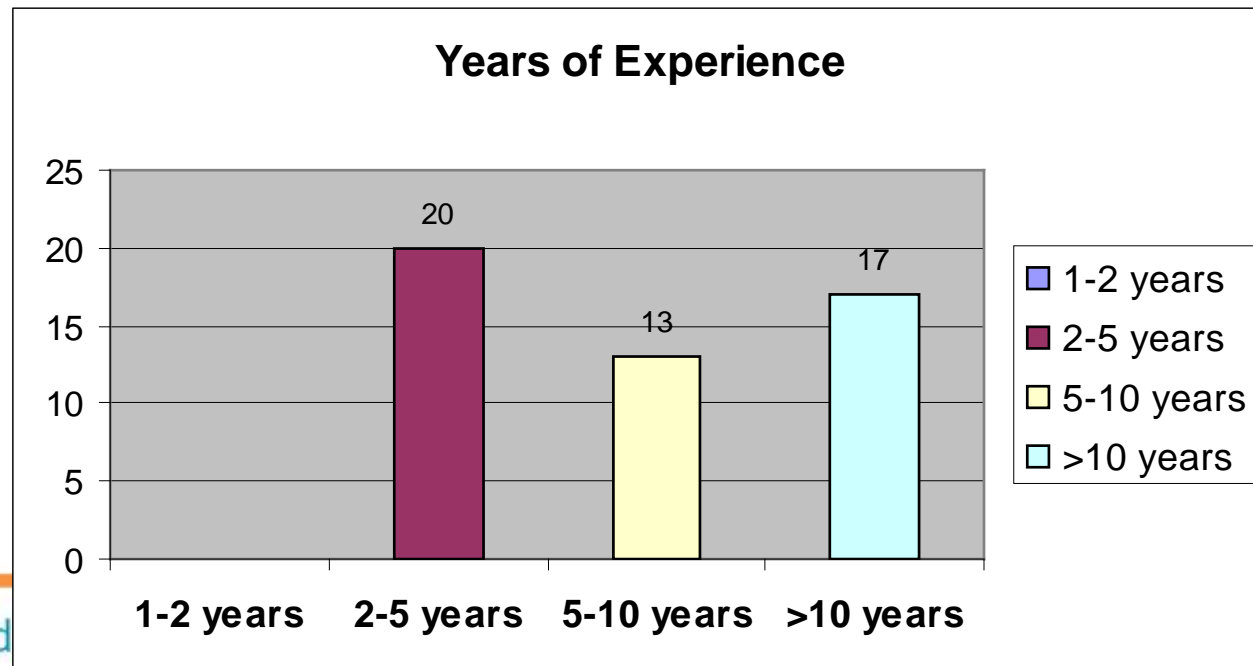
Opportunity

➢ Improve collaboration between departments and professional groups

➢ Improve team communication

➢ Identify common themes across departments to set priority areas for ongoing improvements

Steps Taken

1. Set clear learning objectives set (departmental and overall)
2. Develop patient scenario to meet these objectives (reflect patient journey)
3. Consult simulation co-ordinator
4. Consult team communication experts
5. Gain medical support
6. Gain hierarchical organisational support

Target Audience

➢ Important to understand

➢ Senior Clinician

➢ Limit 5 per clinical area

➢ Relevant Medical components

Years of Experience

	Value
1-2 years	
2-5 years	20
5-10 years	13
>10 years	17

Legend:
- 1-2 years
- 2-5 years
- 5-10 years
- >10 years

The Scenario Objectives

Clinical

➢ Difficult airway
➢ Open Chest wound
➢ Pelvic # - Open book

Communication

➢ Prioritisation of care
➢ Co-ordination of various specialities out-of-hours
➢ Co-ordination of resources in various departments to manage this and other patients out-of-hours
➢ Handover processes between acute departments and various treating teams (medical and nursing)

ED

Princess Alexandra Hospital

ICU

Debriefing

➢ Vital to allow the participants an opportunity to reflect and integrate new skills and knowledge into practice

➢ Must be directed by original learning objectives set

➢ Conducted after each simulation (ie after ED simulation and again after OT & ICU)

➢ Lead by clinical expert from each clinical area

Waxman, 2010

Outcomes

Brainstorming

- ➤ Occurred as a natural progression with senior clinical experts
- ➤ Included in subsequent programs
- ➤ Utilised to identify other opportunity for change for the 'Trauma Interest Group' to target

Other Teaching

- ➤ VTE Management
- ➤ Massive Transfusion Protocol

Challenges

- Time
  - Educators
  - Staff off-line Time
- Medical Buy-in
- Physical Resource
- Simulation Resources
  - Access to equipment
  - Access to Sim trained Staff

Where to from here

➢ Expand the simulation to the pre-hospital care

➢ Continue work of 'Trauma Interest Group' to address clinical issues raised

➢ Utilise innovative senior clinicians from the workshop to work at a local level to address some of these areas for improvement

Questions

Contact Details

Petra Strube

Petra.Strube@health.qld.gov.au

References

1. Australian Institute of Health & Welfare (AIHW). (2010). *Australia's health 2010.* Retrieved from http://www.aihw.gov.au/publication-detail/?id=6442468376

2. Australian Learning and Teaching Council (2009). *Interprofessional Health Education in Australia: The Way Forward.* Retrieved from the Australian Office for Learning and Teaching website www.olt.gov.au/system/files/.../LTIPP%20position%20paper%20v1.0.pdf

3. Capella, J., Smith, S., Philp, A., Putnam, T., Gilbert, C., Fry, W., et al. (2010). Teamwork training improves the clinical care of trauma patients. *Journal of Surgical Education*, 67 (6), 439-443. doi:10.1016/j.jsurg.2010.06.006

4. Decker, S., Sportsman, S., Puetz, L., & Billings, L. (2008). The evolution of simulation and its contribution to competency. *The Journal of Continuing Education in Nursing*, 39(2), 74-80. Retrieved from http://search.proquest.com.ezp01.library.qut.edu.au/docview/223311389

5. Fountain, R., & Alfred, D. (2009). Student satisfaction with high-fidelity simulation: does it correlate with learning styles. *Nursing Education Perspectives*, 30(2). 96-98. Retrieved from http://search.proquest.com.ezp01.library.qut.edu.au/docview/236645298

6. Hunt, E., Shilkofski, N., Stavroudis, T., & Nelson, K. (2007). Simulation: translation to improved team performance. *Anaesthesiology Clinics*, 25, 301-319. doi:10.1016.j.anclin.2007.03.004

Princess Alexandra Hospital

References

7. Masters, C., O'Toole, B., & Jodon, H. (2012). Multidisciplinary, team-based learning: the simulation inter-disciplinary to multidisciplinary progressive-level education (SIMPLE©) approach. *Clinical Simulation in Nursing*. Advanced online publication doi:10/1016/j.ecns.2011.11.07

8. Simmons, D., & Sherwood, G. (2010). Neonatal intensive care unit and emergency department nurses' descriptions of working together: building team relationships to improve safety. *Critical Care Nursing Clinics of North America*, 22, 253-260. doi:10.1016/j.ccell.2010.03.007

9. Gruen, R., Jurkovich, G., McIntyre, L., Foy, H., & Maier, R. (2006). Patterns of error contributing to trauma mortality: lessons learned from 2594 deaths. *Annals of Surgery*, 244 (3), 371-378. doi:10.1097/01.sla.0000234655.83517.56

10. Kohn, L., Corrigan, M., Donaldson, M. (2000). *To Err Is Human: Building a Safer Health System*. Washington: National Academies Press. Retrieved from http://site.ebrary.com/lib/qut/Doc?id=10038653&ppg=26

11. World Health Organisation (WHO). 2010. *Framework for action on inter-professional education and collaborative practice*. Retrieved from World health website http://www.who.int/hrh/resources/framework_action/en/index.html

12. Waxman, K. (2010). The development of evidence-based clinical simulation scenarios: guidelines for nurse educators. *Journal of Nursing Education*, 49(1), 29-35. doi:10.3928/01484834-20090916-07

Images

1. http://www.dailymercury.com.au/news/three-vehicle-crash-closes-highway/1133676/

2. http://nursinglink.monster.com/benefits/articles/3472-12-survival-tips-for-night-shift-nurses

3. http://ww4.hdnux.com/photos/12/04/40/2639919/6/628x471.jpg

4. http://www.perthnow.com.au/news/western-australia/transfers-of-mental-health-patients-cost-police-hours-of-patrol-time/story-e6frg13u-1226523482237

5. http://fredericlarson.photoshelter.com/image/I0000jzNDCnGX.Dw

6. http://www.southend.nhs.uk/your-services/theatres,-critical-care-anaesthetics/critical-care/